

dr Walter Ardigò

HEALING WITH MEDICINAL MUSHROOMS

A practical handbook



**Agaricus - Auricularia - Coprinus - Cordyceps
Ganoderma - Grifola - Hericium - Lentinus
Pleurotus - Polyporus**

Edited by Solomon P. Wasser & Paul A. Volz

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Dr WALTER ARDIGÒ
HEALING WITH
MEDICINAL
MUSHROOMS

A practical handbook

Agaricus - Auricularia - Coprinus

Cordyceps - Ganoderma - Grifola - Hericium

Lentinus - Pleurotus - Polyporus

Take care of yourself

Edited by

Solomon P. Wasser & Paul A. Volz

To my daughters Francesca and Susanna And my parents-in-law

Ester and Giuseppe

Let no doctor say this sickness is incurable.

He denies God our Creator,

he denies nature

with her abundance of hidden powers,

he depreciates the great arcana of nature

and the mysteries of creation...

*there is no disease so great
that He has not provided its cure.*

PARACELSUS

(16th century A.D.)

N.B.

The scientific knowledge presented in this book was taken from prestigious research papers published in international scientific journals. The objective of the book, therefore, is simply to provide information; it is not intended to replace diagnosis and treatment, tasks which pertain to a doctor.

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Foreword

Medicinal mushrooms have an established history of use in traditional ancient therapies. Contemporary research has validated and documented much of the ancient knowledge. The interdisciplinary field of science that studies medicinal mushrooms has been developed and for the last three decades continues to demonstrate potent and unique properties of compounds extracted from a range of mushroom species. Modern clinical practice in Japan, China, Korea, Russia, the USA, France, and several other countries rely on mushroom-derived preparations.

Ancient oriental traditions have stressed the importance of several mushroom species, namely, Ling Zhi or *Ganoderma* mushroom (*Ganoderma lucidum* (W. Curt.: Fr.) P. Karst.) and *Lentinus* mushroom (*Lentinus edodes* (Berk.) Singer). Mushrooms have also played an important role in the treatment of ailments affecting rural populations of Eastern European countries. The most important species in these countries were *Inonotus obliquus* (Pers.: Fr.) Pilát (Chaga), *Fomitopsis officinalis* (Vill.: Fr.) Bond. et Singer (Wood Conk or Agaricon), *Piptoporus betulinus* (Bull.:Fr.) P.Karst. (Birch Polypore), and *Fomes fomentarius* Fr.: Fr (Tinder Bracket). These species were used in the treatment of gastrointestinal disorders, various forms of cancers, bronchial asthma, night sweats, etc. There is also a long history of traditional use of mushrooms as curatives in Mesoamerica (especially for species of the genus *Psilocybe*), in Africa (Yoruba populations in Nigeria and Benin), Algeria, and Egypt. A very special role was found in Fly Agaric (*Amanita muscaria* (L.:Fr.) Pers.) in Siberia and Tibetan shamanism, Buddhism, and Celtic myths.

Mushrooms and fungi in general are extremely abundant and diverse worldwide. Recent estimates of the number of fungi on Earth range from 500,000 to more than 5 million species, with a widely accepted number of around 1.5 million published more than 20 years ago. To date, it is recommended that as many as 3 million species of fungi should be accepted for general application. Meanwhile, the total number of described fungi of all kinds is currently 110,000

species. The figure is based on the total number of species added to each genus given in the last edition of the Dictionary of Fungi and other recent publications. Mushrooms constitute 16,000 species of this total amount. The number of mushroom species on Earth is currently estimated at 150,000-160,000, so only around 10% of the existing mushroom species are known to science. Summarizing these data, we can assume that, currently, approximately 2% of world fungal biota and around 10% of world mushroom biodiversity were discovered by mycologists, thus the bulk of fungal biodiversity still remains unknown.

Specialists in the taxonomy of some groups of medicinal mushrooms are familiar with “known” species, but some of their biochemical and pharmacological properties are still unknown. We have summarized the data on approximately 700 mushroom species with pharmacological properties from 2,000 known safe species. It can be seen that there is great potential for uncovering medicinal mushroom diversity.

Nowadays, medicinal mushrooms are used as: a) dietary food (world mushroom production was 33 million tons in 2015); b) dietary supplement (DS) products (the market of medicinal mushroom DS products is rapidly growing and comprises a value of more than 20 billion US dollars per year); c) natural bio-control agents in plant protection demonstrating insecticidal, fungicidal, bactericidal, herbicidal, nematocidal, and antiphytoviral activities; d) cosmeceuticals – different compounds of medicinal mushrooms are used by cosmetic companies for their film-forming capability, activation of epidermal growth factor, antioxidative, antiallergic, antibacterial and anti-inflammatory activities, stimulation of collagen activity, inhibition of autoimmune vitiligo, and treating acne, and e) a new class of drugs called “mushroom pharmaceuticals”. Medicinal mushrooms are comparable to “medicinal plants” and can be defined as macroscopic fungi, mostly higher Basidiomycetes and some Ascomycetes, which are used in the form of extracts or powder for prevention, alleviation or healing multiple diseases, and/or in balancing a healthy diet. According to the definition of “herbal drugs”, dried fruit bodies, mycelia, or spores are considered “mushroom

drugs” or “fungal drugs”. Analogous to “phytopharmaceuticals” or “herbal preparations”, the resulting mushroom preparations should be considered as “mushroom pharmaceuticals” or “mushroom preparations”.

Particularly, and most importantly for modern medicine, are polysaccharides with antitumor and immunostimulating properties. Several of the mushroom polysaccharide compounds have successfully completed Phase I, II, and III clinical trials and are used extensively and successfully in Asia to treat various cancers and other diseases. There are a total of more than 200 medicinal functions produced by medicinal mushrooms and fungi. Recently studied medicinal actions of mushrooms included antitumor, immunomodulating, antioxidant, radical scavenging, cardiovascular, cholesterol-lowering, antiviral, antibacterial, anti-parasitic, antifungal, detoxicative, hepatoprotective, anti-diabetic, anti-obesity, neuroprotective, neuroregenerative, and some other effects as well. Also, substances derived from medicinal mushrooms can be used as painkillers and analgesics. The best implementation of medicinal mushrooms drugs and medicinal mushroom dietary supplements has been in preventing immune disorders and maintaining a good quality of life, especially in immunodeficient and immunodepressed patients, patients under chemotherapy or radiotherapy, patients with different types of cancers, chronic blood-borne viral infections of Hepatitis B, C, and D, different types of anemia, the human immunodeficiency virus/acquired immunodeficiency syndrome (HIV/AIDS), Herpes simplex virus (HSV), chronic fatigue syndrome, Epstein Bar virus, patients with chronic gastritis and gastric ulcers caused by *Helicobacter pylori*, and people suffering from dementia (especially Alzheimer’s disease). Very important studies are conducted in anti-tumor and immunomodulating actions of polysaccharides like B-glucan. It is important to note that B-glucans directly affect many kinds of immune cells and different types of chemical messengers, including increases in antibodies, interferons, interleukins, TNF, colony stimulating factors production, and the activation of macrophages, monocytes, neutrophils, NK cells, dendritic cells, T-cells, B-cells, and many other immune cells.

Anticancer therapies using MMs have been effectively applied effectively in the prevention of oncogenesis by oral consumption; in direct antitumor activity; immunopotential activity in conjunction with chemotherapy, and in prevention against tumor metastasis.

Dr. Walter Ardigò's book, "Healing with medicinal mushrooms. A practical handbook", is the first book in Europe published in English by an Italian scientist and medical doctor. In all of Europe only four books were published in the last 25 years dedicated to medicinal mushrooms. Another book in Italian of the same author is "I 4 poteri del *Ganoderma* e della Micoterapia". Professor J. Lelley wrote "Kompendium der Mykotherapien" in German. Czech authors wrote "Houby jako lek", M. Stajic wrote "Nutritivna svojstva I medicinski potential macromiceta" in the Serbian language. The structure of the book of W. Ardigò is clear and compact. It contains an Introduction and the main body of the book is divided in 5 main parts, plus a short dictionary, bibliography, and indexes.

It is important to point out that this book has been prepared not by a mycologist, as with previously published European books, but by a medical doctor which helps in the understanding of the holistic approach to medicine using medicinal mushrooms and combines eastern (especially traditional Chinese medicine) and western medicine, as well as conventional and alternative medicine. Part A, "Practical mycotherapy", contains 5 chapters dedicated to general knowledge including historical information on using medicinal mushrooms from ancient times to the present time; similarities and differences of mycotherapy and herbal medicine; chemical composition and active ingredients of medicinal mushrooms useful to promote health; how to use medicinal mushrooms, dosages of different types of medicinal mushroom preparations, and possible side effects; how to combine treatment using medicinal mushrooms and conventional medicine; the last chapter of Part A is dedicated to the importance of consulting with an expert in mycotherapy before using medicinal mushroom products. Part B is dedicated to "Holistic functional medicine" and contains 4 chapters, describing the four functions needed for normal functionality of our body including immunity, digestion, cleansing, and production of energy. Medicinal

mushrooms are important biological response modifiers (BRM). BRMs are defined as non-specific agents that modify the host's biological response by stimulation of the immune system. An important concept here is found in the words «non-specific». Medicinal mushrooms act through many pathways, and their action is very holistic; it affects many physiological systems at the same time. When Chinese medicine claims that *Ganoderma* mushrooms activate «chi or ki», energy, they mean about the same thing. It is not only the immune system, or just the heart, or liver - medicinal mushrooms activate heart and liver, blood, brain, etc. - at the same time.

Part C, "Preventing and treating disease with mycotherapy", contains 4 chapters dedicated to informing readers on the impact of medicinal mushrooms on an individual's general health, the impact of medicinal mushrooms on different health conditions including strengthening the immune system, detoxification effects, improving mental and physical conditions, improving sleep, etc. For overall general health, the author gives a list of medicinal mushroom species that are recommended in the prevention and treatment of specific health conditions. In part C a very important chapter, "The successful protocols" gives information on how to combine mushrooms dedicated to the prevention of different types of illnesses (approximately 200 illnesses or their combinations are listed). The end of part C is dedicated to the importance of correctly combining mushrooms together with healthy dried fruits, vegetables, legumes, and oilseeds for more effective results. Parts D and E represent the core of the book. Part D, "The diseases of the four apparatuses and the four powers of healing mushrooms", contains four chapters describing immune system diseases, diseases of the digestive system, metabolism, cleansing apparatuses, of the energy apparatuses (muscles, mind, heart, hormones and structure) and lists helpful medicinal mushrooms *Lentinus edodes*, *Ganoderma lucidum*, *Agaricus brasiliensis*, *Hericium erinaceus*, *Auricularia auricularjudae*, *Grifola frondosa*, *Coprinus comatus*, *Cordyceps sinensis*, *Pleurotus ostreatus*, and *Polyporus umbellatus* used for promoting different health conditions (approx. 200).

Part E: "Information on each of the 10 healing mushrooms". In a unified form the author describes the medicinal values of the 10 most powerful medicinal mushrooms: *Agaricus brasiliensis*, *Auricularia auricular-judae*, *Coprinus comatus*, *Cordyceps sinensis*, *Hericium erinceus*, *Grifola frondosa*, *Pleurotus ostreatus*, *Polyporus umbellatus*, *Ganoderma lucidum*, and *Lentinus edodes*. For each mushroom the author describes historical information, strong points, active ingredients, and health values for treatment of various diseases. For example, for *Agaricus brasiliensis*, the author describes diseases related to the immune system and to inflammation including diseases from pathogens (influenza, flu-like syndromes, sore throat, bronchitis, pneumonia, cystitis and recurrent cystitis, vaginal *Candida*, cold sores, and genital herpes), allergic diseases (allergic rhinitis, urticarial, atopic dermatitis, and asthma) and autoimmune diseases (Hashimoto's thyroiditis, Graves' disease, and Sjogren's syndrome), metabolic diseases including diabetes, liver disease (high transaminase, hepatitis A, B, and C, and liver toxicity), skin problems, and diseases (homogeneous suntan, protection from solar and artificial UVA rays, acne, atopic and allergic dermatitis, inflammatory dermatitis, eczema, reaction to cosmetics, and wrinkles), and other conditions also.

We are sure that the current book by Dr. Walter Ardigò "Healing with medicinal mushrooms. A practical handbook" will be of interest to medical doctors and specialists in alternative medicine, mycologists, taxonomists, biotechnologists, mushroom producers, researchers, environmentalists, ecologists, wild-crafters, scientists, and anyone else interested in medicinal mushrooms. From folklore to modern scientific analysis, this book presents inspiration and hope for advancing the health and well-being of humans and all other inhabitants of our planet. We recommend this book not only to the specialists but also to everyone who is eager to learn more about the intriguing world of medicinal mushrooms. This book will help to build the bridge between western and eastern medicine in the field of medicinal mushroom science in the 21st century.

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INTRODUCTION

Take care of yourself

We are perhaps not fully aware of the wonders of our bodies, of good health, that precious gift that we waste in a thousand ways. We are not even aware of the wonders of the world around us. For example, few people know that medicinal mushrooms are powerful guardians which protect health and are great allies in treating disease. This source of health for mankind can be used daily, just like vegetables, fruit, shoots and legumes.

This book takes you on a journey of discovery to find out about healing mushrooms and their extraordinary powers. It is extremely useful to be aware of their efficacy because they always produce a noticeable improvement in any situation. They maintain and improve health, are unbeatable in preventing health problems and can treat illness, from the most minor ailments to the most serious diseases.

Over the next few pages you can discover the simple story of medicinal mushrooms and their prodigious results. Step by step, almost imperceptibly, a framework for a new vision of medicine – integrated and modern - is outlined. The body appears in a new way - its functions, how it falls ill and the way in which, with the help of healing mushrooms, it heads for recovery. All systems and organs, like soloists in an orchestra, reveal their individual functions, but also how they are connected with the rest of the body. Solo and ensemble work, individual work and teamwork are the two fundamental factors affecting health and disease. Just as an orchestra's performance depends on its soloists but also on all the musicians, and unity creates strength, so it is in the body. In fact, no organ or system exists in its own right: they all work together. In this model, which I have called "Holistic functional medicine" each organ is studied and treated both as regards its individual function and in relation to the functions of the rest of the body.

Mycotherapy fits in very well with this holistic functional approach, because it strengthens both individual functions and those of the whole organism. Indeed, from this point of view, medicinal mushrooms acquire a more precise identity and their use becomes

more simple and intuitive. These ideas largely stem from traditional Chinese medicine (TCM), the knowledge of which, over the years, has illuminated my work and stimulated my research. It has taught me that the body is one whole integrated system and that it works thanks to the energy it has available. In TCM, wholeness and function are not just theories, but form the basis of all reasoning about health and illness and are concretely reflected in treatment. Wholeness and function, in a simple, systematic and scientifically-based model, are essential for the progress of medicine, because they explain health, disease and treatment in a unified, not fragmented, way. This alone, however, is obviously not enough, because what counts is the result of treatment with medicinal mushrooms.

This book, which is an easy reference guide, summarizes in a simple way the results that can be achieved with healing mushroom remedies for more than 200 diseases. I have been observing these results since 2004, when I returned home from taking a Master's degree at the University of Shanghai and my professional life changed totally. These results are consistent with those of more than 5,000 research projects, conducted with rigorous scientific methods by thousands of researchers in universities around the world over the last forty years, since 1969, date of the first research project on *Lentinus* at the National Cancer Center in Tokyo (Ikekawa, 1969). The information provided in this book can be an extra tool that can enrich or even change your personal and professional life, as in my case.

And what place does conventional medicine have in this journey? It is not an absolute point of reference, but it is the other voice of science, with a different approach to health and disease. It boasts indisputable scientific depth and important results but there are also issues which are still open and unresolved. In communicating with holistic functional medicine it encounters not a younger and inexperienced brother, but an adult interlocutor, whose methods are partly similar and partly different. It is a dialogue between equals in which the contributions of both parties can be harmonized and provide a new vision of medicine.

Also as regards treatment the two types of medicine can work together with excellent results: drugs which act above all on symptoms and medicinal mushrooms which act on symptoms and causes. These great gifts of nature and fruits of human ingenuity, if properly used, can achieve the "miracle" of a life without disease or almost without disease. This result, which seems far away in a society in which more than 50% of the population suffers from chronic disease, is actually very close.

In conclusion, this simple and clear guide allows you to move easily between symptoms and diseases that are not separate entities but are all linked by a single thread. The information provided in this book reveals the link between symptoms and causes, and also how diet, the mind, and other factors influence disease. In this view, the action of healing mushrooms both on the symptoms and causes of diseases is clear. Moreover, they restore the functions of each apparatus that has weakened, even if it is not closely related to the disease.

Those in search of a manual, a guide to selecting mushrooms in health or in illness, find an easy reference handbook that suggests which mushrooms to choose in the treatment of 200 diseases. Here's how I have organized the guide:

Part A briefly explains the transition from tradition to a ready-for-use tablet and provides effective dosages and useful practical information.

Part B talks about "holistic functional medicine" and what it means to treat an individual part in relation to the rest of the body and to treat the "body machine" according to how it works. Each of the four functions needed to live - immunity, digestion, cleansing, production of energy - is initially thriving, then slowly breaks down and finally succumbs to disease. Health and disease are linked by a thread, similar to a continuous line, in which the cursor heads for decline more or less slowly according to how we treat our bodies.

Part C explains the results of using healing mushrooms, which slow down the advancing cursor, stopping it or heading it back towards health. These results are thanks to the "successful protocols" or to the use of individual mushrooms, both in prevention

and in almost all types of illness, from functional diseases to those with organ lesions. An "infallible" diet enhances resources for wellbeing.

Part D describes the action of medicinal mushrooms in all diseases, divided into the four functions essential for life (immunity, digestion, cleansing and production of energy).

Part E explains the properties of each mushroom in detail, its effects and its benefits. This part will be particularly useful to those seeking more detailed knowledge, still explained from a holistic point of view. The international scientific name of each mushroom, which identifies it univocally, consists in the name of the genus and of the species and is shown in brackets in the indexes and in the titles. However, in order to make the book easier to read, each mushroom is generally identified just by using its genus - the first of the two names used in mycology: *Agaricus* (*Agaricus brasiliensis*), *Auricularia* (*Auricularia auricula-judae*), *Coprinus* (*Coprinus comatus*), *Cordyceps* (*Cordyceps sinensis*), *Hericium* (*Hericium erinaceus*), *Ganoderma* (*Ganoderma lucidum*), *Grifola* (*Grifola frondosa*), *Lentinus* (*Lentinus edodes*), *Pleurotus* (*Pleurotus ostreatus*) and *Polyporus* (*Polyporus umbellatus*).

Reading this book will have far-reaching implications because these pages can sow in hearts and minds an idea of treatment and prevention which, as many people have told me, can change your approach to life.

dr WALTER ARDIGÒ

PS

Everything which is happening in my life is a gift - a gift which I have received and which I offer to all those of good will, as a great opportunity to alleviate suffering.

All over the world, both in scientific literature and in everyday speech, the terms "*medicinal mushrooms*" and "*healing mushrooms*" are used. These terms identify mushrooms which are useful as health supplements but their use must not be considered medical intervention.



From its origins to the present day

PART A

PRACTICAL MYCOTHERAPY

*Healing with mushrooms -or mycotherapy - is an ancient discipline,
with 5,000 years of history,
but is not well-known all over the world.*

*In recent decades it has also been
legitimized by science,
which has recognized its enormous potential.*

*Indeed, mushrooms can maintain
the body's equilibrium and health and,
when there is some problem or disease,
restore well-being.*

Here's how they work.

CHAPTER 1

From its origins to the present day

*Everything you can imagine,
nature has already created.*

ALBERT EINSTEIN
(1879-1955)

Medicinal mushrooms are so full of beneficial properties for the body that they have become important remedies in a branch of natural medicine now recognized all over the world: mycotherapy.

Healing with mushrooms

Mycotherapy is the science that studies and uses mushrooms to improve human and animal health. Although still relatively unknown in some countries, its origins are ancient. Suffice it to say that mushrooms have been used in traditional Chinese medicine for over 4000 years. They were already mentioned in the first manual of Chinese medicine, the origin of which is attributed to the Chinese Emperor Shennong, who lived around 2,800 B.C.. The Great Herbal of Medicine (Pen-Ts'ao Kang Mu), written towards the end of the 16th century by Li Shizhen, considered the greatest Chinese doctor, also talks about these remedies, especially *Ganoderma* and *Lentinus*.

How mycotherapy has evolved over time

As time has passed, mycotherapy has no longer been confined to Asia and is now well-known all over the world, with a real boom in the last 50 years. Research carried out with increasingly sophisticated techniques has started to prove without doubt what ancient peoples knew and described as far back as the time of the pyramids. Science became aware of the value of medicinal mushrooms in the 1960s and 1970s, discovering that these fungi are the secret of the world's longest living populations. Obviously, in order to reach the desired results, they must be used regularly and on the advice of competent experts.

Confirmation from scientists has given mycotherapy a boost; it is increasingly proving to be an innovative healing method which is highly effective for the health of the whole body. It is estimated, on

the basis of 2004 data, that 9 to 10 million people throughout the world, approximately one person in every 2500, including both Western and Eastern countries, rely on these remedies regularly. In Asian countries, mushrooms are appreciated so much that they have become one of the key elements in nutrition.

Similarities and differences with herbal medicine

The use of healing mushrooms is, in some ways, similar to herbal medicine since it too uses remedies of the plant world to restore the body's equilibrium. However, mushrooms give more effective results than herbs and plants. For example, for inflammation and allergies *Ganoderma* is much more powerful than *Ribes nigrum*; in circulatory disorders *Auricularia* is better than *Gingko biloba*; for gastritis *Hericium* has a stronger action than *Papaya*; in prostate disease *Grifola* is much more effective (10-20 times more, because 1 g of *Grifola* is equivalent, as regards its effect on the prostate, to 10-20 g of *Serenoa repens*); in flu diseases *Agaricus* acts in a more targeted way than *Echinacea*; in hepatitis *Cordyceps* is stronger than *Taraxacum*; in kidney failure *Polyporus* is better than *Equisetum*.

In any case, medicinal mushrooms are more similar to human beings than to plants. Like human beings, they need oxygen to live, eliminate carbon dioxide and have no absolute need for light. The two also have similar biological mechanisms, such as immunity, cleansing and elimination of excess fluids.

CHAPTER 2

A treasure trove of invaluable substances

Why can mycotherapy reinforce or recreate a state of health? What makes healing mushrooms so special? The secret lies in their composition: these remedies are full of invaluable active ingredients which give them enormous powers.



Rich in beta-glucans and terpenes

Mushrooms contain very high amounts of biological substances useful to health. According to scientific studies conducted to date, the "poorest" mushroom, *Pleurotus*, contains more than 150, while the "richest", *Ganoderma*, over 400. Most of the active components enhance immune functions. Others provide excellent healing effects, rare in nature, that are active in the rest of the body.

Between the 1970s and 1990s, the interest of scientists focused primarily on beta-glucans. These molecules are extremely beneficial because they enhance the immune system with their

antiinflammatory properties, proving effective in many illnesses, from inflammation to autoimmune disease. In addition, they are able (depending on the type) to regenerate stomach mucosa in gastritis and ulcer, to eliminate *Helicobacter pylori* (bacteria that can cause stomach disease), to improve the utilization of glucose in tissues and/or lower blood sugar levels. Beta-glucans account for half the immunostimulatory power of mushrooms. To understand the importance of this powerful characteristic, it is worth noting that the only plant that is similar to mushrooms in beta-glucan content (although it contains less, about half) is *Aloe arborescens*, which is attributed with considerable anticancer effects due to the presence of these molecules. However, this plant does not contain terpenes or the hundreds of other active ingredients present in mushrooms, which are effective in all other functions too. Much smaller amounts of beta-glucans are present in certain seeds, such as malt. Since the end of the 1990s researchers have also been devoting increasing attention to terpenes, the small odorous molecules of mushrooms. They too are important in viral, inflammatory and immune disease but also in hormonal, allergic and degenerative illnesses. They act at a much more minute level: for example, they are able to influence cellular DNA and prevent viruses from entering the nucleus of cells to reproduce. Moreover, they possess a powerful antihistaminic and ACE inhibitor effect (reducing high blood pressure).

Other active ingredients useful to health

In addition to the main families of beta-glucans and terpenes, other very important active ingredients contained in mushrooms are:

- nucleotides. The main nucleotide is adenosine, an excellent vasodilator which influences the blood vessels of the heart, brain, retina, kidneys, muscles, skin and, in general, of the whole body. Furthermore, it has antiplatelet properties, which can reduce blood viscosity, and is an effective anxiolytic and anti-stress agent, which relaxes the muscles;
- some proteins with biological activity. In particular, LZ 8, a protein that combats anaphylaxis (severe allergic reaction);
- substances similar to certain hormones produced by the pituitary,

which in women induce the ovaries to produce female hormones, when they are lacking, and in men the testes to produce lacking male hormone. In addition, they stimulate the adrenal gland with invigorating and anti-stress effects;

- tyrosinase, which keeps the skin beautiful and smooth and modulates the production of melanin (the pigment that colors the skin), eliminating skin spots.

A source of vitamins, minerals, proteins and antioxidants

Besides these, mushrooms are composed of other beneficial substances, such as:

- antioxidants in general, that counteract the action of free radicals which are harmful molecules responsible for the premature aging of cells and tissues, DNA degeneration and the onset of many diseases(Asatiani, 2010; Chen, 2015);

- polyphenols, which have antioxidant properties and protect the cardiovascular system;

- some chelating agents which capture heavy metals;

- vitamin D (ergosterol), important for bone synthesis;

- the B-complex vitamins (riboflavin, niacin, biotin, folic acid).

Mushrooms, in particular, contain vitamin B12 or cobalamin, a substance essential for the health of the nervous system, for iron metabolism and the production of hemoglobin. The only other food with a similar content of vitamin B12 is meat. For this reason, mushrooms are very useful in vegetarian diets;

- minerals, such as magnesium, potassium, manganese and very little sodium. In addition, iron, in which many people are deficient, germanium (very rare), which has an energizing and purifying action, selenium, which has a high antioxidant potential, and zinc, useful for acne, pregnancy and sexuality;

- essential amino acids that, apart from in mushrooms, are found only in legumes and meat and which are important to integrate a vegetarian diet.

Moreover, mushrooms are rich in protein and fibre and low in fat: they are, therefore, also useful for keeping fit.

They restore or strengthen the body's state of equilibrium

Healing mushrooms, thanks to their particular composition, are therefore useful to everyone, both to people who are ill and to those who are perfectly healthy. The active ingredients they contain, in fact, activate the self-healing force of the whole body, restoring a state of well-being and equilibrium if this is impaired or strengthening it as necessary.

CHAPTER 3

Certified remedies with no side effects

Where do healing mushrooms come from? How are they used? And for how long? Here, in detail, what mycotherapy is and how to use it.



Safe products

The mushrooms used in mycotherapy are not those that grow wild in the woods; they are cultivated on special farms, respecting strict quality and safety standards. This guarantees 100% purity and the total absence of pesticides, heavy metals and pathogenic germs. However, it is important to buy from companies that sell quality certified mushrooms and which guarantee that the remedies are grown in healthy environments, as if they were organic food products, and therefore without chemical additives, pesticides and heavy metals.

They are not harmful

Mushrooms have a bad reputation: that of being toxic and of damaging the liver. Actually, exactly the opposite is true: they give excellent results in the treatment of all liver diseases, including hepatitis. There are no toxins in medicinal mushrooms: we now know the hundreds of substances contained in these remedies and they are all beneficial or neutral (or inert). The only toxic substance is agaritine, in *Agaricus brasiliensis*: however, it is present in a minute amount and is very volatile, so it evaporates during drying or cooking processes and is absent in supplements.

Some people are afraid of using these remedies because they fear some kind of risk. I can assure you it is much more harmful to eat animal foods or preserved foods: mushrooms are completely healthy foods. They do not even cause allergies: in ten years I have never seen anyone allergic to mushrooms. Many of those who consider themselves to be allergic to mushrooms really did not digest them on one occasion, and reactions such as nausea or vomiting were due to indigestion.

No contraindications

The use of mushrooms has no outright contraindications. Moreover, these are real foods present naturally in diet. Some believe that *Auricularia* is to be avoided in case of pregnancy and is not compatible in people who have to take anticoagulants (it has the same effect as these drugs). Instead, in my studies and in my medical experience, I have found it to be perfectly compatible. Moreover, healing mushrooms, unlike conventional medicines, have no side effects because they act by respecting the body's physiology.

Tablets are best

Medicinal mushrooms are available in tablets, capsules or powder form. The ideal supplement form is tablets: in fact, this form protects the active ingredients better, so that they arrive intact in the stomach, and it contains greater amounts (an average of 500 mg of

active ingredients and 500 mg of excipients required for preparation). Capsules can be made from powder or concentrated powder, also called concentrated and titrated dry extract. The term titrated means that a substance has a standardized concentration.

Usually, it is the most important substance. In the case of mushrooms, the standardized substance is represented by beta-glucans, which are present in a high percentage (20 or 30%). There are also enriched products on the market, such as coffee or tea with *Ganoderma*. Whilst they are undoubtedly healthy drinks, they contain a very low quantity of mushrooms, so they cannot be considered as alternatives to tablets, capsules and powder.

Read the labels

Before buying mycotherapy products, you should check the labels carefully. They must indicate the quantity of mushrooms and other ingredients clearly. In fact, studies have demonstrated that at least two grams, excluding excipients, of a single remedy, must be taken per day in order for it to work.

The role of vitamin C

Generally, we always advise associating mycotherapy supplements with vitamin C. This substance, in fact, fractures the long molecules contained in mushrooms and increases absorption in the intestine, accelerating and accentuating their action. Vitamin C, moreover, promotes the synthesis of connective tissue and has an antioxidant effect which, consequently, amplifies the beneficial effects of mushrooms.

How to take them

You can take the mushrooms when you prefer: in my years of experience I have found that the effects are similar regardless of when they are taken. I recommend you take them all together (often a combination of mushrooms is indicated) because they are highly digestible. They can be taken on an empty stomach or on a

full stomach: it makes no difference. Rarely, when taking mushrooms, problems can arise, such as an upset stomach or intestine. If this happens, however, it depends on the fact that the digestive system is not in perfect health and is not an indication that mushrooms are "heavy" to digest. In this case, it is useful to take the remedies after meals, preferably after plain food such as boiled rice and boiled vegetables, avoiding cheese, meat or fish.

It takes a little patience

Mycotherapy is not the best solution for those who want everything at once: it takes time, because the remedies and the body enter into synergy and begin to "collaborate", recreating equilibrium, health and well-being. During the first month, healing mushrooms act above all by cleansing, and this gives an initial sensation of well-being, whereas from the second and third month the deteriorated components of the body that create the symptoms of disease are progressively eliminated and tissues regenerate. New cells appear, organs become healthier again and functions are restored. Of course, most diseases are deeply-rooted and more time may be required to restore cleansing and maintenance processes when a system is ill. Conversely, when the body is less in difficulty, it may take just two or three weeks to notice the first signs of improvement.

If possible, take them for long periods

To get maximum results, it is preferable to use mycotherapy for long periods. Anyway, why stop a treatment which helps you to feel better without causing any side effects? Those who do not like the idea of taking the mushrooms indefinitely, however, can take them for cycles of three months, for example at particularly stressful times, such as the change of season. Nevertheless, in this case, there will be fewer benefits.

CHAPTER 4

Also together with conventional medicine

Medicine and food are from the same root.

JAPANESE PROVERB

Many people think that mushrooms and conventional medicines cannot be taken at the same time, but that is not the case. Mycotherapy can also be used by those who regularly use conventional medicine. Indeed, in these cases it is particularly useful: it contrasts the side effects of pharmaceuticals, but also strengthens the physiological functions of the body, increases energy and improves the emotional state.



The benefits of combined treatment

Here, in brief, are the reasons why I advise people who are following a course of treatment with conventional medicine to take medicinal mushrooms as well:

- they do not, in any way, alter the action or the effect of conventional

medicine therapy;

- they drastically reduce many side effects of conventional medicine;

- they are very effective in the diseases (approximately 200) described in this book;

- they are so powerful that in many cases pharmaceuticals can be reduced;

- they strengthen the physiological functions of the body, increase energy and improve psychological aspects;

- they promote quality of life.

- Asian populations, aware that mushrooms can counteract the side effects of pharmaceuticals without hampering their benefits, often combine the two treatments.

To eliminate the side effects

Taking medicinal mushrooms in combination with conventional medicines, in particular, is the most effective way to protect the body from the side effects of medicines which, over time, cause a deterioration, especially to the cleansing and recovery systems. Some pharmaceuticals even cause diseases. For example, the use of the contraceptive pill destroys antioxidant defences and causes circulation problems, with broken capillaries in the legs and varicose saphenous veins. Healing mushrooms strengthen the microcirculatory system, prevent further broken capillaries and gradually repair those already existing.

They are always compatible

Mushrooms and conventional medicine are always compatible. In fact, they have two completely different mechanisms of action. When a pharmaceutical is used, a clearly defined dose is required to obtain the therapeutic effect: a lower dosage is ineffective, while a high dose can cause damage. For example, in the case of a drug for hypertension, if the dosage is too low, blood pressure remains high, if the dosage is too high, blood pressure drops too drastically. In any case, the effect appears quite quickly, because the molecule acts on a part of the main control mechanism, which is impaired. The medicine is useful: in a short time it can resolve a hypertensive crisis. This brilliant result inevitably involves some side effects, such

as a reduction in sexual desire in the case of beta-blockers or an annoying dry cough in the case of ACE-inhibitors.

Instead, medicinal mushrooms act on the symptom, but not with an immediate and direct effect which modifies and alters part of the main control mechanism because this would create further imbalance. Going back to the previous example, blood pressure which was high due to some type of alteration is counteracted by conventional medicine, but by means of imposing another alteration. Instead, healing mushrooms intervene by resolving the initial alteration which caused an increase in blood pressure in the first place. They restore the altered function to a healthy state and consequently the symptom, in this case high blood pressure, disappears, too. This also explains why healing mushrooms do not give side effects and why there are no problems of overdose.

How to combine treatment

Healing mushrooms are not in contrast with conventional medicine, on the contrary: when the two methods are used in combination they treat disease more efficiently. Conventional medicine acts more quickly, while medicinal mushrooms, with their gentle but enduring effectiveness enable a return to health, doubling the chances of a cure. Like good cleaners, too, they expertly eliminate many of the side effects caused by synthetic molecules. In the acute phase, pharmaceuticals help to manage an emergency, while healing mushrooms, used from the start and for as long as necessary, contribute to restoring balance. In many diseases, an expert can gradually reduce the dose of conventional medication or even eliminate it altogether, continuing only with mushrooms, which act both on the symptoms and on the causes. In more severe conditions, however, conventional medicine and medicinal mushrooms can coexist extremely well, each making its own contribution.

Conventional medicine and natural medicine

There has been talk of integrating conventional and natural medicine for almost twenty years. The need is increasingly felt to complete the vision of the former, which reasons according to body parts, areas,

apparatuses, with the holistic view of the latter, which considers the whole person as a union of body, mind and spirit. Dr. Servain-Schreiben, during a trip to India, where Western medicine and a traditional medicine called Ayurveda coexist, discovered to his surprise that people there have very clear ideas. They turn to conventional medicine for acute diseases and for life-saving operations, in which symptomatic intervention is a priority. In other cases, however, they turn to the Ayurvedic tradition, which decides treatment according to the symptoms and the causes, which it corrects with herbs, mushrooms, dietary suggestions and specific yoga exercises. Perhaps this is the future for which to hope.

CHAPTER 5

An expert is better

Mycotherapy is quite simple to implement. However, “do-it-yourself” is not recommended because small details can make a big difference in prevention and healing, so it is important to consult an expert.



Consult an expert

You should consult an experienced professional to treat any disease, even an apparently minor one. One consultation is often enough to identify minor problems and resolve them before they progress. In fact, although mycotherapy is simple enough to implement, small details can make a big difference, so “do-it-yourself” can be risky in the event of illness. Consultation with an expert who knows exactly how medicinal mushrooms work guarantees effective treatment: it is fundamental to understand disease and the subtle action of pathogenic factors well, in order to identify weak points and make a careful diagnosis. Observing a symptom is not enough, because the

causes and weak points which require strengthening, which are hidden and therefore unexpected from the patient's point of view, are instead critical points which require defensive action.

Together with the official strategy there is also increasing interest in "energetic diagnosis", which highlights imbalances in the circulation of energy and of the four functions (immunity, digestion, cleansing and production of energy) needed to live. This is important in apparently healthy people, because it identifies weaknesses which sooner or later can lead to the onset of symptoms. But it is even more important in case of illness because it indicates likely evolution of disease. It is an assessment of the disease at the present time, but it is also an indication of current problems, which may lead to further symptoms. It is useful both in treatment and in prevention. It is helpful to identify the mushrooms most suitable for a specific case. It is often a good idea to use the "successful protocols" explained later (Chapter 12) and which I have found, during my clinical experience, to be very effective.

Moreover, a consultation customizes treatment better and is based on the symptoms present, the general health conditions of the individual, eating habits, lifestyle, emotional aspects. In addition, a consultant can indicate any necessary tests, prescribe medication, make suggestions in regards to which diet to follow, identify possible psychological problems and advise on how to deal with them.

Maps help diagnosis

The first step consists in diagnosis. Nowadays, more and more doctors are trying to add other modes of inquiry to those of conventional medicine in order to grasp finer aspects, also related to energy, of patients and their diseases in order to gain a wider view. For example, medical experts in traditional Chinese medicine carefully examine the patient's tongue and wrist during their assessment. These are two maps that can provide a lot of information concerning an individual's health. Such methods may seem outdated in an era of advanced technology and diagnostic imaging. Instead, to learn to read these maps means being able to access highly accurate information, which is still regularly used

today, in addition to clinical and instrumental data, in Chinese hospitals and universities.

Maps allow us to understand many secrets about disease. For example, simply by examining the tongue it is possible to identify gastritis even if it is still asymptomatic, together with its position, whether in the upper or the lower part of the stomach. Or, if blood tests show markers for inflammation to be high, looking at the tongue can reveal which body organ is in trouble, and thus locate inflammation. Or, if the liver is working badly, by observing the tongue it is easy to see if the cause is due to psychological stress or to diet, and so on. Conventional diagnostic tools are certainly very useful, but these maps give important information too.

Just as an expert sailor uses the instruments on board, but also his knowledge and experience of the sea, the type of wave, the nuances of the wind, the color of the water, the clouds, or the position of the stars, in the same way a doctor, referring to data collected by diagnostic tests, can also learn how to read the messages of the body. It is like knowing another language, in addition to one's native tongue. Chinese medicine has been able to read body language with great precision since ancient times. It highlights the cause: firstly, where and how dysfunction arises and then, where and how disease will occur. The study of the mechanisms through which these steps develop is not an end in itself, but the basis on which therapy coherently takes shape, with specific treatment of causes and symptoms.

Remedies must be chosen carefully

After making a diagnosis and identifying the symptoms and causes, a course of treatment must be chosen, utilizing the most suitable remedies. The priority is to combat symptoms to eliminate suffering, but the ultimate goal of treatment is a complete and lasting cure, which can only be achieved by efficiently tackling the cause (see [Chapter 11](#)). Sometimes, priority must be given to the symptom rather than the cause. For example, in the presence of high fever the first task is to lower the temperature and only then can the cause, in this case a weak immune system, be dealt with. On other occasions

the symptoms and the causes can be addressed together: for example, in gastritis, the symptom and the cause can be healed at the same time. The cause is psychosomatic in 90% of cases. Treatment with mushrooms has two actions: on the one hand it strengthens the digestive function of the stomach and on the other it calms the psycho-emotional state, soothing anxiety and healing the symptom (stomach pain) and the psychological cause (anxiety).

The importance of constitution

Another factor to be taken into account in deciding treatment is the patient's constitution, a term that refers to a series of personal physical and mental characteristics. For example, high temperature is different in childhood, in the elderly or in the adult, both from the point of view of symptoms and as regards pathogenic factors. Small children need their weak immune system to be strengthened. In the elderly, in addition to restoring the immune system to good health, the whole body will require strengthening to facilitate recovery and shorten convalescence. In healthy adults it is enough to strengthen the immune system, without any other support. In any case, we must not forget that each case has its own individual features, with weak points which require support from mushrooms, diet and so on.

PART B

HOLISTIC FUNCTIONAL MEDICINE

The body is one whole integrated system.

For this reason "holistic functional medicine" heals the individual part in relation to the rest of the body, which is studied concentrating on the individual functions and their constant interactions.

In practice, the "body machine "can be divided into four functions needed to live, four apparatuses or groups of apparatuses: defence (immunity), nutrition, cleansing and the production of psychophysical energy.

When the four basic functions are strong and full of energy, health flourishes.

Instead, when causes which are enemies to health erode basic functions, health is ruined.

The first signs may pass almost unnoticed.

However, they should not be ignored: if we listen to them, they allow us to understand that there is something wrong and to take action to reinforce the point that has been weakened, before more serious illnesses appear.

Mycotherapy is a great gift for the health of the body: it strengthens the immune system, it facilitates nutrition,

it cleanses and disposes of toxins from the liver and the blood, it gives more mental and physical energy and serenity.

Useful both in prevention and in illness, it promotes recovery and better health.

CHAPTER 6

The body is a set of apparatuses and communicating functions

*The body is healthy
when each function is in agreement
with the laws governing the universe.*

HUANGDI NEIJING, *Suwen*
3rd century A.D.

What is “holistic functional medicine”? It is an approach to the study and care of the body which merges two basic concepts: to treat each individual part in relation to the rest of the body and to treat the functions of the “body machine”. It is a holistic and functional viewpoint based on ancient traditional Chinese and Ayurvedic medicine, and which is increasingly attracting the interest of researchers and conventional medicine practitioners, because of its great value for mankind today.



Disease from a holistic viewpoint

We are used to considering symptoms and disease as problems to be eliminated as soon as possible and therefore we seek a solution which should, preferably, be immediate. For example, to combat cough or cholesterol we consult the doctor, asking him to prescribe us the appropriate therapy. If the prescribed medication resolves the symptoms, we are satisfied and our peace of mind returns. But there is also another way of looking at health problems: if we look at illness from a holistic point of view we can realize that it has different meanings.

First of all, illness arises in a body, at its weakest point. Evidently the body, with all its resources, wasn't able to defend that part. Therefore, we cannot concentrate only on the impaired organ: the body is a single unit, so well-being and illness are the result of all of its individual components. Just like in a family, the individual parts are correlated, have relationships and help each other and this allows us to use them to improve health and to respond to illness in a better way.

For example, in the traditional Ayurvedic medicine of India, in almost all illnesses the doctor prescribes dietary suggestions and remedies *ad hoc* to treat the intestine, along with specific medicines, because in this way many symptoms and diseases are alleviated and disappear. This should not surprise us, because many researchers have found that poor diet is a major cause of illness. Other important medical traditions base their whole theory and practice on a holistic view. For example, Chinese medicine and homeopathy help to explain a particular disease by looking at the body as a whole. They never consider a single body organ or an individual symptom as an entity in itself, but always as part of the rest of the body. This does not mean that you have to forgo the painkiller, antibiotic or treatment the specialist consultant prescribed. Indeed, thank goodness that we live in an age when there are drugs which are effective and often able to help us.

According to modern conventional medicine the human body is divided into well-defined parts and therefore separated areas, the

study and care of which is entrusted to specialized branches; but it is important to know that this view should be completed by the study of the connections within the whole body. But how can this be reconciled with scientific progress which favors an increasingly specialist or super specialist approach? It is enough to study, and examine in depth, the connections that a particular feature - disease - has with the rest of the body. Moreover, many studies confirm the importance of a holistic view of the body. It has now been proven beyond any shadow of doubt that cells, even if they belong to different organs, continuously exchange messages with which they communicate their state of health or illness. It is no coincidence that many doctors are increasingly interested in learning more about the great holistic medical traditions.

I believe that it would be great progress to add doctors specialized in holistic medicine, together with doctors specialized in conventional medicine, in medical universities and hospitals, just like in China and Japan, where the two medical cultures coexist side by side.

Functional Medicine

To fully understand the holistic point of view a second concept must be introduced: function. It is important to observe how the body functions work, deteriorate, fail and lead to illness through their interaction, not separately and independently. When functions are fully efficient a person is healthy. However, as time passes, physiological functions wear out. The body organs start to have some problems during this deterioration process: for example, the stomach starts to show fatigue and be less efficient, so the digestion becomes more delicate and difficult. In this phase, deterioration is still asymptomatic, actual disease with a burning sensation, pain and gastritis hasn't started yet. However, that does not mean that everything is fine.

We are accustomed to considering a part of the body to be normal when there is no pain, and to worry about it only when pain or inflammation appear, or when a laboratory test reveals problems, or when diagnostic imaging (ECO, CT) shows some type of lesion. We are often told by the doctor that all is well because diagnostic tests

did not find anything specifically wrong. Even in the presence of many illnesses, such as headache, back pain, muscle pain, tremors, tics, stomach bloating, intestinal bloating, hair loss, etc., tests often come back negative.

We are either healthy or sick, there is nothing in between. Instead, however, many people find themselves between these two extremes; in Japanese we use the term "*mibyō*" meaning neither healthy nor ill, a condition which is treated, obviously with natural invigorating remedies. In Western medicine there are hardly any such remedies because medicine is specifically aimed at countering a specific disease and its symptoms.

Each organ is subject to many influences.

During the day, the members of a family stay in touch, even though they are in different environments (work, school and home). In fact, for each family member it is important to share information with the others. In the same way, the cells and the various parts of the body communicate with each other about how their tasks are going, if everything is working fine, if they are struggling and need help. For example, if the digestion is not working very well, the digestive system will need more energy and blood, so it will have to tell the mind and muscles to rest and not work so hard. Or else, vice versa, if the digestion is better than usual, it can report that there is more energy available for other bodily functions.

The relationship between the mind and the intestines and between the mind and the muscles is perhaps well-known, while the relationship between the intestine and muscles is less well-known. Instead, it is useful to know that if the intestine absorbs toxins, the muscles suffer from toxicity too, which can lead to muscle pain and weakness. People are generally also unaware of the relationships between various other body systems, such as between the intestine and immune system, the liver and the brain, the skin and the kidneys and so on.

The four basic functions of the body

The life of every living being, including humans, depends on the four basic body functions working correctly. These functions include all

aspects of the human being, and are based on four basic needs organized into four apparatuses or groups of apparatuses: defence (immunity), nutrition, cleansing and the production of psychophysical energy.

The first essential function for all living beings is defence which, in the human body, is the task of the immune system. A weak immune system can give rise to a number of diseases.

The human body, to survive, must not only protect itself, but also eat and metabolize, that is, convert food into energy and structures. It manages to do all this thanks to the digestive system and the complex system of biochemical processes controlled by the liver. If these functions are altered, illnesses of varying degrees and severity can develop.

The third essential function for all living things is to cleanse the body of the toxic substances which form in continuation. This task is of such importance that there are four cleansing organs: the liver, the kidneys, the skin and the antioxidant system. Symptoms and disease appear when even just one of these functional components reduces its effectiveness.

Lastly, the body needs energy to live and perform all its tasks in the best possible way. The main systems and organs involved in the production and distribution of energy are: the nervous system, the heart and circulatory system, the muscular system, the endocrine system and the sexual apparatus.

Each of these basic functions works in a relatively, but not absolutely, autonomous way, because the various systems influence each other and are in harmony for the good of the whole body. They can be compared to communicating vases: if we lower the liquid in a communicating vase, this loss is automatically redistributed in all the others. The same happens in the body: if, for example, the function assigned to the production of energy gets stuck, the whole body suffers. This is what happens in any organization. For example, if we think of a company, the different offices have different tasks (production, sales, advertising and personnel), are independent and cooperate at the same time, because they have some specific, but also some shared, goals with the ultimate objective of well-being for

all. Similarly, in the body, each of these four separate apparatuses works independently, but also cooperates to maintain satisfactory health.

This division into four functions is also useful from a practical point of view and greatly simplifies treatment with healing mushrooms. There are specific treatment protocols aimed at strengthening the function in difficulty, but medicinal mushrooms have numerous properties which also address different diseases that originate within the same altered function. Moreover, this division also respects and completes the anatomical organization of the body. In fact, each apparatus performs almost all its functions within the apparatus itself. But since its effects must, necessarily, spread throughout the entire body, reaching each cell and influencing all body fluids (blood and lymph), it is, inevitably, not strictly limited to its anatomical borders.

The immune system: the 1st basic function

Every living organism needs to defend itself in order to survive. Defence, therefore, is the first essential function. In human beings, this function is performed by the immune system, which uses its antiviral, antibacterial, antifungal and antiparasitic defences to ward off all pathogens, such as bacteria, viruses, *Candida* and parasites.

Yet, its ability to keep the body healthy by avoiding the onset of allergy and autoimmune and chronic inflammatory disease is even more important and all thanks to its anti-inflammatory, antioxidant, anti-histaminic and anti-allergic activity.

We tend to think that the main task of the immune system is to defend us from various bacteria, as if they were the greatest threat to health. Instead, a task of far greater importance is to strengthen immune defences to prevent inflammation, which represents the most dangerous threat, because it is present in almost all diseases. A healthy immune system minimizes the use of the inflammatory mechanism, with anti-inflammatory prevention. Fortunately, in acute disease caused by pathogens, in trauma, burns and insect bites, resolution of the problem tends to be complete. But when inflammation begins to strike a little more frequently it means that our

immune system is weak and that we are heading for chronic inflammatory disease, which can also be a step in the direction of worse illnesses.

The immune system is not localized in a single apparatus, but is distributed throughout the body, because it also has to supervise the most vulnerable parts of the body which are in contact with the environment - the mucous membranes, skin and blood. The immune system which defends the mucous membranes and skin is called MALT (mucosa-associated lymphoid tissue). Simplifying, we can say that it is organized into a network of lymph nodes distributed throughout the body. Instead, in the blood, an army of different types of immune cells, called white blood cells, circulates with a hierarchy of very precise roles and functions. It is estimated that for every five cells in the body there is one white blood cell in defence. Most of the immune system, however, is located in the small intestine, which has to be in good health if it is to provide efficient protection.

Digestion: the 2nd basic function

Every living organism must not only defend itself, but also absorb nutrition and turn it into energy and structure i.e. metabolize. These are two closely related functions, which can be considered a single function: the second indispensable function. In humans, these tasks are assigned to the digestive system and the complex system of biochemical processes governed by the liver, pancreas and gall bladder. The tasks of the digestive system are to introduce, digest and absorb nutrients from food and eliminate waste in the form of feces.

Instead, the tasks of transformation (metabolism) are entrusted above all to the liver, which plays a fundamental and dominating role, because it produces and supplies sugars, fats and proteins throughout the body. However, the tasks of metabolic transformation do not end in the liver: every cell completes these processes by producing the specific molecules which it needs. For example, the cells of the brain and the kidneys are very different: they have many substances in common, produced and distributed by the liver, but

also some more specific substances, which they produce themselves, tailored to their specific functions.

Cleansing: the 3rd basic function

Nutrition and metabolism involve the production of waste substances to be eliminated. That is why the third function essential for life is to filter out and eliminate toxic substances which are formed continuously. Any living thing would have a very short life if it were not able to cleanse itself from the waste it produces. For this reason we have four cleansing filters: two organs - the liver and the kidneys, an apparatus - the skin, and a system - the antioxidant system, which is present throughout the body in all cells and body fluids. Each of these has different and complementary characteristics, but all are essential. If even just one of the filters is weakened, toxins end up accumulating in the body, causing a series of damages and diseases which may even be serious. By cleansing the blood and other tissues from unnecessary, or even harmful, molecules, waste substances, leftovers from production, free radicals that come from diet, pollution, toxins, pharmaceuticals and so on, this function prevents them from damaging, impeding or hampering the work and efficiency of the "body machine".

The liver, via the gall bladder, introduces bile into the intestine, which contributes directly to separate what is pure from what is impure (to be eliminated with the feces). In addition, it works closely with the intestine also via the intestinal blood, which continuously transfers everything the intestine absorbs: nutrients and also impurities. Seventy percent of the blood that flows to the liver comes from the intestine. The kidneys are the liver's main partner in this cleansing activity. In fact, they eliminate toxins after the liver has processed them and converted them into soluble and inoffensive substances, which can remain in the blood before elimination via the kidneys.

The skin is the third filter which eliminates other substances, especially fatty ones, thanks to its secretions: sweat and sebum. The fourth cleansing system, the antioxidant system, to which we owe our health and youthfulness, is equally important. In fact, it

eliminates free radicals that form within the whole body and make cells get old, sick and die, altering first their vital functions and then their structure, slowly but surely, like a drop of water that hollows a stone. To complete the picture, we must remember that the respiratory system cleanses the body too, because each exhalation eliminates carbon dioxide. However, it is also one of the organs which produce energy, because its main task is to absorb oxygen, the fuel required by all cells. Suffice it to say that the lung in traditional Chinese medicine is called the "master of energy."

The cleansing functions are essential and well integrated. When they are efficient, the whole body is in good health. You can see this from the outside: a healthy person looks clean and fresh. This means that the body's interior is being kept clean, too. But when the skin is dull, oily and impure it means that toxins which the excretory organs cannot dispose of completely are circulating in the body. This is why the organs responsible for cleansing and detoxing are so important for well-being.

The production of energy: the 4th basic function

Nourishment is required to produce energy, which every living organism and every cell in the body needs to live. This is why the availability of energy is the fourth essential function. It must first be produced, then distributed and, finally, used. The production of energy takes place in every cell of the body through the use of oxygen and simple (glucose) or complex (starches and polysaccharides) sugars, which are transformed into a high-energy molecule, ATP (adenosine triphosphate). Distribution is the work of the respiratory system (oxygen) and cardiovascular apparatus (oxygen and glucose), rhythmically working day and night. If they function correctly, vital organs such as the heart, the brain and others receive oxygen and glucose, the raw materials needed to produce energy, and do not fall ill.

The energy users are all the body tissues and parts. The nervous system and the endocrine apparatus manage and regulate the use of energy. The former has the task of sending commands to the whole body through the nerves, along which voluntary stimuli travel

for muscle movements, involuntary stimuli for the functioning of organs (heart) and the viscera (intestine and bladder for example) and also psycho-emotional stimuli. The endocrine system, with a wide range of hormones, stimulates and regulates many functions, such as the metabolism (thyroid), sexual functions, stress response (adrenal gland) and others. Some tissues, such as the bones, use low amounts of energy, while other tissues and organs, such as the muscles and heart, use high amounts of energy. The biggest user of energy, not only dynamic - which is used to produce movement, but also static - which is necessary to support the body and allow it to stand, is the osteo-arthro-muscular apparatus.

When energy is abundant, it is distributed harmoniously and the whole body is healthy. If the amount of energy is not sufficient, however, apparatus functions are partly reduced. For example, if a woman does not have a lot of energy, functions of the sexual apparatus lose efficiency and her periods become irregular because the body feels it cannot deal with a possible pregnancy.

CHAPTER 7

From function to dysfunction:how health is damaged

Good health depends on the way one lives and on inner peace

ROSA LUXEMBURG

(1871-1919)

The functions of the body can deteriorate due to a number of factors, which are related to age and the use made of the functions themselves. In fact, the same causes do not create the same amount of damage to all people in the same way, because each of us has defence mechanisms which are effective to a greater or lesser extent.



What happens if nothing is done

All the four systems that run the body follow the same path if they do not receive help. After reaching full maturity between the ages of twenty-five and thirty-five, they begin to decline; how quickly this

happens also depends on the defence mechanisms that counterbalance this downturn. The more we strengthen the defence mechanisms, the healthier the four functions remain. When the “body machine” starts to function less effectively, some degree of deterioration begins to affect one of the four functions. Often, one of the first functions to have problems is the digestion. For example, if the stomach starts to struggle to digest, it means that the function is less efficient and is deteriorating. The organ is not ill, but has set off along the path that leads from health to illness. The duration of this phase is variable; it can last for months or years.

The body machine deteriorates gradually

We can think of health and illness as two extremes at the ends of a straight line. Along this line there is an asymptomatic phase, in which one (or more) of the four systems that make the body work is in progressive deterioration. Like a pair of trousers which, with use and as time passes, begins to wear out until sooner or later it breaks at its weakest point, so our body, sooner or later, develops disease along the path of progressive deterioration.

We must therefore intervene in this process, trying to slow down function deterioration as much as possible and hence delay arrival at the breaking point: disease. Going back to the example of the stomach, it is important to take action without waiting for delicate digestion to become gastritis. Healing mushrooms provide effective prevention at this stage, strengthening the stomach and restoring it to good health.

When a pathogen becomes a cause of illness

In the analysis of the causes, traditional Chinese medicine (TCM) is based on the concept of a pathogen (for example, microbes, sweet food, stress) on the one hand and defence mechanisms on the other. In fact, both health and illness are correlated to the balance between these two factors. The timing of the gradual deterioration in the body’s health depends on this equilibrium too.

If pathogens are not countered adequately by defence mechanisms, as time passes the attacked function will first become weak and then inadequate. A final straw will then be enough to

cause illness. For example, one group of children may fall ill during a flu epidemic, while another group may not, even though they all attend the same kindergarten; or, among staff eating in the same canteen, some fall ill with gastritis and others do not. Why?

It depends on the immune system of each individual and on what happens when it comes up against pathogens: individuals whose immune system is efficient can defend themselves while those with weak defence functions fall ill. In fact, people who are in good health and have a lot of energy are more resistant to the causes that weaken and deteriorate the body functions, while those without a lot of energy are more vulnerable.

There are four causes (etiology) of deterioration

These four types of causes of deterioration can be summarized as follows:

- climatic factors and microbes
- dietary factors and toxic substances of various types
- psychological and physical factors
- aging

A fifth type of cause is due to traumas (car accidents, etc.) which do not cause deterioration, but direct damage. They are, therefore, beyond the scope of this study.

Climatic factors and pathogenic microbes

A rapid transition from hot to cold and vice versa requires the body to make continuous changes in thermoregulation, to continuously turn its internal heater on and off, with a great expenditure of energy which weakens it considerably. Symptoms of previous illnesses often return, or new symptoms sometimes develop. TCM emphasizes that when the seasons change all people find it difficult to adjust, even those who are well. The body is tired because it has to adapt to the new kind of energy of the coming season: cold (winter), wind (spring), heat (summer), damp (fifth season late summer) and dryness (autumn).

Extreme conditions are bad too. In the presence of high temperatures, the blood pressure falls, the heart has to make more effort, sweating increases with loss of minerals, physical and mental

energy is reduced, the appetite is smaller and the digestion is more difficult. With the cold, instead, the defences of the respiratory tract are weaker and therefore pathogens become more dangerous.

Dietary factors and toxic substances

The second group of causes is made up of dietary causes, which weaken both the digestive system and the immune system and all the rest of the body, especially the liver. Few of us, in fact, choose foods only according to the body's requirements - for almost all of us food is a quest for pleasure, often also with the objective of putting up better with stress, dissatisfaction and the frustrations of everyday life. The most harmful foods are, above all, sweet foods and animal proteins. The regular consumption of sweet food does not cause illness straight away because compensation mechanisms are good. Nevertheless, there may be a greater likelihood of getting the flu because sugars weaken the immune system. Over time, intestinal disorders, such as bloating, pain, constipation or diarrhea, and other problems, such as acne, cystitis or vaginitis and then diabetes, can develop.

Foods of animal origin, too, are part of the group of exogenous toxins which we introduce from the environment. They cause a decline in metabolic functions that, over time, leads to many illnesses such as obesity, high cholesterol, gallstones and diabetes. Moreover, the industrial manipulation of food products is reducing their nutritional value and involves the addition of chemical components which are often harmful.

Nor can we completely trust conventional medicine, because of the side effects that cause damage to the whole body, starting from the stomach and intestines. These pharmaceuticals also weaken the antioxidant defences, which therefore cannot eliminate free radicals, which in turn increase and destroy vitamins: for example, vitamins B6, B9, B12, C, E (birth control pills); Vitamin B9, C and K (aspirin). In addition, these medicines, especially some types, have a certain toxicity, which contributes to the build-up of toxins in the body and its cleansing apparatuses, especially the liver. That is why taking certain

drugs requires the monitoring of transaminases (AST and ALT), enzymes that increase in the presence of liver damage.

Other particularly toxic substances include alcohol and tobacco. We must be aware, however, that nowadays a very large amount of chemical toxins can enter the blood and tissues. This risk has increased enormously compared to the past. Suffice it to say that the list of carcinogens published by the WHO (World Health Organization), through its Research Institute IARC (International Agency for Research on Cancer), is very long (lead, mercury, arsenic, cadmium, asbestos, dioxin, hydrocarbons, dyes, pesticides, DDT, herbicides and insecticides). It is practically impossible to avoid contact with some of these carcinogens, which are certainly present in the environment, because they come from industrial, household and motor vehicle fumes. The agricultural slurry produced by farm animals is equally polluting. We live on a sick planet where, since everything is polluted - water, air and soil – it is almost impossible to be healthy.

Psychophysical factors

The third group of causes consists in psychophysical factors: worry and overdoing things (stress, trying to do too much, too little sleep, too little rest, overwork and overdoing things during leisure time, travelling, holiday trips and even sexual performance). The mind affects the whole body. There is no organ and no function that is not conditioned by the mind and by mental energy: heart, liver, intestine - also called the second brain, bladder, sexual organs and muscles. The mind also affects its own functions: memory, concentration, level of mental energy, emotions and mood.

The role of stress

Stress is a syndrome of adaptation to demands from the environment, which forces the body to increase its physiological performance, through nervous and hormonal reactions which produce emotional, somatic, immunological, cardiovascular, respiratory, muscular, digestive and sexual responses. Stress may be physiological, within certain limits and for short periods, but when it gets out of control it becomes one of the most common causes of

weakness. If it is excessive, the body can no longer cope, and stress can have pathological and harmful implications, becoming a source of illness. In the initial stages when the body is stressed it is often able to cope: for example, in the case of the stomach, small difficulties in digestion may appear, but nothing more. But if stress persists, the stomach exhausts its resources and falls ill: it becomes inflamed and gastritis sets in.

The effect of sport and illness

Stress, but also sport and illnesses act in a harmful way: in all these circumstances, metabolic processes accelerate and increase the production of harmful free radicals. Unfortunately, many professional athletes or even amateurs fall ill more than average, because wear and tear increases when the body is subjected to strong exertion. Even when no injuries occur, microtraumas increase normal cell destruction and overload the cleansing organs, which have to work even more. Moreover, under prolonged stress, the heart, circulation, osteo-articular apparatus, muscles and mind also weaken and start to have problems.

The presence of existing illnesses is an additional factor which weakens the body, putting strain both on the physical and the psychological side, due to the patient's illness-related anxieties and worries. More serious is the disease and greater is the likelihood that it may cause other diseases, because the body does not have possibility to compensate. Pharmaceuticals, too, are a weakening factor.

The time factor

As the years go by, free radicals are formed continuously and leave signs of aging on the body. But this is not the only reason why time is a cause of deterioration. Passing through the different phases of life can be problematic, too. Due to the weakness of some functions we are more vulnerable during some of these stages, which are listed here.

Children are very weak, especially in regards to immunity, because the immune system matures when they are about seven years old. *Adolescents* are particularly prone to stress, because the physical

and psychological transformations typical of this age group affect psychological equilibrium very strongly.

Adults are vulnerable to stress, due to their quick pace of life, with long and demanding days.

The *menopause* is a vulnerable stage, because estrogens diminish (no longer produced by the ovaries, they are instead produced by the adrenal gland in smaller quantities).

The *elderly* have weak immune systems due to the natural decline of the body's defences that occurs at the age of seventy. In general, they have little energy and are subject to various ailments and illnesses that make them particularly vulnerable.

The main pathogenic mechanisms depend on free radicals

We have had a look at the "enemies", namely the causes that weaken the functions of the four magical apparatuses of the body. We have also seen that the weakening of a function depends on its capacity for defending itself, and this varies from one person to another. Those who are stronger, who eat better, who rest better and so on, are better protected. But how do pathogenic causes act in the body? How do they produce damage? In 90% of cases, damage occurs through free radicals. The universal mechanism that harms the whole body is represented, therefore, by free radicals, which first hit the function and then cell structure, too. The four basic functions are the first to be damaged by this "molecular plague".

Free radicals are small fragments of molecule that, detaching themselves, become harmful because they bind to other molecules, altering them. Consequently, aging and degeneration of organs and tissues develop. Free radicals form continuously, everywhere, in the cells, in the blood and in body fluids. They were discovered by Professor Harman, Nobel Prize for Medicine (1981), and have been the subject of numerous studies which have confirmed their role in almost all diseases.

They destroy everything they find: proteins, fats and DNA, both inside and outside cells, in connective tissue and circulating liquids (blood, lymph, brain fluid, sperm, saliva). In each cell type (skin, brain, heart, kidneys, liver, the walls of the arteries) they demolish

the energy production plant (mitochondria), the factories (endoplasmic reticulum) and the genetic material (the nucleus) containing the commands and files necessary for all cellular activity.

CHAPTER 8

Pseudo-health

*Health is not everything, but without health,
everything else is nothing.*

ARTHUR SCHOPENHAUER
(1788-1860)

Absence of symptoms of disease does not necessarily signify good health, since it must be borne in mind that health deteriorates silently. Diseases usually become apparent after some time, even years, when they have already caused substantial damage. Meanwhile, they have also undermined quality of life, increasing tiredness, decreasing resistance to stress, creating small problems. For this reason, the four functions of the body must be defended seriously and adequately, so as to maintain good physical and mental health.



Health is not just absence of illness

We are used to defining health as an absence of symptoms. Actually, this is not the case. According to the World Health Organization: "health is a state of complete physical, mental and social wellbeing and not merely the absence of disease or infirmity." Traditional Chinese medicine, too, is perfectly in line with this idea of health. Suwen (Huangdi Neijing), the ancient book of Chinese medicine which dates back to the third century AD, states that "health is good when the body works in accordance with the laws that rule the Universe."

The mere absence of symptoms is rarely synonymous with health because pathological processes may remain asymptomatic for a long time, even for years. Even if no disorders are apparent the body is, nevertheless, subject to constant and progressive deterioration: health is like a burning candle which shortens over time. It is up to us to try to consume it as slowly as possible and not "rest on our laurels." It is therefore important to distinguish a healthy condition from pseudo-health, in which, for example, one of the body functions is fatigued, is weaker and asks for help. The body is exhausting its resources to protect itself, but increasingly reducing its compensation mechanisms. The deterioration of its functions continues and probably some type of illness will appear, sooner or later.

The body's enemies are insidious

The enemies which attack the body on a daily basis act in the shadows and come out into the open only after years (Navarro and Senior, 2006). That is why even when everything seems to be going well, we cannot lower our guard: if we do not take care of ourselves properly, sooner or later these enemies can get the better of us. If we want to maintain excellent health, we must take care of our health on a regular daily basis. It is like looking after a home: its maintenance and cleaning require daily care. Many small dysfunctions that are easy to overlook are instead alarm bells requiring attention. Like hunger warns us to refuel with food, so the signs of deterioration indicate that we should recharge our defences that are getting low because they are under pressure.

Signs which should not be ignored

What are the signs of pseudo-health which, even in the absence of actual symptoms, indicate that wellbeing is lower and that the quality of life is no longer the same as it used to be? Here are some examples.

1. Lower productivity at work and poorer resistance to stress, so after a busy morning we start to be short of energy.
2. For an hour after lunch we do not get much done. It feels like digestion is taking up a lot of energy. This is typical when the liver has an energy gap, a very common disorder, little known, which is not taken into consideration.
3. Pain, swelling and discomfort in the stomach and intestine.
4. Difficulty in doing sport as we used to (swimming, walking) or having a day out, because the next day we feel the after-effects of too much physical exercise.
5. A feeling of tiredness and/or digestive problems during a change of season, especially in spring and autumn.
6. Excessive worrying, strained and hostile personal or work relationships. Not only do they cause considerable suffering, but above all they constitute a pathogenic factor that, stressing the whole body, wears down the health of the mind, the heart, the circulation and the reproductive system.

We must take care of ourselves to avoid these signs and warnings going unheeded. Otherwise, early symptoms, that are bearable but that could have been avoided, will appear, such as flu, heartburn, bloating, irritability, a greater need for sleep, greater difficulty in concentrating at work, and so on. If we underestimate the first symptoms we will have to face more serious diseases, such as allergies, gastritis, colitis, constipation, gallstones, insomnia, high blood pressure and other problems. Many are preventable by intervening in support of the body's functions when necessary.

The body is able to defend itself

Fortunately, the body is equipped with some automatic mechanisms which have the task of safeguarding health. Unfortunately, however, these defences are neither infallible nor infinite. These mechanisms

are responsible for cleansing, defence, maintenance and repair of damaged tissues. Moreover, an extremely important role is played by self-healing, which consists in a number of additional functions that are automatically activated when there are particular problems, such as when a wound needs healing, or to repel attacks from germs, to increase the level of hormones when they tend to decrease and so on, when the different organs and apparatuses need special action. Also called natural healing power (*vix sanatrix naturae*), it depends on the overall health of the body: if the body is healthier, then also this natural healing power is more active, and is able to act efficiently. If the compensation mechanisms are overused, they begin to lose their functional efficiency. The person's health is apparently fairly good because there are no symptoms, but some warning signs appear.

Prevention prolongs life

Cleansing functions and self-healing power, while effective, have inherent limitations: if they are overused, without being properly supported and refreshed, they soon run out. We should learn from Eastern peoples, for whom prevention is culture and respect for one's life. In Asian countries people do not ask the doctor for help only when there is a symptom or an illness, but also when there are changes that could disturb the body's equilibrium, such as when the seasons change, when starting a new job, during critical phases of personal and family life.

The quest for longevity has been one of the basic values that permeates lifestyle at all levels in such countries for thousands of years. The main resources for achieving the objective of longevity are prevention and the early treatment of any symptoms as soon as they appear, by means of a healthy diet, psychophysical activities performed at all ages, herbal medicine and healing mushrooms. Mycotherapy, in particular, is commonly used: in prevention, to help the body simply to stay healthy, and in treatment, at the first sign of problems, to "fill up" with health, using the most suitable healing mushrooms to strengthen any weak points. It is no coincidence that Asian populations are among the longest living in the world: for them

mycotherapy is an ingredient of everyday life. That is why it is fundamental to use all the external aid that nature offers us.

CHAPTER 9

The progression from dysfunction to illness

*If the diagnosis is perfect,
The treatment cannot be wrong.*

HUANGDI NEIJING, *Suwen*
3rd century A.D.

A pathogenic cause jeopardizes a function before illness appears. The body sends warning signals that the function is in trouble and needs help. If nothing changes, inevitably, sooner or later illnesses start to develop. But which path do they follow? And how do they develop?



Early warning signs

When a function is in trouble and loses some of its effectiveness, well-being is affected both locally and generally. The more this situation is neglected the more inevitably it will lead to symptoms and disease. If nothing is done, warning signs start to appear, first small

and then, if ignored, more and more obvious. These warnings signs are important, because if they are heeded they allow us to understand that something is wrong: it is time to take action to prevent more serious and chronic disorders. If the cause is not resolved, and if the symptoms are only silenced, this disregarded call for help will trigger an escalation with more serious warnings and illnesses.

Mycotherapy tackles both the symptoms and the cause of illness, and is often able to resolve the disorder. Moreover, it is able to stop or slow progression to more serious disease. Healing mushrooms, in fact, have four powers: one for each apparatus, thanks to which they manage to have positive effects on diseases throughout the body.

A symptom: an overused defence mechanism

We are used to thinking of a symptom as an enemy to eliminate or a hindrance which unfortunately affects just us in particular, like a tile that falls on our head because we are going by. On the contrary, a symptom is a mechanism which the body uses to defend itself. For example, in gastritis, heartburn obliges us to eat highly digestible foods, so that the stomach works less hard; in arthritis, the inflamed joint is painful, so the use of that particular joint is instinctively reduced. If the stomach or the joint could talk they would probably say, "Stop! I have had enough. I tried to warn you that I am in trouble, but since you did not listen to my warnings, I will make you see stars, so you will have to admit that there is a problem!"

On other occasions, a symptom is a defence mechanism that becomes pathological instead of physiological, because it has been used for too long. For example, in hypercholesterolemia, initially the cholesterol in the blood increases to protect the arteries from possible rupture. In fact, it is like a natural silicone which thickens the point of the artery wall that has worn out, to avoid tearing and consequent bleeding or internal hematoma. Moreover, since cholesterol is an oily substance, it makes the blood flow along better and reduces the friction which damages artery walls. However, if the conditions that are damaging the artery wall are not modified (stress and poor diet) they continue to act chronically, so the plaque that is

formed from the onset continues to thicken and over time can obstruct the blood vessel.

Diseases can be divided into four groups

From a holistic perspective, diseases are alterations of the four essential functions for life. The area of the body where the symptom appears is the weakest part of a system which is suffering. So, help must be provided not only for the part or the organ in which the symptom is apparent, but for the whole function. In fact, helping the suffering function and encouraging its recovery very often suffices to resolve both symptom and cause. That is why we talk of holistic functional medicine. To simplify things and maintain the link between the symptom and the cause, I have divided diseases into four groups, corresponding to four apparatuses or groups of apparatuses, each of which is responsible for one of the four functions necessary for survival. All diseases belonging to the same group share a progressive decline, which leads first to inadequacy, and then to a deterioration of the function of that specific apparatus, and so on, until an actual disease develops, with an escalation from the most minor to the most serious level:

1. diseases of the immune system are caused by an impairment and alteration in the body's immune functions. The most common are: flu, allergies, inflammatory disease and autoimmune disease;
2. diseases of the digestive system and metabolic diseases are caused by the deterioration of the digestive and metabolic functions. The most common are: gastritis, colitis, obesity, high cholesterol and diabetes;
3. diseases of the liver, kidneys and skin are caused by the failure of the filtration functions of the liver, kidneys and skin, which become insufficient and accumulate toxins. The most common are: acne, inflammatory dermatitis, steatosis, hepatitis, nephritis and nephrosis;
4. diseases regarding the mind, the cardiovascular system, sexual apparatus and osteo-articular apparatus are caused by excessive workload, resulting in the deterioration of these functions. The most common are: anxiety and depression, high blood pressure,

extrasystoles, arrhythmia, dizziness, vertigo, headache, menstrual irregularities, menopausal disorders, osteoporosis and arthritis.

Deterioration is a gradual process: the four levels of disease

Illnesses are not separate events: there are linked along a line which, from minor passing disorders, can evolve into more serious conditions if no action is taken. If disease is not controlled and the underlying cause restrained, it is inevitable that it tends to escalate leading to more serious pathologies. For example, stomach illnesses are almost always caused by stress and poor diet, which cause a progressive escalation. Often, the first level of severity consists in episodic bouts of gastritis, the second level is chronic gastritis, with or without *Helicobacter pylori*, the third level is gastritis with gastrooesophageal reflux, with or without hiatal hernia or ulcer, the fourth level a tumor. Generally, all diseases follow an escalation that I have summarized into four progressive levels of severity. The first two levels describe functional illnesses, with no organ lesions, while the last two describe organic diseases, with organ lesions.

1. First level of severity: illnesses with mild and fluctuating symptoms, that conventional medicine calls functional illnesses.

This group includes many inflammatory diseases and pathogenic germs regarding all areas of the body: skin, throat, stomach, joints. If the cause is not resolved, such diseases relapse and tend to become chronic. Besides these, there are also illnesses related to energy, often caused by stress, such as anxiety, fatigue, disturbed sleep.

2. Second level of severity: functional illnesses in which symptoms have become established.

In the majority of cases they are inflammatory diseases, such as: bronchitis, gastritis, colitis, arthritis, inflammatory and allergic dermatitis. In other cases the disease is not inflammatory, as in the case of overweight, high cholesterol, high blood pressure. There are also diseases related to energy, such as chronic fatigue, chronic anxiety, insomnia, extrasystoles, stress induced tachycardia.

3. Third level of severity: chronic illnesses with organ lesions. These diseases have jumped up a stage, and it is difficult to recuperate lost

ground, because they have produced an initial lesion in an organ, often as a consequence of inflammatory illnesses which have produced a scar. It would be better not to arrive at this point, but unfortunately it is often at this stage, when a scan or CT scan brings to light an alteration, that diseases start to be treated. This group includes:

- various illnesses in their early stages, such as obstructive bronchitis (COB), rectal polyp, colon diverticulum, uterine fibroids and autoimmune diseases, including Hashimoto's thyroiditis, hyperthyroidism (Graves' disease), rheumatoid arthritis, Sjögren's syndrome and others;
- plaques of atherosclerosis with hypertension, carotid plaques, plaques in the heart, which often lead to cardiac angina or atrial fibrillation, kidney plaques with chronic renal failure;
- chronic systemic diseases such as diabetes and Parkinson's disease.

4. Fourth level of severity: a lesion has altered the structure of an organ.

This can happen in the advanced stages of diseases of the third level when the lesion affects the structure, as in goiter due to Hashimoto's thyroiditis, hyperthyroidism (Graves' disease), bone deformity due to rheumatoid arthritis, in obstructive bronchitis (COB) that impairs breathing. This group of illnesses also includes: multiple sclerosis, neurological diseases, epilepsy, kidney disease, heart disease such as heart attack, strokes, cancer and Alzheimer's disease.

Diseases are not separate events: there is always a link between them.

Although diseases affect different apparatuses, there is always a link, a logic that connects them. Moreover, although each apparatus is described separately, the body should, nonetheless, be considered as a whole. So, after understanding the connection between the disease and the function which is in difficulty, the extent of the dysfunction or damage caused to the apparatus concerned should be assessed. In addition, considering the influence that an apparatus in difficulty has on the functions of other apparatuses, an

impaired function may also often cause problems to another or more apparatuses, triggering two paths of disease.

For example, if the digestive system is suffering, not only will the digestive function be affected, but so will the immune system, because most of the immune system is localized in the intestine. This will affect the energy function, because less energy will be produced, since the digestive system provides the whole body with energy. In addition, the filtration function will also be overworked. Moreover, the digestive function may have been adversely affected by the mind. To treat colitis, therefore, it may be necessary to strengthen only the digestive function (with *Lentinus*) or to support both digestive and mental functions (with *Auricularia*).

A precise evaluation is required in order to identify a remedy which can solve the problem completely: mushrooms suitable for the ill symptomatic function and the deteriorated asymptomatic function must be chosen. Therefore, an intestinal symptom will lead us to take the other functions into account too: immunity, energy and cleansing. By examining the links with the other functions, a map can be drawn up of the whole situation to clarify which of the four functions is in difficulty. By concentrating only on the individual symptoms, the overall view is not easy to see. Instead by looking for links based on the symptoms, the overall view becomes clear.

Continuing with the example we can see other connections. Colitis is an illness of the intestine that causes intestinal damage, becomes increasingly insistent and painful and causes intestinal colic. But it causes disease beyond the digestive system because it produces toxins which pass into the bloodstream and can attack anywhere. In particular, they can get to the skin, leading to acne, or to the hair, generating alopecia. In all cases, treatment must resolve the underlying cause, namely colitis.

In fact, there are diseases that affect only the organs that are inside the apparatus and others that also affect organs outside the apparatus. In the case of the immune apparatus, for example, diseases can affect any part of the body, because the immune system must defend the whole body: therefore, when it does not work well, the whole body can fall ill. In the case of the digestive

system, instead, the intestine can produce toxins that cause diseases such as cholesterol plaques, stenosis of the arteries, hepatitis, acne, dermatitis. Even the mind, through the nervous system that is connected with the whole body, can cause diseases all over the body from colitis to tachycardia or high blood pressure. Moreover, in case of illness, the immune system is usually the first apparatus to deteriorate, followed by the digestive system, then the apparatus that controls cleansing and, finally, the energy apparatus.

PART C

PREVENTING AND TREATING DISEASE WITH MYCOTHERAPY

*Mycotherapy is excellent preventive medicine,
keeping many diseases away.*

*From the flu to allergic, liver, heart,
circulation, brain, kidney, eye and other diseases.*

*In fact, it strengthens the immune system,
eliminates toxins from the liver and the blood,
gives greater psychophysical energy and serenity,
improves sleep, keeps the arteries and heart younger and healthier
and, in general,
keeps the body healthy.*

*But the successful recipes and ten healing mushrooms
also represent a complete repertoire
to deal with symptoms and diseases,
both functional and organic.*

*By reinforcing the four essential functions -
immunity, digestion and metabolism, cleansing and energy -
symptoms and causes are eliminated, one after another.*

*Mycotherapy remedies produce better results
if used according to the most effective protocols, with
correct dosages and for the recommended length of time.*

CHAPTER 10

Healing mushrooms are the basis of prevention

There is no need to wait until we actually feel ill to intervene on the causes of deterioration in health, because the apparatus that is deteriorating sends some warnings from the outset. It is important, however, to understand these warning signs and to act in a correct way. The sooner action is taken the better. Here's how.



To live without disease is possible

Living without illness is possible. This is demonstrated by Asian peoples, but also by our grandparents and great-grandparents. The secret lies in investing a great deal in prevention. In this sense we can learn a lot from the Chinese and the Japanese whose lifestyle, for centuries, has given careful attention to wellbeing based on: the excellent and widespread habit of doing exercise and keeping moving; abundant consumption of fruit, vegetables, shoots and legumes; the exclusion of milk and dairy products of animal origin;

low consumption of animal proteins and cereals; a tendency to do yoga and meditation; the daily use of mushrooms, both in the form of food and herbal teas and in the form of supplements in tablet form. Mushrooms, in particular, provide huge support in achieving the objective of maintaining health as long as possible.

Warning signs must not be ignored

Eastern medicine gives great importance to prevention and periodically checks up on organs and viscera – the body is inspected, just like a car is serviced at the mechanic's. Holistic functional medicine, too, suggests taking prevention seriously, and closely monitoring each of the four systems into which the body is divided: immunity, nutrition, cleansing and energy production. Moreover, these four functions, which are essential for survival, need specific preventive action, starting at the right time, in order to remain efficient. So, in order to reach old age in good health, we must learn to take care of our health every day with the same commitment and habit that we dedicate to personal hygiene, to work and relationships. Or as a housewife looks after her home every day.

This means that it is important to learn to listen to the signs that the body continually sends us: signs of well-being but also signs of fatigue, when it is low and needs new healthy resources, such as mushrooms, healthier eating, more rest, exercise and greater relaxation. These warnings, in the form of tiredness or minor symptoms, in fact, indicate that both ordinary and special defence mechanisms have been used intensively and are running out, so they need refuelling, otherwise their enemies can win. In fact, as the efficiency of the functions needed to live deteriorates, aging and pathogenic processes that bring disease gain the upper hand.

Mushrooms help us to stay healthy

Mycotherapy is an excellent ally that takes care of the health of the body's organs and their functions at various levels: it helps to strengthen the immune system, to dispose of toxins from the liver and blood, to provide more mental and physical energy and serenity, to improve sleep, to maintain the arteries and the heart younger and healthier and, in general, to preserve the health of the body.

Mushrooms, in fact, correct the health defects that have accumulated in the body, cleansing it and stimulating self-healing that regenerates damaged parts. They effectively restore the four functions that we need to live to good health and they recharge the mechanisms that are responsible for cleansing, protecting, maintaining and repairing damaged tissues. This is the reason why healing mushrooms help us to reach old age in good health. A single mushroom is not always enough to strengthen all the weak points of the four basic functions, two are more often required.

Ten remedies, different but similar

The healing mushrooms authorized by the Italian Ministry of Health as food supplements correspond to the main healing mushrooms used in the world for prevention and treatment. There are ten: *Agaricus*, *Auricularia*, *Coprinus*, *Cordyceps*, *Hericium*, *Grifola*, *Pleurotus*, *Polyporus*, *Ganoderma* and *Lentinus*.

Agaricus, *Ganoderma*, *Cordyceps*, *Lentinus* and *Grifola* act holistically on each of the four functions of the body. They have wideranging effects and are able to reach various apparatuses, which is why they can be used in many different circumstances.

Auricularia, *Coprinus*, *Hericium*, *Pleurotus*, *Polyporus*, instead, work in a more specific way: whilst being effective in numerous cases, they are not able to exert all four powers. However, they are equally important because they excel in some functions and areas in which the other mushrooms act too, but without achieving the same results. For example, *Coprinus* is excellent in the prevention and treatment of diabetes and hyperglycemia. The discerning use of mushrooms can provide excellent prevention in each of the four systems that make up our body. Here's how each system can be protected.

The basis of prevention for the immune system: the 1st power

The immune system requires well-timed prevention to keep efficient. The probability of becoming ill, in fact, is inversely proportional to the efficiency of the immune system: the weaker it is and the greater the risk of developing disease. To avoid seriously jeopardizing the immune system it is essential to be alert to the first signs of difficulty;

instead, many people risk taking such warnings too lightly or fail to connect them to weakened immunity. It is better to see these signs as an excellent opportunity to take care of ourselves, investigating the causes thoroughly. That is why symptoms such as a lower resistance to cold and damp, inflammations such as colds, minor ailments in the throat, flu, back pains or cold sores should not just be silenced with a pharmaceutical: they are an indication that the immune defences are weakened and need to be strengthened. The real cause of illness, in fact, is the weakened immune system. Pathogenic germs are just the agents which draw attention to the problem. Acting on the causes will prevent greater problems. Moreover, children and the elderly are the most vulnerable. The immune defences are also weakened considerably by an unbalanced diet, with a lot of cheese, or during antibiotic use. In all these cases mycotherapy is fundamental for strengthening the immune system.

The best mushrooms to use with the 1st power

Agaricus, *Ganoderma* or *Lentinus* alone may be sufficient in preventing minor short-lived ailments, such as colds, sore throats, bronchitis and flu. However, for really effective prevention It is better to use *Lentinus* and *Ganoderma* or *Lentinus* and *Agaricus*. *Lentinus* is the basic remedy because it strengthens intestinal immunity, on which the immunity of the whole body depends. *Agaricus* and *Ganoderma* work in a similar way. They make the immune system almost impenetrable for all these minor short-lived diseases. The difference between them is small: *Agaricus* is a bit more powerful as a germicidal "antibiotic", while *Ganoderma* is slightly more powerful as an antinflammatory agent.

Recommended prevention

For colds: *Ganoderma* or *Lentinus*.

For sore throat, bronchitis and flu: *Agaricus* or *Ganoderma* or *Lentinus*.

The basis of prevention for the digestive system: the 2nd power

The digestive system needs good prevention to keep efficient. In fact, the second function is easily weakened and damaged, since the

systems that perform this function are very sensitive to stress and negative emotional states and are also in contact with substances that may be toxic. Stomach, small intestine, colon, liver and pancreas are all subject to heavy wear, so their functions are almost always weak or even damaged in adults. As a result, the vast majority of people suffer from digestive problems, bloating, constipation or loose stools, which also lead to metabolic problems, such as initial weight gain and the first increases in cholesterol and blood sugar. It is therefore essential not to underestimate the signs of weakness, which are actually an opportunity to investigate the psychological or dietary causes at the base of the problem, and to take healing mushrooms to resolve the issue.

Healing mushrooms act on several levels. First of all, they stimulate digestion in the stomach and intestines, also providing a range of enzymes similar to those in the digestive system itself, they support the intestinal bacterial flora, resolve inflammation and encourage the peristaltic movements necessary for digestion and elimination of feces. Moreover, they considerably strengthen the liver and the pancreas and help to control some essential metabolic parameters such as cholesterol and blood sugar. Last but not least, they increase metabolic efficiency, reduce high cholesterol and can clear up the plaques that thicken blood vessel walls.

The best mushrooms to use with the 2nd power

Hericium is useful for bloating and difficult digestion, also because it acts on anxiety and depression nerve centres, reducing excess adrenaline especially in the stomach, where it hinders digestion. It also protects and strengthens the mucosal cells in the production of mucous that, by coating the stomach completely, defends it from the acidity needed to digest food. *Lentinus* prevents intestinal bloating, a very common disorder nowadays, and helps to keep the abdomen flat. *Grifola* promotes intestinal digestion, while *Auricularia* helps to restore the movement of the intestinal walls (peristalsis), necessary for mixing and digesting food, but also for the progression and elimination of feces.

Ganoderma and *Cordyceps* are useful in the presence of severe sleepiness after meals: a disorder that indicates that the liver is in difficulty due to stress and/or diet. When our diet is a little too rich and neglected and we are overstressed, cholesterol and blood sugar levels may increase and so a good prevention requires respectively *Pleurotus* and a combination of *Coprinus* and *Grifola*. If the use of healing mushrooms is associated with a healthy diet and emotional aspects are cared for, the results are even more remarkable.

Recommended prevention

Bloating and heaviness in the stomach: *Hericium*.

Intestinal bloating: *Lentinus*.

Loose stools: *Grifola*.

Constipation: *Auricularia*.

Cholesterol slightly high: *Pleurotus*.

Blood sugar slightly high: *Coprinus*
and *Grifola*.

The basis of prevention for the cleansing system: the 3rd power

The cleansing system needs prevention to keep efficient and to defend itself from bad diet and the large amount of toxins with which we continually come into contact. In fact, this build-up of toxins slowly makes us ill without us even realizing it. To avoid seriously damaging the cleansing functions it is essential not to underestimate the first signs of weakness, but rather to see them as an excellent opportunity to take care of ourselves, thoroughly investigating the causes. The more toxins build up, the more we get ill.

A typical sign not to be overlooked is that the skin becomes less luminous and greasier. The liver, too, which is the mainstay of the cleansing function, has to be taken into consideration, because it is weakened by stress, irritability, anger, a daily diet based on animal protein and fat, smoking, consumption of alcohol and even pharmaceuticals. In these cases, the liver has problems. It needs help and we must not wait until transaminase levels increase, because by that time the liver is ill.

The best mushrooms to use with the 3rd power

Ganoderma and *Agaricus* make the skin more beautiful: they cleanse the body inside and eliminate liver toxins, purifying the body, including the skin. *Ganoderma* and *Cordyceps* are excellent at cleansing the liver and a clean liver provides greater energy. *Polyporus* is very useful in getting rid of fluid retention that makes legs swollen and painful, and to halt an increase in creatine, a warning sign of kidney disease.

Recommended prevention

Oily skin, acne: *Ganoderma* and *Agaricus*.

Stress, irritability, anger: *Ganoderma* and *Cordyceps*.

Daily diet (animal proteins and fats): *Ganoderma* and *Cordyceps*.

Smoking, alcohol: *Ganoderma* and *Cordyceps*.

Pharmaceuticals: *Ganoderma* and *Cordyceps*.

Water retention with swollen legs: *Polyporus*.

Increased creatinine: *Polyporus*.

The basis of prevention for the energy system: the 4th power

Prevention is the basis for maintaining efficiency in the production and circulation of energy. The mind and the heart are the most vulnerable functions, especially because of stress and the quick pace of modern life. Consequently, without efficient prevention, they are destined to weaken, and to make this weakness felt. Given their central role, however, the whole body feels these effects, with tiredness and deficiencies that lead to illness.

To safeguard these precious functions it is essential to pay attention to signs of deterioration such as muscular tension, neck pain, back pain, extreme evening tiredness, disturbed sleep, early morning awakening, lack of energy in the morning until late morning, irritability, agitation, restlessness, heart rate that tends to accelerate, small transient increases in blood pressure, muscle tension in the chest, fear of heart disease. If these signs are ignored, their causes continue to exist, compensation mechanisms work less and less, and mental, but also cardiovascular, disease may appear. The later action is taken, the longer the recovery time. In fact, the very first symptoms should warn us that the body is short of energy, which is

putting pressure on some of its apparatuses, and that action is required.

The best mushrooms to use with the 4th power

Mycotherapy is an excellent response to this request for help: it has, in fact, many effects related to the 4th power which invigorate the heart and are invaluable both in the prevention and in the treatment of heart disease.

Auricularia is very rich in adenosine, a molecule present in all body cells with important functions. When there is plenty of adenosine in neurons, psycho-emotional functions are efficient, which helps to counteract stress, anxiety and even tremors related to neurological disease. Instead, when neurons are short of adenosine, this deficiency is also at the root of psycho-emotional symptoms, such as anxiety and insomnia, and neurological symptoms, such as tremors. *Auricularia* provides this substance, strengthening antistress mechanisms and also reducing tremors. Moreover, an abundance of adenosine in heart cells protects them from ischemia, arrhythmias and heart disease. When little oxygen gets to the heart cells adenosine dilates the coronaries preventively counteracting the shortage of oxygen and ischemia and also protects the heart rate. For this reason, it is an excellent remedy against heart disease. *Auricularia* harmonises the heart rate, which tends to accelerate when the heart is stressed or feels fatigue.

Cordyceps and *Ganoderma* are also useful in restoring a correct heart rate and to increase the energy and health of the heart when its resistance to stress is lower. *Ganoderma*, *Cordyceps* and *Agaricus* help fight problems related to memory, concentration, mental stamina and also mild depression, which are not due to stress. *Agaricus* and *Cordyceps* combat fatigue. In sport they improve performance and eliminate free radicals. *Auricularia* and *Polyporus* are useful in reducing blood pressure when getting up in the morning. *Ganoderma*, *Lentinus* and *Cordyceps* are helpful in the prevention and treatment of osteoporosis. *Auricularia* also has excellent antiinflammatory properties.

Recommended prevention

Sport and tiredness: *Agaricus* and *Cordyceps*.

Irritability and disturbed sleep: *Auricularia* and *Ganoderma*.

Tremor: *Auricularia* and *Ganoderma*.

Palpitations and mild cardiovascular signs: *Auricularia* and *Cordyceps*.

Slight increases in blood pressure: *Auricularia* and *Polyporus*.

Menopause with hot flushes: *Ganoderma* and *Cordyceps*.

Osteoporosis: *Ganoderma*, *Lentinus* and *Cordyceps*.

CHAPTER 11

How to decide on treatment

To treat an illness efficiently

We have to find the root.

HUANGDI NEIJING, *Suwen*

3rd century A.D.

Healing mushrooms are excellent not only to prevent, but also to treat, illness. We tend to think that to cure a disease means to eliminate the symptoms. In fact, true healing involves not only the disappearance of symptoms, but also resolution of the underlying cause. Mycotherapy is excellent in this case: by tackling the cause, it often resolves not only the cause itself, but also the symptom. But what is the best way to establish mycotherapy treatment?



In Chinese medicine to cure means to eradicate the root

In traditional Chinese medicine disease is treated like a plant. The cause is compared to the root and the symptoms to the branches

and leaves, which are the visible part. Like the root, then, the cause is hidden, and nurtures disease. A botanist recognizes the tree from its bark and leaves and, having identified it, knows where and how to look for the root. In traditional Chinese medicine the first step is to recognize a disease, starting off from the visible symptoms, and then to look for the root. Effective treatment eradicates the root: without root, in fact, the disease, like a plant, cannot exist.

An illness should not be identified with its symptoms

The diagnosis of a disease is usually based on evident symptoms. When the symptoms disappear, we feel cured. Therefore, in the presence of an illness, the main concern is to eliminate the symptoms (fever, cough, cholesterol, lumbago, heart pain, and so on). Instead, the visible symptoms are only the consequence: a sign, usually painful, caused by the function that is impaired. The resolution of the cause that has weakened the apparatus and its function is the true resolution of the disease. We must not mistake the symptom, the warning sign, for the disease and confuse the elimination of the symptom with healing. Recovery from the flu, for example, is not completed when a high temperature and other complaints have disappeared, but by strengthening the immune system so that it will no longer allow a virus to take control. Otherwise, we may not really recover from an illness, but only progress from milder to more severe and chronic forms. In fact, the later action is taken and the higher the likelihood of falling ill, and in this case recovery times will also be much longer.

Mushrooms are always an effective solution

Nowadays, it is increasingly clear that the main pathogenic factors that cause disease are nutrition, physical and psychological stress and a sedentary lifestyle. This awareness, however, is not always enough to make us change these bad habits. Moreover, as soon as the symptoms start to disappear, good resolutions are sometimes quickly forgotten. Medicinal mushrooms are a great help in this case because they resolve both the symptoms and causes of an illness and are therefore a great ally for those who cannot manage to change their lifestyle. Each mushroom uses its powers to reach

almost throughout the whole body, acting with its wealth of active ingredients to treat both the causes and the symptoms. Of course, just one mushroom is rarely enough to heal the human body considering its size and complexity. Also because a mushroom is not a pharmaceutical, it is a living being that possesses mechanisms which it uses for its own survival and not for the care of other beings. For these reasons, mycotherapy involves using combined remedies. Successful combinations are suggested in the treatment protocols that I have developed over the years. These protocols harmonize and enhance the powers of healing mushrooms.

Also in combination with conventional medicine

When we are ill we usually rely on conventional medicine hoping that it will eliminate our symptoms. Indeed, conventional medicine often helps to eliminate symptoms. But in order to speak of real recovery, we must free ourselves also, and especially, of the underlying cause of our illness. Just eliminating symptoms can have a boomerang effect: the apparent well-being achieved thanks to pharmaceuticals makes us lower our guard when instead the cause is not resolved and continues to act silently, leading to the appearance of new symptoms and new diseases, maybe in other areas.

Nature is excellent at eradicating the cause, but it does not possess the same speed as its chemical alternative. That is why, if necessary, the two medicines can be used at the same time. For example, it can be useful to seek help from conventional medicines especially in the first and second month. With time, these medicines can be replaced with medicinal mushroom remedies. In more serious diseases, however, the two therapies can coexist and integrate each other. Using mushrooms in combination with conventional medicines also helps to protect the body from the side effects of these drugs (see [Chapter 5](#)).

Effective even in serious disease

If the causes of an illness are ignored, they continue to act in a silent way which very often results in an escalation. The timing of progression varies: it can be faster or slower according to the various diseases, the general conditions of the body, the number of

apparatuses involved. Medicinal mushrooms are effective at all levels, both in the initial stages of illness and in serious diseases. They are also extremely useful in the presence of permanent lesions, normally considered beyond repair, such as a cholesterol plaque, a mark on the skin or cirrhosis: with their gentle but longlasting action they can lead to significant improvements. Mushrooms, therefore, can cure diseases at levels 1 and 2 and greatly alleviate the symptoms of disease at level 3 and even 4 by using the mushrooms that strengthen the weak function. The ideal solution is to begin to take healing mushrooms at the first sign of problems. For example, as soon as the stomach starts having problems digesting or the heart works with less energy. Medicinal mushrooms not only help the organ displaying the symptom of a disease, but also the whole functional chain. In fact, according to holistic medicine, a symptom appears in the weakest part of a system in trouble. By strengthening the whole function, the weak spot is strengthened too.

They are beneficial at all stages of illness

The classification of disease according to degree of severity is flexible and simply has the objective of defining the extent of the problem, clarifying if it is functional or has already generated an organ lesion. Placing an illness at a specific point on a deterioration curve also helps to determine the precise aim of treatment and to evaluate its effectiveness.

For example, in chronic rhinitis without nasal polyps (level 2), the first goal is often to stop the escalating trend and avoid the formation of nasal polyps (organ lesion level 3), while the second objective may be to resolve the chronic inflammation and promote recovery, with possible re-emergence of rhinitis in cold seasons or when the seasons change (level 1), and finally to reach a permanent cure. This course of action can take between four and six months, but it is important to understand that behind the symptom there are some intermediate steps by the immune system, which must reverse its negative trend and recover efficiency. In nasal polyposis (level 3),

however, the goal is to stop the continual formation of new polyps, with more severe and degenerative alterations (level 4).

Healing mushrooms are able to halt the evolution of an illness and to reduce the level of severity. By reinforcing the weakest point they eliminate the symptom very effectively. In illnesses at levels 1 and 2, when there is no organ lesion, they provide substantial benefits, eliminating suffering. In more serious diseases, at levels 3 and 4, where there is an organ lesion, they can significantly reduce suffering.

Obviously, it is easier to recover good health by intervening at levels 1 or 2: four to six months may be enough for an illness that has developed over the last one to five years. At levels 3 and 4, however, more time is needed, on average eight to twelve months, because the organ lesion that has formed involves an extra step. At this stage mycotherapy is very useful for the action that it brings to bear on the causes. Returning to the example of nasal polyposis, intervening surgically would not act on the root causes (impaired immune system with chronic inflammatory tendency, reactivity and production of excess tissue), so the illness would remain at level 3, with probable relapse or progression to level 4. The use of medicinal mushrooms, instead, would avoid level 4 disease, characterized by chronic inflammation with a tendency to the production of extra-nasal systemic polyposis, and then reduce level 3 disease too, by preventing the formation of new nasal polyps.

A simple and effective cure if applied in the right way

Mycotherapy is simple to apply and continue, but only if it is channelled in a correct way. Improvising alone makes it easy to get confused and make mistakes. That is why it is important to rely on qualified professionals. Then, along the way, enthusiasm, interest and knowledge can produce excellent results, more or less as was the case for our grandmothers and great-grandmothers whose experience allowed them to work small wonders with medicinal plants also thanks to the reliable knowledge handed down from generation to generation.

Mushrooms should not be chosen or evaluated during use on the basis of some kind of abstruse criteria, but simply according to the apparatus in difficulty and the evolution of the disease, which will tell its own story consisting in a reduction of symptoms and causes. To be truly effective, however, healing mushrooms must be used in the right way: patience is required and one should not be overanxious to see results. All the prescriptions should be used for at least three months: in this way the endangered apparatus is strengthened. In the case of more serious illnesses, however, treatment times will be longer or remedies may well need to be combined. After all, an illness takes years to develop, so obviously a few grams of mushroom, however effective, require many months, if not a year or more, to restore health. After the initial three months, results are assessed to see if the treatment program must be continued, perhaps changing one or more remedies, or if it is time to move on to the maintenance phase.

Benefits and timing

In the first month the main effect is of cleansing: patients begin to feel a bit less toxicity, to have more energy available, to sleep better, to digest more easily. Or, in this period symptoms may even get worse: it is normal and does not depend on the mushrooms, but on outside influences, such as changes in the weather or anxiety, perhaps even due to the fact that they are taking "strange remedies". Two grams of mushroom cannot cause problems, just as two grams of carrots or apples cannot either.

But it is only during the second and third month that the body is strengthened, symptoms resolve and weak functions are reinforced. In the second three-month period well-being is further enhanced in all four functions of the body and symptoms diminish more and more. Very often, it is at this stage that conventional medicines start to be less useful, doctors see improvements and suggest reducing the doses of pharmaceuticals. Many people are enthusiastic because mycotherapy revolutionizes their lives.

All life long

Mushrooms grow all over the world to be eaten, just like carrots, apples and all the other gifts that nature has to offer so there is never any reason to stop taking them. They are the cornerstone of health. To use them all lifelong is not something unusual; it should be an ordinary fact, as we are taught by the traditions of Asian peoples, Native North Americans, populations throughout Mexico and of the Amazon in Brazil. Of course, healing mushrooms can also be used as symptomatic remedies, when neither the illness nor its functional cause is known. But using healing mushrooms in this way can be unsuccessful and leads to the idea that mycotherapy does not work. When results are not as good as expected, it is even more advisable to contact an expert.

CHAPTER 12

The "successful protocols" (*how to combine mushrooms*)

*“O most noble greenness (viriditas),
you whose roots are in the sun
and who shine in bright serenity”*

HILDEGARD VON BINGEN
(1098-1179)

A few mushrooms, ten in all, make up the "successful protocols". Some act in a similar, although not identical way, and others in different ways. For example, the action of *Hericium* on the digestive tract is very useful for the stomach and less effective on the intestine, while, on the contrary, the action of *Lentinus* on the digestive tract is very useful for the intestine and less effective on the stomach. That is why it is important to discover the characteristics of each mushroom, how they intervene and in which part of the body the action of each mushroom is more noticeable.



It may also be fascinating to discover how healing mushrooms work, to explain the logic behind their different uses. Those interested will find that it is quite easy to find out about their essential characteristics and how to use them. The protocols described here were created as combinations of mushrooms with a specific objective, both to maintain health longer and to treat disease. Here is how they work and how to use them.

Mushrooms help to prevent and to heal

How are mushrooms useful in the prevention and treatment of disease? In one of his latest works Professor Wasser points out that researchers have attributed about 130 different medicinal actions to healing mushrooms. In the last four decades, scientists have highlighted the active ingredients and mechanisms of action by which medicinal mushrooms counteract the pathological mechanisms of many diseases (Wasser, 2014; Wasser and Weiss 1999; Lindequist et al., 2005). Broadly speaking, we can distinguish two main types of action, both very effective in treating disease. The

first type of action combats the pathological mechanisms of disease, whereas the second type of action strengthens body functions and stimulates self-healing.

For example the first type of action consists in antiviral, antibacterial, anti-histaminic, anti-inflammatory and other effects. Research has also established how healing mushrooms work at a cellular and molecular level. For example, in inflammatory diseases they combat a factor active in inflammation (cyclooxygenase) and in chronic degenerative diseases a factor that produces degeneration (NF-kB) (Wasser, 2014).

With the second type of action the healing effect of medicinal mushrooms is thanks to strengthening natural functions of the body. For example, infectious diseases are greatly alleviated thanks to the increase in immune system efficiency and health. Hundreds of research projects have shown that medicinal mushrooms increase the number of defence cells (lymphocytes, monocytes, natural killers, macrophages, and others), and the production of defence factors (interferon, interleukins). This action is equally effective in many other diseases, such as diabetes, gastritis, hepatitis and diseases of the cardiovascular and nervous system (dementia) (Wasser, 2014).

This is the reason why scientists increasingly advise the use of medicinal mushrooms both in prevention and treatment of disease. They can be compared to a mobile phone which has enormous potential but can only be fully exploited if we are aware of the various mechanisms available and how they work. It is the same with healing mushrooms: to understand their great potential, it is necessary to understand in depth how each mushroom works, how they provide the greatest benefits to the body whether it is healthy or ill. This led to the creation of "successful protocols" which are simple to use and effective.

Healthy people require relatively little help, probably because their lifestyles are healthy (diet, mind and exercise) and supports the main functions of the body well. Even in this case, however, help is never superfluous, because we cannot be 'too' healthy. A treatment protocol can be used to tone up a specific function which may be

less efficient (sleep, menstruation, tiredness or some pain), or to invigorate the body more in general and improve its energy.

In the case of stress, which is not really an illness, but a stepping stone towards disease, the use of one of these protocols is even more important because the margins for compensation are even narrower and thus good prevention is essential, and all the more effective when it has a specific target.

In the case of disease, the protocols are so effective that they can be called "successful"; this adjective is not an exaggeration, since they are able to make a useful contribution even in very serious diseases because they improve the quality of life (sleep, digestion, mood, energy).

In other illnesses these protocols improve not only the quality of life, but also alleviate disease, reducing symptoms and causes. Thousands of people are satisfied with these results. Healing mushrooms act with a gentle and effective mechanism on the causes and symptoms of disease, in depth: in tissues and cells, where the problems begin. When used appropriately and without modifying them, the protocols lead to wide-reaching benefits throughout the body. Results confirm this.

Each protocol acts on the symptoms and the cause

In fact, each protocol works on the symptoms and on the cause. The protocols are the result of eleven years of study and work on the causes and symptoms of diseases, according to conventional Western medicine and the holistic view of Eastern inspiration. So, thanks to studying the mechanisms of action of mushrooms and hence finding the causes of diseases, certain mushrooms can be identified as being the best suited to combat particular causes or symptoms.

Each protocol was studied so as to contain as few essential mushrooms as possible to resolve the clinical picture as a whole. To further reduce the number would mean diminishing results or considerably lengthening the amount of time required. Over the years, the protocols have proven to be effective because their action has yielded objective indications of their worth. For example,

pathological antibodies are eliminated in allergies and asthma, or proteinuria decreases. So it is actual results which have proved their effectiveness, and not only in occasional cases, since these objective positive outcomes are repeated regularly, for hundreds of people. Thousands of people worldwide are pleased with the results obtained with medicinal mushrooms.

Simple to use

These protocols are easy to use. Symptoms and illnesses are identified through diagnosis. To know what to do, we can use this book like a manual and look up a disease. We find a brief description of the main symptoms, the holistic cause and advice on which mushrooms to use as part of a protocol or otherwise.

For example, we can look up "allergic rhinitis due to dust." The advice is to use the "Immunity and Skin" protocol. Also looking up "Hashimoto's autoimmune thyroiditis" we find the same advice to use the "Immunity and Skin" protocol. How is that possible? In conventional medicine rhinitis due to dust allergy and Hashimoto's autoimmune thyroiditis are treated with different types of medication: the former with antihistamines or even corti-costeroids and the latter with the thyroid hormone, Eutirox. This is because conventional medicines counteract the symptoms. Instead the "Immunity and Skin" protocol corrects the symptoms of the two diseases by restoring impaired immunity and the health of the immune system. So, the protocol resolves allergy, autoimmune thyroiditis and also effectively protects against flu, sore throats and similar ailments. But it also exerts an excellent protective and healing action in allergic and inflammatory dermatitis, acne or other skin diseases.

Therefore, in order to choose the protocol and to understand the mechanisms through which it acts, the best approach is to observe which of the four functions is impaired: observing the illness with its particular features leads us to the function in difficulty. It is not unusual to discover that many of the diseases which have the same impaired function in common originate from the same cause. For this reason they often benefit from the same healing mushrooms.

Sometimes, however, the same function is performed by different apparatuses. For example, cleansing is linked to different organs, such as the kidneys, liver, skin and antioxidant defences, because each organ or system performs a different phase or activity. In this case, the protocol for the apparatus in difficulty must be sought. For example, if there is an increase in liver transaminases we must choose the "Women, Liver and Later life" protocol. This protocol is also used for almost all types of liver disease. When liver disease is more severe the protocol is gradually reinforced with the addition of other mushrooms.

Therefore, it is enough to simply identify the apparatus in difficulty to choose the protocol, which will act in an effective manner on the symptoms but also on the cause which initially weakened the function. Over the months, using healing mushrooms, symptoms decrease and the function also starts to recover; healthy activity present prior to illness will be restored. So, this facilitates the choice of which mushrooms are most suitable for treatment and, at the same time, takes us straight to the heart of the problem: the resolution of the cause.

The mechanisms of action of each mushroom in each of the four apparatuses are described: immunity, digestive system, cleansing apparatuses and energy apparatuses. These properties are called "powers" for their remarkable effectiveness in different apparatuses, both in prevention and treatment. Once it is clear how each mushroom affects each of the four apparatuses, it is readily apparent which mushroom, or which mushrooms, are the most suitable for each specific situation. All the mushrooms, however, have multiple powers and most of them act on all four functions, restoring health.

They are almost always used in combination

Only rarely is a single mushroom used. For example, just one mushroom can sometimes be enough in preventive treatment when no symptoms are present. Also in some illnesses, occasionally one mushroom manages to be effective. However, when a healing effect is required, in the case of disease, an appropriate combination of mushrooms is usually used. In order to reach almost all the main

parts of the body, or those most subject to deterioration, it is usually advisable to use at least two. On average, the best balance is achieved with three mushrooms: one or two to counter the symptom and one or two to counter the cause. In more serious conditions or when there are many diseases four healing mushrooms are required.

To obtain the results described here, both in prevention and in treatment, the minimum effective dose is always two grams per day of each mushroom, even when using three or four mushrooms combined together. Any mycotherapy protocol is always compatible with conventional medicine; it coexists without changing the action of the pharmaceutical, because it has a natural mechanism of action, very different from a chemical procedure. Medicinal mushrooms work alongside conventional medicine in tackling disease and reduce the possible side effects. They do not act on the symptom immediately, but gently and gradually, strengthening the apparatus as a whole.

This is also the reason why, initially, they must be used for at least three months before first assessing results. At that point the objective is not to stop the course of treatment with healing mushrooms, but to decide whether it makes sense to proceed for another three months with the same treatment protocol or whether it would be better to change any of the mushrooms used. Afterwards, treatment should be reassessed every three months, also because as the months pass, new objectives can be set regarding healing, prevention and well-being. Usually, no one wants to stop mycotherapy, because people normally feel better.

1st power of healing mushrooms: to strengthen immunity

If the immune system is weak, it is easy to catch the flu or other illnesses caused by pathogenic germs. If instead the immune system is altered, it can produce pathological antibodies, as in allergies and autoimmune diseases, or it can trigger a continuous inflammatory mechanism, as in chronic inflammatory disease. All these illnesses, which have an impairment of the immune system in common, also have mostly the same causes. Consequently, in most cases, they

require the same mushrooms. In fact, the same combination of mushrooms can eliminate two different diseases which, however, have the same underlying origin.

To understand their great power in strengthening and restoring the immune system in all its disorders, it is enough to realize that mushrooms, which originate on plant and animal remains in decomposition, must compete with viruses, bacteria and all sorts of pathogens to survive. Consequently, they need extremely powerful defences that, once ingested, are transferred to the body. This explains why they are unique immunostimulants, capable of enhancing the six basic mechanisms (antiviral, antibacterial, antiinflammatory, anti-allergic, antihistaminic and general immunostimulant) with which the immune system normally protects the body.

The main mushrooms with the 1st power

Although all healing mushrooms possess the 1st power in a more or less evident way, the best from the point of view of keeping immune function in full health are *Lentinus*, *Ganoderma*, *Agaricus*, *Auricularia*, *Grifola* and *Cordyceps*. These mushrooms make up the protocols developed to deal with allergies, chronic inflammatory diseases, autoimmune diseases, the prevention and treatment of flu and seasonal illnesses (level 1). However, even the other mushrooms - *Coprinus*, *Pleurotus*, *Hericium* and *Polyporus* – which in the literature worldwide are considered second choices in this context, have an almost comparable power in strengthening immune function. In fact, people who take one of these mushrooms for other reasons also benefit from their efficacy in strengthening immune defences. This shows that any mushroom is useful in the prevention and treatment of flu and seasonal illnesses (level 1). Instead, when we are faced with chronic and recurring flu viruses (level 2), allergies and all diseases at level 3, it is not sufficient to use second choice mushrooms - we must necessarily use the "successful protocols."

The protocols to strengthen the 1st power

There are three "**successful protocols**" that are used, with excellent results, in immune diseases from levels 1 to 4. They

produce beneficial results in various immune and inflammatory diseases, from flu-type and infectious diseases to chronic inflammatory illnesses as well as allergic and autoimmune diseases, which are caused by imbalances in the Th1/Th2 balance. Medicinal mushrooms re-establish the Th1/Th2 balance which in other words means that they restore the immune system to maximum efficiency. *Lentinus* strengthens immunity by targeting mainly the intestine, while *Ganoderma*, *Agaricus*, *Grifola* and *Cordyceps* strengthen immunity especially in the rest of the body.

1. "Immunity and Skin" Protocol:

Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

This protocol was created in 2008. Its effectiveness in immune disease derives from its ability to eliminate the symptoms and the underlying causes of various illnesses of the immune system. Although these illnesses have different symptoms, they have a weakness of the immune defences, which is the main cause, in common.

Lentinus, *Ganoderma* and *Agaricus* are the most appropriate because they work closely together. *Lentinus* heals the intestines in particular and nourishes lactic acid bacteria, which are essential for the efficiency of intestinal immunity. *Ganoderma* and *Agaricus* strengthen general peripheral immunity, which oversees the rest of the body. *Ganoderma* is also a potent cortisone-like antiinflammatory agent, excellent in chronic inflammatory disease and an antihistaminic which is effective in treating allergy. *Agaricus* is a powerful germicide. *Ganoderma* and *Agaricus* eliminate both pathological allergic and autoimmune antibodies.

This protocol is very useful both in allergic diseases characterized by pathological imbalance (hyper-Th2), as well as in autoimmune diseases characterized by pathological imbalance (hyper Th1). It deals with these imbalances effectively, in order to restore the immune system to its physiological Th1/Th2 balance. These effects give very positive results in such diseases.

2. "Anti-inflammatory" Protocol:

Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms). Initially a variant of the "Immunity and Skin" protocol, *Lentinus* and *Ganoderma* are again the basis for the health and efficiency of the immune system in all its aspects. *Agaricus* is replaced by *Auricularia* due to the latter's powerful anti-inflammatory action, similar to that of methotrexate, the anti-inflammatory drug that is used in severe chronic inflammatory diseases, such as rheumatoid arthritis (see [chapter on *Auricularia*](#)). With this methotrexate-like effect, *Auricularia* doubles the powerful anti-inflammatory effect of this protocol, which also makes use of the cortisone-like action of *Ganoderma* (see [chapter on *Ganoderma*](#)). This protocol restores the immune system from a pathological response (hyper-Th1), present in inflammatory diseases, to a physiological Th1/Th2 balance.

3. "Antivirus" Protocol:

Ganoderma, *Cordyceps* and *Grifola* (or *Lentinus*) with the addition of *Agaricus* (causes and symptoms) as required.

Ganoderma, *Cordyceps* and *Grifola* have excellent antiviral effects useful in viral diseases. *Cordyceps* and *Ganoderma* especially, but also *Grifola*, prevent viruses from reproducing. They produce interferon, a protein that strengthens the body's antiviral defences. *Agaricus* has a useful antiviral effect which integrates *Ganoderma*, *Grifola*, *Cordyceps* in viral diseases caused by more aggressive viruses, such as hepatitis C and HIV infection. *Lentinus* is an alternative to *Grifola* to strengthen intestinal immunity more vigorously, which *Grifola* strengthens to a lesser extent than *Lentinus*.

2nd power of healing mushrooms: for digestion and metabolism

Mycotherapy is very effective in eliminating symptoms and causes also in diseases that affect the digestive and metabolic system. The most common illnesses are those of the colon (constipation) and metabolic disorders (overweight, high cholesterol and diabetes).

The main mushrooms with the 2nd power

All healing mushrooms, except for *Polyporus*, possess the 2nd power to a greater or lesser extent and so they can support the

digestive (stomach, small intestine, colon) and metabolic (liver and pancreas) system. The best are *Hericium*, *Lentinus*, *Grifola*, *Auricularia*, *Ganoderma* and *Cordyceps* for digestive functions, and *Coprinus*, *Pleurotus* and *Agaricus* for metabolic functions. This is demonstrated by the fact that taking just one of these mushrooms, even for other reasons, anyway tends to improve digestion, the second function essential for survival.

Hericium is an aid in prevention when the stomach, whilst not causing specific problems, passes through negative phases with gradually worsening digestion. In addition, it is very effective in the treatment of episodic (level 1) and chronic (level 2) gastritis, even when taken alone. It strengthens gastric functionality and regenerates deteriorating cells. It also protects from negative psychological stimuli that stress the stomach.

Auricularia, *Grifola* and *Lentinus* are very useful in the prevention and treatment of intestinal diseases, characterized by constipation, bloating and diarrhea. In particular *Auricularia* frees up even the most constipated bowels because it physiologically moves the walls of the intestine, stimulating the evacuation of stools.

Lentinus is excellent for intestinal bloating an annoying symptom which also indicates that the intestine is functioning poorly both as regards digestion and immunity. This is all due to dysbiosis, i.e. the presence of pathogenic intestinal flora. *Lentinus* repopulates the intestine with healthy lactic acid bacteria, restoring intestinal efficiency, important from the point of view both of digestion and of the immune system. Intestinal immunity is the basis of general immunity.

Grifola is very useful in the intestine both for its antiinflammatory properties and due to the fact that it stimulates the pancreatic enzymes (trypsin, amylase and lipase) which are necessary for the digestion and absorption of nutrients.

Ganoderma is useful in the inflammation of the mouth, stomach and intestines, and also in constipation, while *Cordyceps* is extremely useful in tackling gastro-esophageal regurgitation and diverticulosis. *Grifola*, *Coprinus*, *Pleurotus* and *Agaricus* are very important in the prevention and treatment of metabolic diseases.

The protocols to strengthen the 2nd power

Here are the most useful:

1. "Bones, Teeth and Gums" Protocol:

Lentinus (cause) and *Ganoderma* (symptoms), with addition of *Cordyceps* (symptoms) as required.

These two mushrooms strengthen the immunity of the oral cavity, protect the teeth and rebalance bacterial flora in the mouth which, when altered, contribute to gingivitis, abscesses and serious periodontal disease. Moreover, *Lentinus*, according to research conducted in University Dentistry Departments in Japan, USA and the UK, has been shown to eliminate dental plaque, the number one ally of all mouth disease. *Ganoderma*, instead, increases IgA (immunoglobulin A) in the mouth, the antibodies on the surface of the mucous membrane, responsible for its defence, and is extremely useful also thanks to its anti-inflammatory cortisone-like action. In addition, *Lentinus* and *Ganoderma* increase bone synthesis and are therefore useful remedies in arthritis and osteoporosis. *Cordyceps*, which protects the existing bone, preventing loss, can be a useful addition in osteoporosis and in fractures. In the latter case it is useful because it helps to maintain muscle tone and mass, both of which tend to decrease in case of prolonged immobility.

2. "Fat Burning " Protocol

Grifola and *Agaricus* (cause and symptoms).

Grifola and *Agaricus* are efficient fat burners that provide considerable help when dieting. They get rid of accumulated fat and reduce the appetite.

3. "Cholesterol" Protocol:

Pleurotus (cause) and *Auricularia* (symptoms).

These two mushrooms protect the arteries from cholesterol plaques. *Auricularia* also helps to combat stress, which is one of the causes responsible for the deterioration of the vascular wall. Cholesterol is deposited and forms plaques where the artery wall is weak. *Pleurotus* reduces the formation of cholesterol plaques, thins those already present, lowers "bad" LDL and increases "good" HDL

cholesterol. It also reduces hepatic steatosis (the accumulation of fat in the liver), which is almost always linked to high cholesterol values.

4. "Diabetes" Protocol:

Coprinus, *Grifola*, *Agaricus* and *Cordyceps* (cause and symptoms).

Coprinus, *Grifola*, *Agaricus* and *Cordyceps* are useful in reducing high blood sugar and supporting the action of the pancreas and insulin. Since diabetes greatly reduces the possibility of using the glucose present in the blood it reduces psycho-physical energy. *Cordyceps* is useful because it increases available energy. Moreover, it is also an excellent preventive remedy for cardiovascular complications and stroke.

3rd power of healing mushrooms: cleansing

If the functions of the cleansing organs are weak, they accumulate toxins that sooner or later cause illness: initially in the skin but, from middle age, also in the liver and kidneys. Diseases relating to the four cleansing systems (skin, kidneys, liver and antioxidant defences) share the same set of causes and require few different mushrooms. When the body's cleansing functions are in difficulty, medicinal mushroom remedies are extremely useful. Mushrooms, which live on plant and animal remains in decomposition, are the greatest cleansers in nature. They recycle everything that is rotting into fresh biological material.

Furthermore, they are well-known to be the greatest chelators of metals. What, instead, is not widely known, is that they are able to transform and digest oil and plastic as well, converting them into mushroom, i.e. biological material. Therefore, when we ingest them, we absorb the most powerful detoxifying agents in nature, which thoroughly cleanse our body too.

The main mushrooms with the 3rd power

Ganoderma and *Pleurotus* are the main cleansing mushrooms, useful for eliminating toxins. Together with *Agaricus*, *Polyporus*, *Cordyceps*, *Grifola* and *Auricularia* they also have a high antioxidant content, useful for fighting free radicals. *Polyporus* is very useful in strengthening the diuretic capacity of the kidneys. Even alone it is

very useful in eliminating the accumulation of fluid that occurs in water retention. Instead, other mushrooms are used in combination, because the tasks of filtering and eliminating toxins are complex. In fact, transformation in the liver, the elimination of toxins circulating in fluids or those that have accumulated in the liver and skin or in cholesterol plaques on the artery walls, are challenging tasks.

The protocols to strengthen the 3rd power

Here are the protocols that use combinations of healing mushrooms to improve the main diseases of the cleansing apparatuses.

1. "Immunity and Skin" Protocol:

Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

Lentinus cleans the intestines, where large amounts of toxins that damage the skin originate. *Ganoderma* and *Agaricus* are the number one cosmetics respectively of Asian (Chinese and Japanese) and Brazilian women. In fact, they are powerful antioxidants. But not only do they make the skin beautiful and protect it from signs of aging, they also promote the resolution of inflammation, skin allergies and acne.

2. "Skin Care" Protocol:

Agaricus and *Ganoderma* (cause and symptoms)

Agaricus and *Ganoderma* promote the health of fibroblasts, the "beauty cells", which keep the skin soft and toned. They are extremely rich in anti-oxidants, such as super-oxide dismutase, important to prevent and reduce the damage caused by free radicals. These "molecular sharks" devour collagen, the structure which supports the skin, leading to sagging and the formation of wrinkles, grooves and gaps.

3. "Hair" Protocol: *Polyporus*, *Lentinus* and *Ganoderma* (cause and symptoms).

As demonstrated by a team of Japanese researchers, *Polyporus* is the most suitable mushroom for encouraging hair regrowth, while *Lentinus* and *Ganoderma* contribute most to strengthening hair.

4. "Women, Liver and Later life" Protocol:

Cordyceps and *Ganoderma* (cause and symptoms), with the addition of *Grifola* (cause and symptoms).

Cordyceps, *Ganoderma* and *Grifola* significantly improve liver function to such an extent that they are extremely beneficial in all the main diseases of the liver such as steatosis and hepatitis. They restore elevated transaminase (GOT and GPT), gamma GT and bilirubin levels to normal. They eliminate toxins, excess fats and free radicals and facilitate digestion, saving energy (when the liver functions badly it wastes a lot of energy). *Agaricus* is equally useful but it is best to use three mushrooms for reasons of compliance.

5. "Bile" Protocol: *Pleurotus* (cause), *Ganoderma* and *Auricularia* (symptoms).

Pleurotus reduces the amount of total cholesterol circulating in the blood, that which is absorbed from the intestine and that which accumulates in the liver. In addition, together with *Ganoderma*, it reduces the synthesis of cholesterol in the liver. *Ganoderma* also lowers the amount and the density of cholesterol in the bile and prevents the formation of new gallstones as well as an increase in volume of those already present. *Auricularia*, with its dilation effect on the muscle of the bile duct (the excretory duct of the gall bladder), promotes the elimination of gallstones of small-medium dimensions (up to one centimetre), which are the most common.

6. "Kidney" Protocol: *Polyporus*, *Ganoderma* and *Auricularia*; with the possible addition of *Cordyceps* (or *Lentinus*) (cause and symptoms).

They are very useful in kidney diseases such as nephritis and nephrosis, as confirmed both by traditional Chinese medicine and by modern science. In particular, *Polyporus* has had an excellent reputation for its ability to support renal functions, both in prevention and in healing, since ancient times. It helps the kidney in the task of eliminating excess fluid. *Ganoderma* and *Auricularia* also have powerful anti-inflammatory and vasodilatory properties allowing more blood to pass through the kidneys.

7. "Prostate" Protocol: *Grifola* and *Ganoderma* (cause and symptoms).

The use of *Grifola* and *Ganoderma* is beneficial to the health of the prostate. *Ganoderma* and *Grifola* improve urine flow, which is no longer blocked by an increase in volume of the prostate (benign prostatic hyperplasia).

8. "Smoking and Metal Chelation" Protocol: *Pleurotus* and *Ganoderma* (cause and symptoms).

Pleurotus and *Ganoderma* are, in nature, two of the very few living organisms able to render harmless carcinogenic hydrocarbons, such as dioxin, dyes and many similar chemical toxins. As a result, they reduce the carcinogen damage of cigarette smoking. Moreover, in a study conducted in Mexico, *Pleurotus* was shown to transform polyethylene (plastic) into mushroom (biological material).

4th power of healing mushrooms: more energy

If the functions of the organs which produce, distribute and use large amounts of energy are weak, the whole body suffers. In particular, the mind, heart, muscles and sexual apparatus are affected: they no longer function properly and eventually develop symptoms and disease. The illnesses that originate in the same apparatus are very often produced by the same group of causes. So, although the symptoms are different, better health is restored through the action of the same group of mushrooms. For example, *Cordyceps* can help a person with loss of memory or sports enthusiasts who want to improve their performance or someone who has a sexual problem. They combat the same cause - the energy gap that can lead to ailments with different symptoms. Indeed, as a confirmation of its effectiveness *Cordyceps* is often used by athletes to improve their performance. Moreover, it is accepted by the Olympic Committee and all international sports bodies, confirming its lack of side effects and safety for the body.

The main mushrooms with the 4th power

All healing mushrooms possess the 4th power, to a greater or lesser extent, allowing them to maintain energy levels high and increase them too. All provide clean and calm energy, without causing agitation or anxiety as is the case, for example, with caffeine. *Cordyceps*, which increases blood oxygenation (+ 5-20%) can also

be used alone for this purpose. In addition, it optimizes male sexual apparatus functions in all stages of life. In fact, it also improves the functions of the female sexual apparatus because it provides a neutral hormonal stimulus, similar to the pituitary.

After *Cordyceps*, *Agaricus* and *Ganoderma* are the most powerful mushrooms for increasing energy. *Ganoderma*, like *Cordyceps*, also promotes the functions of the male or female sexual apparatus. It is much appreciated by women, who feel well using this mushroom because it promotes all female functions: it eliminates menopause symptoms, corrects menstrual irregularities, combats difficulties in conceiving, promotes and protects pregnancy. In addition, it helps the bones, hair and skin. Moreover, *Cordyceps* is an excellent remedy that promotes male and female sexuality, from desire to the expression of sexual behaviour, enhancing both at a psychological and physical level. Its neutral stimulus is similar to that of the pituitary gland which, despite being identical in both sexes, produces male hormones in men and female hormones in women. In men it is especially helpful for its efficacy in maintaining and enhancing sexual functions, even when they are inadequate. In women it promotes both sexual functions and female functions in general. So *Ganoderma* and *Cordyceps* resolve the problem of hormonal deficiency in a balanced way.

The cardiovascular system finds great allies in *Auricularia*, *Ganoderma*, *Cordyceps*, *Polyporus* and *Pleurotus*: five remedies that guarantee a greater supply of energy to the heart which is beneficial for its health. *Auricularia* is also a great help to reduce the symptoms of stress, anxiety and insomnia. It is the basis of mental health. *Auricularia* alleviates insomnia because it improves the functions of the centres that induce and regulate sleep. It also improves mental and neuromotor functions in general. Serenity and wellbeing flow into the body and spirit. This is because it provides neurons with the adenosine they need to function efficiently during both the day and the night. Many of the symptoms related to the mind and nervous system improve dramatically thanks to this mushroom. Three other mushrooms are equally important: *Ganoderma* in particular for

anxiety, while *Cordyceps* and *Agaricus* are more useful in depression.

The osteoarticular apparatus benefits enormously from the use of *Ganoderma*, *Lentinus* and *Cordyceps*, especially as regards the bones: these remedies enhance the structural strength of the bones, articular cartilage and of the connective tissue that supports the skin and organs.

The protocols to strengthen the 4th power

Here are the protocols useful for providing more energy in the main diseases of the energy apparatuses.

1. "Stress, Circulation and Joints" Protocol:

Auricularia and *Ganoderma* (cause and symptoms). These two mushrooms are excellent remedies which help to deal with stress more calmly, warding off anxiety and insomnia. They increase mental energy, preventing it from being wasted in psychosomatic disorders, depression and panic attacks. *Auricularia*, especially, and also *Ganoderma*, are efficient vasodilators. They help the arteries, which are often contracted due to physical and psychological tension and hence have a reduced blood flow. They also regulate nervous system control of blood circulation adequately. Even the muscular system benefits, because it is more vascularized and relaxed thanks to *Auricularia* and *Ganoderma*. These remedies resolve painful muscle tension, contractures and reduce or even stop tremors. They can regulate the mental and neurological functions of the central nervous system. They provide good mental energy.

They also play an excellent preventive role against the increasingly common and worrying degenerative diseases that strike in old age. In addition, they are also useful in the tremors which appear in neurological diseases such as Parkinson's disease, multiple sclerosis and other neurological diseases. Since *Ganoderma* and *Auricularia* have powerful anti-inflammatory properties they reduce the inflammation and pain of arthritis. *Ganoderma*, together with *Lentinus*, regenerates healthy cartilage. *Lentinus* also cleanses the intestine and strengthens intestinal immunity. These three mushrooms – *Ganoderma*, *Auricularia* and

Lentinus - make up the "Anti-inflammatory" Protocol previously described among the protocols regarding the 1st healing power.

2. "Energy and Mood" Protocol:

Cordyceps and *Agaricus* (cause and symptoms).

This scheme is very suitable for those seeking more energy and who wish to improve their mood. It improves both physical and mental stamina. *Cordyceps* increases energy, providing roughly two extra hours of energy per day in everyday life and improves sports performance by approximately 10%. These benefits are due to the fact that it increases the oxygenation of the blood. *Agaricus* also significantly increases physical and mental stamina, because it enhances the brain mediators (noradrenaline and dopamine) involved in the production of psychophysical energy. *Agaricus* and *Cordyceps* are also useful to improve the symptoms of mild depression which can appear in everyday life and in promoting the psycho-emotional skills required for demanding tasks.

3. "Heart and Mind" Protocol:

Cordyceps, *Ganoderma* and *Auricularia*, (cause and symptoms)

Cordyceps, *Ganoderma* and *Auricularia* are extremely beneficial for neurological diseases. Since *Auricularia* and *Ganoderma* are rich in adenosine, they supply the body with this brain mediator, which supervises and regulates all the central nervous system and also the quality of the neuromuscular and visceral impulses that reach the involuntary muscles and organs (heart, lungs, intestine, blood vessels and many other body parts). *Cordyceps* improves the oxygenation of the blood reaching the brain, increasing its health and energy. *Ganoderma* and *Auricularia* reduce inflammation while *Cordyceps*, *Ganoderma* and *Auricularia* effectively counteract the onslaught of free radicals that constitute a major recognized cause of neurological disease.

These three mushrooms are the best solution to reduce heart fatigue. They are excellent in improving the blood circulation of the coronary arteries, increasing the oxygenation of the heart, enhancing its energy and its functions. They combat some diseases of the cardiovascular system, such as extrasystoles, arrhythmia, high blood

pressure. This protocol provides very effective protection and is hence very useful for the prevention of heart disease.

4. "Hypertension" Protocol:

Polyporus and *Auricularia* (cause and symptoms).

Auricularia is a vasodilator and *Polyporus* eliminates excess fluids.

Together, they gently and gradually reduce high blood pressure.

5. " Women, Liver and Later life " Protocol:

Ganoderma and *Cordyceps* (cause and symptoms).

This protocol stimulates and optimizes the female apparatus in all stages of life. It also combats menstrual irregularities and menopause symptoms successfully. It encourages conception and pregnancy. *Cordyceps* and *Ganoderma* promote female functions in women because they have a neutral stimulus similar to the hormone stimulus of the pituitary gland. *Cordyceps* increases energy production, while *Ganoderma* improves its distribution by supporting the heart and blood circulation. They are very useful for the elderly because the production and the distribution of energy lessen over the years. They are also important in the prevention of heart disease, stroke, neurological diseases, mental illness and musculoskeletal disorders as well as in pulmonary emphysema.

CHAPTER 13

The infallible diet

(fruit, vegetables, legumes and oilseeds)

*If one manifests determination,
there is nothing that cannot be done
one can move heaven and earth as one pleases.
Moving heaven and earth without putting forth effort
is simply a matter of concentration.*

YAMAMOTO TSUNETOMO

Hagakure. The Secret Wisdom of the Samurai, 1770

Healing mushrooms are an invaluable resource to prevent illness and safeguard the body's health. If, however, they are associated with a correct diet, even more effective results can be achieved.



Other cornerstones of prevention

Physical exercise, meditation and nutrition are the other cornerstones of prevention, healing and longevity along with

medicinal mushrooms. However these subjects are beyond the scope of this manual. Only a brief diet plan is provided that can help to eat more healthily: a series of simple tips that contribute to greater well-being and work together with healing mushrooms in strengthening the mechanisms that govern health. In particular, it is the health of the intestine that is helped considerably by diet, as well as by healing mushrooms.

Green light for fruit, vegetables and legumes

Animals, as we know, look for herbs or substances to cure their physical discomfort when they do not feel well. And us? How many of us, when sitting down for a meal, really think of our body's well-being? Or of the opportunity to use food to improve health, like taking some medicine? About 90% of the body is made up of bacteria and 10% of human cells. So, to keep it healthy, we must feed the bacteria, which are almost all located in the intestine. The good bacteria, represented mainly by lactic acid bacteria, are particularly in need of plant fibres to survive. Hostile bacteria - enemies - which produce toxins or that attack different parts of the body (such as the throat, urinary tract, vagina) instead feed mainly on animal foods. That is why our diet should be mainly vegan and mainly include fruit, vegetables, legumes, shoots, mushrooms, soy and its derivatives.

An anti-inflammatory diet

A diet rich in fruit, vegetables, legumes, oilseeds and shoots can counteract intestinal inflammatory processes so effectively that it deserves to be called an anti-inflammatory diet. Moreover, protection from inflammation is general and extends throughout the body. Not surprisingly, in recent years, the abundant daily intake of plant products – whether raw or cooked, fresh or dried - is proving to be a very healthy diet choice for the nutritional content and energy that it provides.

With their freshness and vitality, plant foods strengthen antioxidant defences, which are continuously worn down due to the oxidative stress which is probably the main cause of many chronic degenerative diseases, such as diabetes, cardiovascular disease,

neurological disease and so on. Moreover, extensive research shows that this is the main cause of illness in general, including inflammatory disease. For example, muscle tendon injuries in sport are due to the great increase in free radicals that are formed during intense physical activity. Plant foods can count on the collaboration of healing mushrooms that are rich in antioxidants for this fundamental activity.

Foods to avoid

Grains, especially refined grains, milk and all its derivatives including yogurt and cheese, as well as meat, fish and all animal proteins in general are to be avoided. Milk, which Mother Nature intended for newborn babies, is nutritious, but also contains antibiotics, such as lysozyme, and antibodies, such as immunoglobulin A (IgA), necessary for a baby to defend itself from germs such as hostile bacteria and viruses. In this way, it protects a newborn baby at a stage in life in which the immune system is immature and particularly weak. A newborn baby, in fact, is not able to produce antibodies. After weaning, the immune system is a little more mature and has less need of external aid. Cow's milk and goat's milk, however, contain antibodies against pathogens. As a result, children and adults who eat dairy products introduce harmful antibiotics which, although in small amounts, destroy healthy bacterial flora over time. That is why milk and dairy products are excluded from diet in China and Japan. Animal proteins and refined grains acidify the body, which is instead slightly alkaline (pH 7.35). To eliminate this excess acidity, the body is forced to leach minerals such as calcium and magnesium from the bones and scalp, weakening the bones and leading to hair loss.

Furthermore, carbohydrates in the intestine cause two problems: excess mucus, which is deposited on the intestinal walls and hinders the absorption process, and a hyperactivity of fermenting bacteria, which produce considerable amounts of gas. But far worse trouble for the body stems from consuming too many calories; this is particularly harmful because it is a cause of chronic metabolic

disorders such as overweight and diabetes, two risk factors for cardiovascular disease.

Animal products are allowed only in small quantities

Unfortunately, the Western dietary pattern is mainly based on these unfavorable foods, and this is one of the main causes of many illnesses. Even Professor Umberto Veronesi, the internationally renowned oncologist, claims that in vegetarian populations cancer and chronic degenerative diseases are practically unknown and that the number one cause of colon cancer is no longer cigarette smoking but food. Small amounts of meat, fish and dairy products are allowed: if their use is limited, in fact, the body can process them. However, if we eat these products almost every day, in the long run, the healthy bacterial flora, composed of lactic acid bacteria, are destroyed and the pH in the small intestine is not correct. The correct pH to activate intestinal and pancreatic digestive juices, necessary for digestion, must be acidic (pH 5-5.5), otherwise digestion becomes difficult and is obstructed, undigested food residue accumulates on the intestinal walls and leads to inflammation in the intestine, which releases mucus and attracts "bad" bacteria.

No carbs for weight loss

Those who are overweight should eliminate all carbohydrates. In fact, they are as addictive as a drug: they increase sugar levels in the blood so the pancreas is forced to produce insulin, the hormone that allows sugar to enter cells to nourish them and which, therefore, lowers blood sugar. But a part of this sugar, which is in excess, turns into fat. Moreover, when blood sugar levels, which have started to reduce due to the effect of the insulin, are too low, we feel hungry and have to eat again. Instead, with legumes this mechanism is much more limited. In fact, they contain vegetable protein and a small amount of carbohydrates, which does not activate insulin in the same way, avoiding the accumulation of fat.

An example menu

Breakfast: 250 g of soy yogurt or fruit

Lunch: legumes and other vegetables

Dinner: fruit salad

Following this plan you can lose up to 1-1.5 kg per week.

Important information: Water and lemon and oolong tea help to reduce the desire for food.

A maintenance diet

A maintenance diet is advisable after a period of weight loss. The same diet can be extended by introducing small amounts of animal protein and cereals. It is preferable to add these portions to lunch and keep dinner light. Those who love animal protein can in general consume a total of three or four servings per week without too much damage to the body, especially if they keep to eggs and fish. Consumption of meat is less advisable.

Be careful about salt intake, which tends to encourage fluid retention. Even a small plate of pasta, rice, small amounts of bread or a sweet treat, for a total of three or four servings per week, are concessions that in this maintenance phase can add gratification and make us more willing to comply with the diet..

Advice for those of normal weight

Those who want to maintain their weight can integrate this diet with cereal rations according to their needs. Usually, the amount of cereals which it is advisable to eat daily fills a tea cup (30/40g per day). This is the Eastern measure of the ration of rice per meal. This can be increased according to individual needs, in case of poor absorption or intense sports activity.

Vegetarian diets

Mushrooms are extremely useful in vegetarian diets, because they are one of the few plant foods which contain vitamin B12 and all essential amino acids, indispensable nutrients that are normally found in meat and fish.

PART D

THE DISEASES OF THE FOUR APPARATUSES AND THE FOUR POWERS OF HEALING MUSHROOMS

*To group illness according to impaired functions,
and not according to anatomical divisions
makes mycotherapy treatment easier.*

*One of the four groups of diseases
corresponds to each of the four essential functions.*

*For each disease within each group
I have highlighted the most suitable mushrooms.
Often the same treatment strategy, with few variations,
treats the whole group.*

*When impaired function
involves different functions and organs,
treatment varies more,
using other mushrooms,
in addition or in alternative.*

CHAPTER 14

Immune system disease

Lentinus, Ganoderma and Agaricus

The 1st power of healing mushrooms is defence. Mycotherapy is a very powerful immune stimulator that makes the immune system "invincible". In nature and also in the chemical pharmaceutical repertoire there is nothing equally powerful as a stimulant for the immune system. Mushrooms help to erect a barrier which is difficult to overcome by pathogens, allergies and chronic autoimmune and inflammatory diseases.



The causes of disease

The body is unlikely to fall ill when the immune system is healthy because its defence barriers protect health efficiently. They repel the assaults of many pathogenic agents with which they come into contact daily: germs or harmful substances that can trigger flu, allergic or inflammatory diseases.

Instead, illness takes over sooner or later if the defences are weakened. Unfortunately, this is much more common now than in the past: more and more frequently people have weak and insufficient immune defences, as shown by the continued increase in immune system diseases. Allergies and autoimmune diseases have never been as widespread in the population as in the last twenty years. The fault is, in most cases, due to lifestyle: poor nutrition, the repeated use of antibiotics and stress. The consequences are borne by the intestine, which develops toxicity and becomes inflamed in a way which tends to be chronic. Age also plays a decisive role: children and the elderly are constitutionally more vulnerable from this point of view.

The habit of treating only the symptoms, without worrying about the causes, just makes things worse: in fact, in this way, the underlying causes continue to worsen and the illness progresses from mild to severe forms. Lastly, we must not forget the very questionable, or even negative, effect of recommended vaccines, administered within the first two years of age when the immune system is very weak and the brain is not well protected (by the blood-brain barrier). Infants are vaccinated as a routine, without assessing if some are weaker and may risk not tolerating vaccination well. In Japan, vaccinations are authorized only after two years of age, because of the risks involved.

A critical point: the intestine

The Achilles heel of the immune system is represented by the small intestine. In fact, most of the immune defences are located there. Consequently, for the immune system to be efficient, the small intestine must be healthy. This means that the bacterial flora of which it is composed must be in equilibrium. Otherwise, defences will become insufficient, "crumbling", like a ruined tower.

Things get worse with age

Often, over the years, we see an escalation in inflammatory and immune illness: this starts in childhood with recurrent bouts of the flu, continues in adolescence with allergies until, at 40-50 years of age, autoimmune or inflammatory diseases develop. After 65-70 years of

age the situation worsens drastically, because a physiologic reduction in immunity develops.

The four levels of severity

Diseases like influenza, colds and pharyngitis appear in the early stages of weakness. These ailments should be seen as a warning that defences are weak and require strengthening. If no action is taken and immune function continues to weaken, the second level of disease severity develops: recurrent flu diseases.

If still no action is taken to address the causes of the problem, the third level of severity is reached, in which the defences are further impaired due to the weaker immune response (Th2), in which the body defends itself mainly with antibody defences and less with cellular defences. The risk of allergies and autoimmune disease is very high at this point, because defence is entrusted to antibodies which easily become pathological in a system already in difficulty. Hence, allergies, rhinitis, allergic conjunctivitis and asthma develop. Finally, the fourth level of severity is reached, with the development of chronic autoimmune disease characterized by the production of autoantibodies that affect a significant part of the body, creating damage that alters the structure in a way that may be irreversible. For example, in Hashimoto's autoimmune thyroiditis "nodules" - colloid cysts are formed, while in multiple sclerosis plaques appear, which hinder the passage of the nerve impulse along the nerve. Other diseases of the fourth level are Lupus (SLE) and scleroderma.



Lentinus

Once healed, treatment can be continued with maintenance therapy, which provides a high level of protection. Defences become stronger, "invincible" and viral and bacterial diseases are no longer able to take root or, at least, have much milder relapses: prevention is high. Medicinal mushrooms transform a weak immune system, in disarray, into a formidable and efficient army.

1. Flu diseases and other inflammation caused by germs

In diseases caused by germs, such as the flu, sore throat, inflammation of the tonsils, ears, respiratory tract and urinary tract, healing mushrooms provide very effective results, both in treatment and in prevention.

Influenza (prevention):

"Immunity and Skin" Protocol: Lentinus (cause), Ganoderma and/or Agaricus (symptoms).

Although almost all mushrooms are capable of providing effective protection, the most potent immunostimulants are *Lentinus*, *Ganoderma* and *Agaricus*. They are able to provide extremely high protection (99%) from the flu, whether of viral (due to the influenza virus and parainfluenza virus) or bacterial origin (due to *Haemophilus influenzae*, *Staphylococcus*, *Streptococcus* etc.).

* The different characteristics of each mushroom offer a more specific choice, using the least number of remedies: *Lentinus* is useful for enhancing intestinal immunity, for example, it is the recommended mushroom for those who follow a diet based on milk or proteins of animal origin. In this case, however, it is usually advisable to add *Ganoderma* or *Agaricus* in order to enhance general immunity. *Ganoderma* is best suited to those who suffer from influenza with low fever and abundant inflammation, while *Agaricus* is more useful to prevent flu with high fever.

Usually, however, to take any mushroom (also for other objectives) provides effective protection from the flu. If diet is healthy, with plenty (at least five daily servings) of fruit and vegetables and almost no dairy products one mushroom may be sufficient: *Ganoderma* or *Agaricus* provide adequate protection. In all cases the most important thing is to start using the mushroom a month before the start of the flu season. For healthy latecomers even 10-15 days before may suffice.

Influenza:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is a viral infection of the respiratory tract, characterized by a rapid rise in temperature, chills, aching muscles. The cause is always a weakened immune system which is unable to protect the body. The main pathogens are influenza viruses (*Orthomyxovirus*).

* *Lentinus* enhances intestinal immunity, which is the basis for the immunity of the whole body. *Ganoderma* and *Agaricus* strengthen immunity in all cells. *Ganoderma* also adds an anti-inflammatory and cortisone-like effect and *Agaricus* high germicidal power.

Influenza-like illness:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is a viral infection of the respiratory tract, identical to the flu, but with milder symptoms and shorter duration. It is triggered by a different pathogenic virus (*Paramyxovirus*), which is much more common than the influenza viruses. For this reason more than 90% of so-called "flu" illnesses are actually flu-like syndromes. The cause is always a weakened immune system which is unable to protect the body.

* *Lentinus* enhances intestinal immunity, which is the basis for the immunity of the whole body. *Ganoderma* and *Agaricus* strengthen immunity in all cells. *Ganoderma* also adds an anti-inflammatory and cortisone-like effect and *Agaricus* high germicidal power.

Recurring flu:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

When defences are particularly low, the flu can easily recur.

* *Lentinus*, *Ganoderma* and *Agaricus* are useful for influenza, flu-like syndromes and even more so when the flu recurs. *Lentinus* enhances intestinal immunity, which is the basis for the immunity of the whole body. *Ganoderma* and *Agaricus* strengthen immunity in all cells. *Ganoderma* also adds an anti-inflammatory and cortisone-like effect and *Agaricus* high germicidal power. A diet without milk, cheese and dairy products is extremely useful.

Viral pharyngitis (sore throat):

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is an inflammation of the pharynx, which causes difficulty in swallowing. The aggressive germs are, in the majority of cases, viruses (influenza) and less frequently bacteria. The cause is a weak immune system.

* To strengthen the body's defences simply take *Lentinus* and *Ganoderma*. If, however, pharyngitis relapses or persists, it is advisable to strengthen the immune system in a more comprehensive way, with *Lentinus*, *Ganoderma* and *Agaricus*.

Tonsillitis:

"Immunity and Skin" Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is an inflammation of the tonsils, often accompanied by other respiratory illnesses, such as bacterial influenza (*Streptococcus pyogenes* β -hemolytic, *Staphylococcus*, *Haemophilus influenzae*) or mononucleosis (Epstein-Barr Virus). A throat swab allows to identify the active bacteria.

* Since it is a more aggressive form than pharyngitis and often tends to relapse it is advisable to strengthen the immune system with the complete "Immunity and Skin" protocol: *Lentinus*, *Ganoderma* and *Agaricus*.



Agaricus

Influenza and pharyngitis due to β -hemolytic *Streptococcus*:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

β -hemolytic *Streptococcus* (*Streptococcus pyogenes*) lives in the bacterial flora of the oral cavity and pharynx in healthy subjects. When the immune defences are low, it may become aggressive. The main symptoms are fever, sore throat and pain on swallowing. White-yellowish colored plaques form on the tonsils and soft palate. If the immune defences are particularly weak this *Streptococcus* can affect other parts of the body causing serious complications, which are the real danger of this disease, such as inflammation that affects the joints (arthritis), heart (endocarditis) and kidney (nephritis).

* *Lentinus*, *Ganoderma* and *Agaricus* help to resolve influenza and pharyngitis caused by β -hemolytic *Streptococcus*, but also to prevent complications.

Articular Rheumatic fever due to β -hemolytic *Streptococcus*:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms), with the addition of Auricularia (symptoms).

Rheumatic fever, or simply acute articular rheumatism, is an inflammation of the joints, not always accompanied by fever. It mainly affects the large joints (knees, ankles, shoulders, etc.), which become painful. The markers of inflammation ESR and CRP are elevated. Low immunity is the cause.

* The “Immunity and Skin” Protocol consisting of *Lentinus*, *Ganoderma* and *Agaricus* is suitable for strengthening the immune system and eliminating both the joint symptoms and fever. It is very useful to add *Auricularia* for its anti-inflammatory efficacy in the joints. These four mushrooms greatly enhance antiinflammatory mechanisms as well as immune defences against pathogens.

β -hemolytic *Streptococcus* endocarditis:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms), with addition of Auricularia (symptoms).

This complication is due to inflammation and lesions caused by bacteria on the heart valves of the left ventricle which no longer closes perfectly. As a result, these valves become insufficient and heart murmurs and problems appear.

* *Lentinus*, *Ganoderma*, *Agaricus* and *Auricularia* considerably enhance

the immune defences against pathogens and the mechanisms that cause inflammation.

Myocarditis due to β -hemolytic *Streptococcus*:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms), with addition of *Auricularia* (symptoms).

Myocarditis is inflammation of the myocardium. This complication is due to an inflammatory reaction and an autoimmune reaction. *Streptococcus*, in fact, produces pathogenic IgM autoantibodies (anti-mioplemma and anti-sarcolemma) that attack the cardiac muscle fibres. The symptoms are palpitations, arrhythmias and enlarged heart (dilated cardiomyopathy).

* *Lentinus*, *Ganoderma* and *Agaricus* make up the "Immunity and Skin" protocol suitable for enhancing the immune system and also eliminating the damage caused to autoimmune mechanisms by the bacterium. The addition of *Auricularia* is very useful for its antiinflammatory and cardioprotective efficacy, which is also characteristic of *Ganoderma*.

Nephritis (or glomerulonephritis) due to β -hemolytic *Streptococcus*:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms) See [Chapter 16](#).

Bronchitis:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is an inflammation of the bronchial tubes, caused by infectious agents such as viruses (influenza), which may lead to secondary bacterial infections (*Haemophilus influenzae*, *Streptococcus pneumoniae*). Usually, in the first instance, the viruses attack and destroy the cells of the bronchial respiratory mucosa, favoring the penetration of bacteria. The viral form gives only mild symptoms such as slight temperature, muscle pain, cold symptoms, pharyngitis, dry cough, while bacterial bronchitis gives higher fever and catarrhal cough. The cause is always due to low immunity.

* *Lentinus*, *Ganoderma* and *Agaricus* are effective in resolving symptomatology and cause.

Bronchitis due to smoking:

“Smoking and Metal Chelation” Protocol : Pleurotus and Ganoderma (cause and symptoms).

It is an inflammation of the bronchial tubes caused by irritation due to smoking. It presents with catarrhal cough and can hide a danger of lung cancer.

* *Ganoderma* and *Pleurotus* are good anti-inflammatory agents which reduce coughing and chronic inflammation. But above all, they are able to eliminate most of the carcinogenic hydrocarbons.

Chronic obstructive pulmonary disease (COPD):

Lentinus (cause), *Ganoderma* and *Cordyceps* (symptoms). The old terms chronic bronchitis and emphysema are now incorporated within the acronym COPD. This is a particularly serious disease in which the bronchial tubes are largely obstructed due to chronic inflammation. Consequently, the flow of oxygen is limited and the administration of oxygen is often necessary.

* *Lentinus*, *Ganoderma* and *Auricularia* make up the "Antiinflammatory" protocol, useful for its anti-inflammatory efficacy. *Cordyceps* increases blood oxygenation by 5%.

External otitis:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is an inflammation, usually infectious, of the external ear canal. The characteristic symptom is earache. The pathogenic agent is represented by bacteria or fungi present in swimming pools.

* *Lentinus*, *Ganoderma* and *Agaricus* are useful in the resolution of otitis. *Ganoderma* and *Agaricus* are effective even when the cause is a fungal disease.

Otitis media:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms), with addition of *Auricularia* (symptoms).

It is an inflammation, always infectious, of the middle ear where there are the tiny bones responsible for the transmission of sound

(hammer and anvil) and also the organ of hearing (cochlea). The main symptoms are earache, stuffy nose, sore throat, high or slight temperature.

* *Lentinus*, *Ganoderma*, *Auricularia* and *Agaricus* have antiinflammatory properties. *Agaricus* is also a useful germicide.

Cold (or viral rhinitis):

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is the common cold, caused by viruses, and characterized by stuffy and runny nose.

* *Lentinus*, *Ganoderma* and *Agaricus* act in a coordinated way: *Lentinus* strengthens the basic intestinal immune defences, while *Ganoderma* and *Agaricus* are two powerful antiviral agents.

Cold (or vasomotor rhinitis):

Lentinus (cause), *Ganoderma* (symptom).

It is an ordinary cold with stuffy and runny nose. It is not infectious, but is caused by environmental stimuli (cold, damp) or irritants (smoke, smog).

* *Lentinus* and *Ganoderma* strengthen anti-inflammatory defences.

Chronic rhinitis with nasal polyps:

“Anti-inflammatory” Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms).

If the inflammation of the nasal mucosa becomes chronic, over the years, polyps can form.

* *Lentinus*, *Ganoderma* and *Auricularia* have excellent antiinflammatory properties and tend to stop the progression of the disease or to reduce it.

Sinusitis:

“Anti-inflammatory” Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms).

It is a chronic inflammation of the mucous membranes of the sinuses, causing an accumulation of mucus within the sinuses, which predisposes to bacterial infection (*Staphylococcus aureus*, *Streptococcus pyogenes* and others).

* *Lentinus* strengthens the basic intestinal immune defences, while *Ganoderma* and *Auricularia* are excellent for fighting or reducing the inflammation that causes the obstruction and build-up of mucus.

Recurrent cystitis:

Lentinus (cause), *Ganoderma* and *Agaricus* (symptom) and *Auricularia*. It is an inflammation of the bladder, usually infectious. The characteristic symptoms are burning and the urge to urinate frequently. The agent is an intestinal bacterium, *Escherichia coli*. Other germs can reach the bladder from the outside, passing through the urethra, when the "good and bad bacteria" of the vaginal ecosystem, are not in equilibrium. The origin is always due to low immunity.

* *Lentinus* is needed to rebalance the intestinal flora preventing the proliferation of *Escherichia coli*. *Ganoderma* and *Auricularia* are also useful antiinflammatory agents. *Agaricus* is a powerful germicide.

2. Diseases caused by virus and *Candida*

The "Anti-Virus" protocol composed of *Ganoderma*, *Grifola* (or *Lentinus*), *Cordyceps* and *Agaricus* is beneficial in viral diseases. These are, in fact, the healing mushrooms with the most powerful antiviral properties. From two to four are used according to the aggressiveness of the virus. The organ or tissue affected by the infection is taken into account when choosing the remedy.



Ganoderma

Cold sores:

Lentinus and *Ganoderma* (cause and symptom).

The herpes simplex virus type 1 (HSV-1) causes an infection of the lip with cold sores, sometimes also affecting the nose. The cause is the lowering of the immune defences, often due to stress.

* *Ganoderma* and *Grifola* (or *Lentinus*) have potent antiviral properties.

Shingles (herpes zoster):

Lentinus, *Ganoderma* and *Cordyceps* (cause and symptom).

Shingles is a viral disease affecting the skin and the nerve endings. The pathogen is the childhood chickenpox virus (*Varicella-zoster virus*). Usually it occurs when the immune defences are very low.

* *Lentinus*, *Ganoderma* and *Cordyceps* are very effective antiviral agents.

Genital herpes:

Ganoderma, *Lentinus* and *Cordyceps* (cause and symptom).

Herpes simplex virus type 2 (HSV-2) causes genital infection. The cause is the weakening of the immune system, often due to stress.

* *Lentinus*, *Ganoderma* and *Cordyceps* are very effective antiviral agents.

Mononucleosis:

Lentinus, *Ganoderma*, *Cordyceps* (cause and symptom).

Mononucleosis (or kissing disease) is an infectious viral disease, transmitted through saliva, caused by the Epstein-Barr virus (EBV). It affects the immune system and lasts four to six weeks. Symptoms consist in fever, sore throat, pain on swallowing, tonsillitis, fatigue, malaise and headache.

* *Lentinus*, *Ganoderma*, *Cordyceps* are very effective antiviral agents.

HPV (Human Papilloma Virus):

Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms). *Papilloma virus* is a viral disease affecting the cervix in 80% of women and can lead to erosion of the epithelium.

* *Lentinus*, *Ganoderma* and *Cordyceps* are very effective antiviral agents, able to defend the cervix with efficacy.

HIV:

“Antivirus” Protocol : *Ganoderma*, *Cordyceps* and *Grifola* (cause and symptoms) and *Agaricus* in addition (cause and symptoms). HIV (*Human Immunodeficiency Virus*) is a virus in the blood, liver and immune system cells, above all in CD4 T lymphocytes, which causes serious damage. HIV enters a lymphocyte and destroys it. In the liver it is the leading cause of cirrhosis and cancer (liver hepatocarcinoma). *Ganoderma* and *Cordyceps* can prevent HIV from entering CD4 T lymphocytes and liver cells. CD4 T lymphocytes are the most sensitive because they are able to recognize the cell infected by the virus and eliminate it but they are also able to coordinate and send different killer lymphocytes (mainly CD8s and Natural Killers) to attack the virus.

* *Ganoderma*, *Cordyceps*, *Agaricus* and *Grifola* are important to protect the liver and the immune system. In addition, healing mushrooms increase CD4 T lymphocytes and significantly strengthen the liver, the organ most at risk.

Chronic vaginal candidiasis:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

Candida albicans is the only fungus present in the intestines (and also in the vagina and in the oral cavity). It behaves like an inoffensive guest as long as its presence is limited to 2-3% of the entire bacterial flora. If, however, this delicate balance is disrupted and *Candida* benefits at the expense of other strains of bacteria, the immune system is no longer able to control its proliferation and it becomes pathogenic. Factors that may disrupt this balance are large amounts of sugar and dairy products, the use of antibiotics, intense psychological and physical stress and a weakened immune system. In the vagina, *Candida* can proliferate and cause vaginitis after antibiotic therapy. The two main symptoms are intense, uncontrollable itching, and the typical white vaginal discharge.

* *Lentinus*, *Ganoderma* and *Agaricus* are very useful in combating *Candida*. *Lentinus* strengthens the basic intestinal immune defences, while *Ganoderma* and *Agaricus*, on the one hand fight and eliminate excess *Candida* directly, and on the other tackle it indirectly by promoting the growth of healthy intestinal flora.

3. Inflammatory disease

Chronic inflammatory diseases respond well to the "Antiinflammatory" protocol made up of *Lentinus*, *Ganoderma* and *Auricularia*. Inflammation is a process needed by the body to repair damaged tissue. When the body is healthy this process is a temporary mode appropriate for responding to an attack (for example, a burn or exposure to cold that inflames the throat). Although it is painful, it is not a disease. The main inflammatory mediator responsible for the activation of this process is IL-2 (interleukin-2), assisted by dozens of others.

However, when inflammation becomes chronic, then it is correct to talk about disease. This means that the irritant action exerted by pathogens exceeds the normal response capacity of the immune system. Everything usually starts in the intestine, where the defences are more vulnerable, due to stress or a harmful diet. Not only does the intestine become chronically inflamed, but above all a tendency to a generalized inflammatory response is activated, due to the weakness of the immune system, which responds in a more harmful and stereotyped manner. For this reason many inflammatory diseases, such as arthritis, cystitis, prostatitis, nephritis are often associated with chronic inflammatory intestinal disease. The fact that the improvement of inflammatory disease in apparently disparate parts of the body (joints, bladder, prostate, kidneys) goes hand in hand with the improvement of the conditions of the intestine confirms this hypothesis.

The chronic inflammatory mechanism is activated in the Th2 immune response mode, in which T lymphocytes increase the synthesis of IL-4, which is the main mediator not just of chronic inflammatory diseases, but also of allergies and autoimmune diseases. In many diseases IL-4 surrounds itself with different actors, each responsible for different diseases. For example, in inflammatory diseases the increase in IL-4 stimulates the production of circulating inflammatory (IL-6, TNF-a) mediators (cytokines), while in allergic disorders it stimulates an increase in eosinophils - white blood cells - and interleukin (IL-5).

Mushrooms are an important resource for these diseases: they limit these illnesses and help to heal them. The sooner they are used the better, but they are always beneficial, even in the most serious cases. Also, it is worth remembering that they represent an excellent alternative to corticosteroids and immunosuppressants, which can be stopped after three to six months. Mycotherapy is very useful in combination with cortisone drugs and immunosuppressants because it does not alter their action, and also because it reduces and eliminates their many unpleasant side effects, such as gastritis, diabetes, weight gain, hypertension, tachycardia, reduction in white

blood cells, lowered immunity, susceptibility to infections, constipation, headaches, depression and so on.

* *The "Anti-inflammatory" Protocol*, made up of *Lentinus*, *Ganoderma* and *Auricularia* is very useful in inflammation. *Ganoderma* and *Auricularia* show an efficacy comparable to that of the most powerful anti-inflammatory agents available: the former to cortisone, the latter to methotrexate (powerful anti-inflammatory agent). They are very useful in short-lived inflammation, but even more so in chronic inflammatory illness. They prove their worth by reducing both symptoms and high inflammatory markers (ESR, CRP and IL-6). For example, this strategy is very effective in joint inflammation. In these cases, the "Infallible diet" provides a useful contribution, thanks to its anti-inflammatory action.

Chronic Arthritis (Osteoarthritis):

"Anti-inflammatory" Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms).

It is a chronic inflammatory disease, characterized by pain, swelling and limited joint movement.

* *Lentinus*, *Ganoderma* and *Auricularia* can provide significant improvements also in chronic cases.

Cervical and lumbosacral osteoarthritis:

"Anti-inflammatory" Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms).

It is a degenerative disease of the intervertebral discs of the spine, which deteriorate and become thin. As a result, the joints become inflamed, the muscles tighten and compress the nerve roots which come out of the spine, causing pain in the neck, arms, back or legs. Often abdominal bloating also occurs due to compression of the lumbosacral spine.

* *Ganoderma* and *Auricularia* have an excellent anti-inflammatory and relaxing effect on the muscles. With these two actions they often resolve pain. When symptoms do not resolve, *Lentinus*, which restores intestinal immunity, is also useful. The intestine often contributes to chronic inflammation. Moreover, *Lentinus* strengthens

cartilage and bones, which are weakened when there is pain, and it reduces intestinal bloating which compresses the lumbosacral spine.

Polymyalgia rheumatica:

"Anti-inflammatory" Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms).

It is a chronic inflammatory disease that affects the muscles of the arms, neck, legs and hips. Its symptoms typically include pain, stiffness and more difficult and limited movement. It is due to immune system deficiency which leads to chronic inflammation.

And, in fact, tests find high values of inflammatory markers: ESR, CRP and IL-6.

* *Lentinus*, *Ganoderma*, *Auricularia* make up the "Anti-inflammatory" protocol which is very useful for its anti-inflammatory action, as shown by a reduction in ESR, CRP and IL-6. *Auricularia*, in particular, is very effective in the joints with an effect similar to that of methotrexate (synthetic drug).

4. Allergic disease

Although symptoms appear primarily in the respiratory tract, they are immune system diseases. They are characterized by the presence of pathological antibodies, IgE, which are produced by an altered immune system which encounters harmless substances such as plant pollen (grasses, *Parietaria officinalis* and so on), animal dander (cat, dog), dust, dust mites, but also nickel and chemical substances, often related to occupational use (hair dyes, building materials and so on). Pathological antibodies bind to the allergenic substance (antigen) and this causes the release of histamine, which produces the allergic symptoms. Mycotherapy solves both cause and symptoms, even when the disease is chronic. In fact, it heals the immune system, preventing it from developing other allergic or autoimmune diseases.

* In particular, the *"Immunity and Skin" protocol*, consisting of *Lentinus*, *Ganoderma* and *Agaricus* is very effective. *Lentinus* restores basic immune efficacy in the intestine, *Ganoderma* is anti-inflammatory and antihistaminic and *Ganoderma* and *Agaricus* together eliminate the production of pathological antibodies.

Laboratory tests show that pathological antibodies are removed in about three months. Even in chronic diseases similar results can be obtained but require longer. The three mushrooms restore the cellular defence response (Th1) as the first level of intervention and restore the antibody defences (Th2) back to their normal position, that is, as a second level of intervention.

Allergic rhinitis:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is an allergy that affects the nose, with swelling, inflammation, itching and sneezing. When the allergy also involves the eyes, in addition to the nose, it is called **allergic rhinoconjunctivitis**. Inflammation of the conjunctiva produces puffy and watery eyes and itching. The substances that most often cause these allergies are pollen, dust and animal fur.

* *Lentinus, Ganoderma and Agaricus* are very useful. Often just three months of treatment suffice. If the disease has been present for many years treatment may take longer, but usually results are still excellent.

Nickel allergy:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is a chronic allergic contact dermatitis, similar to eczema. The skin is first red and itchy and then produces vesicles which, breaking, form scabs. The cause is always immune system disease.

* *Lentinus, Ganoderma and Agaricus* are very useful. Often just three months of treatment suffice. If the disease has been present for many years treatment may take longer, but usually results are still excellent.

Asthma:

Lentinus (cause), Ganoderma and Cordyceps (symptoms). It is a disease characterized by respiratory problems. The allergic reaction, in fact, frees histamine which narrows the bronchi hence allowing less air to pass. In addition, the bronchi become inflamed and

phlegm is formed that activates coughing which is an expulsion reaction. Allergic IgE antibodies are at the roots of this disease.

* *Lentinus*, *Ganoderma* and *Cordyceps* are excellent: in a few months pathological allergic antibodies decrease as do symptoms.

Urticaria:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is a pale red skin rash associated with severe itching. Hives can be triggered by food (shellfish, strawberries and eggs), by drugs (penicillin, sulfa drugs, aspirin and antibiotics), and insect venom (bees and wasps).

* *Lentinus*, *Ganoderma* and *Agaricus* easily resolve this disease. Then, carefully, and under medical supervision, the allergenic food can be reintroduced.

Oral allergy syndrome:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It consists in itching and swelling of the lips and oral cavity in contact with food allergens.

* *Lentinus*, *Ganoderma* and *Agaricus* easily solve this disease. Then, carefully, and under medical supervision, the allergenic food can be reintroduced.

Atopic dermatitis:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is a form of dermatitis characterized by eczema and intense itching. Pathological antibodies (IgE) are present.

* *Lentinus*, *Ganoderma* and *Agaricus* heal the cause (immune system disease) and skin symptoms. In chronic cases they greatly decrease

allergic antibodies, but in other cases they eliminate them.

Ganoderma is a potent antihistamine, which reduces itching.

Ganoderma and *Agaricus* restore freshness and health to the skin.

Lentinus strengthens intestinal defences.

5. Autoimmune Disease

Autoimmune diseases are caused by the immune system which, for a number of reasons, produces autoantibodies: defence tools that, instead of attacking enemies, attack another part of the body. The organ that is affected is the victim of self-aggression. It begins to malfunction, becomes symptomatic and "ill". But the real patient in autoimmune diseases is the immune system, which attacks a healthy part of the body without reason. It must be treated, otherwise it will continue its unjustified aggression. Moreover, if this aggression is not stopped, sooner or later, with the same blind mechanism, it will strike in another part of the body producing a second autoimmune disease. For example, by producing antibodies against the joints (anti-citrulline antibodies) it affects the synovial membrane that lines the articular cartilage and gives rise to another autoimmune disease: rheumatoid arthritis. Healing mushrooms resolve or alleviate ongoing autoimmune diseases such as Hashimoto's thyroiditis, but by healing the immune system protect against the future development of other autoimmune diseases.

* The "*Immunity and Skin*" Protocol: *Lentinus* (cause), *Ganoderma* and *Agaricus* (symptoms) is very effective. These three healing mushrooms act on the cause and resolve symptomatology. Furthermore, they prevent an unresolved cause in the immune system from leading to other autoimmune diseases.

Hashimoto's autoimmune thyroiditis (hypothyroidism):

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is an autoimmune disease characterized by a reduction in the hormones produced by the thyroid (T4 and T3), due to autoimmune anti-TPO antibodies (anti-thyroid peroxidase) and anti-TG (anti-thyroglobulin). The autoimmune reaction causes inflammation in the thyroid which contributes to the formation of cysts (colloidal).

* *Lentinus*, *Ganoderma* and *Agaricus* reduce anti-TPO and anti-TG antibodies that cause disease. Once they have been eliminated the illness heals. They are also useful in longstanding disorders, lasting for 10 or more years: they keep the disease in check, but also

control the immune cause, that could trigger other autoimmune diseases.

Graves' disease (hyperthyroidism):

"Immunity and Skin" Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is an autoimmune disease characterized by an increase in thyroid hormones (T4 and T3), due to the action of the anti-Tr-TSH autoimmune antibodies (anti-thyroid TSH receptor).

* *Lentinus, Ganoderma and Agaricus* reduce the anti-Tr-TSH antibodies producing disease. Once they have been eliminated the illness heals. They are also useful in longstanding disorders, lasting for 10 or more years: they keep the disease in check, but also control the immune cause, that could trigger other autoimmune diseases.

Simultaneous thyroiditis (Hashimoto's and Graves'):

"Immunity and Skin" Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

These are two diseases characterized by hypo- and hyperthyroidism. Sometimes the two conditions balance each other out, at least in some stages, and drug therapy is not required. However, although symptomatology is seemingly milder, the immune cause is double, and so the disease is really more severe.

* *Lentinus, Ganoderma and Agaricus* reduce anti-TPO and anti-TG antibodies causing thyroiditis with hypothyroidism and/or reduce the anti-Tr-TSH antibodies that trigger thyroid disease with hyperthyroidism. Recovery times from the causes are slower.

Sjögren's syndrome:

"Anti-inflammatory" Protocol: Lentinus (cause), Ganoderma and Auricularia (symptoms).

It is an autoimmune disease in which autoantibodies (SS-A/Ro and anti-SS-B/La) attack the parotid gland, the salivary glands and the tear glands, creating inflammation and reducing or stopping the production of saliva and tears. Symptoms consist in dry mouth and eyes. Cortisone is the drug that is most frequently prescribed.

* *Lentinus*, *Ganoderma* and *Auricularia* fight pathogenic antibodies and inflammation. *Auricularia* is useful because it hydrates and moisturizes the dry mucous membranes. *Ganoderma* has excellent cortisone-like anti-inflammatory properties, so is a useful alternative to cortisone. *Lentinus* restores healthy intestines.

Rheumatoid arthritis:

"Anti-inflammatory" Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms) and *Cordyceps* (symptoms).

Rheumatoid arthritis is a chronic inflammatory autoimmune disease that affects the joints at the (synovial) membrane covering them. It is characterized by pain, swelling, limited joint movement and joint deformation. The markers which monitor disease progression are anti-citrulline antibodies (anti-CCP) and inflammatory cytokines (TNF-alpha and interleukin IL-6). The rheumatoid factor (RF) is not always present.

* *Lentinus*, *Ganoderma*, *Auricularia* and *Cordyceps* reduce or eliminate autoimmune antibodies and chronic inflammation. However, even once the disease has been halted, the acquired damage remains. This is the reason why the sooner the "Anti-inflammatory" protocol is started the more bone is saved. It is useful to add *Cordyceps* to defend the bones.

Lupus or SLE (Systemic Lupus Erythematosus):

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms)

It is a chronic autoimmune disease, which involves the production of anti-nuclear, anti-DNA, anti-ENA, anti-cardiolipin and antiphospholipid auto-antibodies. These autoantibodies affect blood capillaries, initially in the skin and then throughout the body. The cause is to be found in the immune system which produces auto-antibodies, chronic inflammation and damage.

* *Lentinus*, *Ganoderma* and *Auricularia* make up the "Immunity and Skin" protocol which fights pathologic antibodies and inflammation.

Nephritis due to Lupus or SLE (Systemic Lupus Erythematosus):

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms) See [Chapter 17](#).

Scleroderma:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

Scleroderma or progressive systemic sclerosis (PSS) is a chronic, progressive autoimmune disease. The cause is in the immune system that attacks the skin’s connective tissue. It is characterized by chronic inflammation that later produces a scar.

* *Lentinus, Ganoderma and Agaricus:* fight disease progression effectively, eliminating pathological antibodies and inflammation.

Systemic scleroderma (or systemic sclerosis):

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

In more severe cases, the same mechanism affects the connective tissue of internal organs, particularly the lungs, oesophagus and gastro-intestinal tract, kidneys and heart.

* *Lentinus, Ganoderma and Agaricus* fight disease progression effectively, eliminating pathological antibodies and inflammation.

CHAPTER 15

Diseases of the digestive system and metabolism:

Hericium, Auricularia, Grifola and Coprinus

The 2nd power of mycotherapy is that it strengthens the digestion and metabolism. Healing mushrooms allow the body to absorb the nutrients introduced with food better, and to transform them into the energy and metabolites necessary for life. In addition, they help keep the digestive system in full working order, to protect it from disease with effective prevention and also to lead it to recovery when affected by illness.

Causes of disease

When the digestive system is healthy, metabolic processes work well and health flourishes. When, however, these functions begin to lose efficiency, illness gradually appears, attacking both the digestive system with metabolic functions, and other apparatuses. These functions start to weaken due to three very dangerous enemies that spare almost no one: traditional diet, psycho-emotional problems and everyday wear and tear.

Poor nutrition, with a high content of cheese and dairy products, is detrimental for the digestive functions for several reasons. First of all, breast milk and its derivatives contain germicide substances such as lysozyme (a natural antibiotic) and large amounts of IgA and IgG (immunoglobulin A and G), which are essential for babies, because their immune systems are still immature. Cow's milk, which is of another species, contains germicidal substances which are similar, but not appropriate in human beings as they modify the intestinal flora. Cow's milk benefits the intestinal flora necessary for a calf, which is different from that of a human being, and, therefore, kills part of the bacteria necessary to us in our intestines, as do antibiotics. Consequently, the precious lactic acid bacteria which are necessary for digestion in humans are insufficient (this is called dysbiosis) and the intestinal pH becomes alkaline. The acidity which

allows the digestive enzymes of the pancreatic and intestinal juices to digest properly is therefore missing.

The frenetic pace of life, psychological stress, psychoemotional symptoms, anxiety, fear and sadness are equally insidious. In fact, they block the digestive tract and liver. It is no coincidence that people who are more "stressed" digest badly. The stomach and the intestines wear out over time because they work in contact with acidity, toxins and bacteria, while the liver deteriorates because it receives and metabolizes fat, animal proteins, biological and chemical toxins and alcohol. Even medicines may produce harmful side effects. For example, some, such as steroids, painkillers, antibiotics, can cause gastritis; others, such as gastroprotectors and iron-based anti-anaemic products, can cause colitis; while pharmaceuticals such as corticosteroids, antidepressants, antipsychotics, contraceptives, can cause weight gain.

The most critical point: the intestine

When the digestive functions worsen, the first parts of the body to be affected are the stomach and especially the intestine. Intestinal enzymes are not activated sufficiently when there is a shortage of lactic acid bacteria, so intestinal digestion becomes imperfect and leaves residues that are not completely digested and which in turn form deposits on the intestinal walls. These deposits attract pathogenic bacteria which produce toxins and other impurities, causing inflammation in the intestine. As a result, leaky gut syndrome develops, characterized by bloating, constipation and inflammation, which in most cases, is disregarded. So, without treatment to stem the problem, many of these "undisturbed" toxins and impurities manage to reach the bloodstream and are distributed throughout the body, where they cause other diseases such as flu, cystitis, allergies, dermatitis, headaches, recurrent abdominal pain and so on.

Only few people are aware that intestinal bloating and constipation are a real disease, which needs to be treated seriously in order to eliminate not only the symptoms, but also the causes. Those who do tackle the problem, often just resolve the symptom using a chemical

or natural laxative, perhaps without realizing that doing so creates dependency and, hence, a vicious circle. Moreover, if the cause is not resolved, other diseases will develop.



Hericium

Things get worse with age

Children and adolescents, who often consume large quantities of milk and cheese, have low immunity and develop illnesses such as recurrent flu, allergies and asthma. This is demonstrated by the fact that these diseases have greatly increased in recent years. From the age of twenty years, leaky gut syndrome is frequent, with bloating and constipation. Between forty and fifty, gastritis, weight gain and metabolic diseases are widespread. From the age of sixty onwards diabetes, diverticulitis, polyps and tumors are common.

The four levels of severity of digestive system disease

The illnesses that affect the digestive function progress in severity.

The first level is characterized by digestive dysfunction, often accompanied by mild and fluctuating symptoms, such as bloating or constipation. Initially, gastritis does not produce painful symptoms but is characterized by slow and difficult digestion, bloating, belching, heaviness in the stomach. The main cause is stress. The intestine produces bloating and constipation. These disorders may be due to psychosomatic causes, but are much more often due to poor diet.

If the cause is not resolved, chronic inflammatory diseases, such as gastritis and chronic colitis (or leaky gut syndrome) arise. At this level, the intestine is malfunctioning and becomes the starting point of diseases both of the digestive system and other organs. Moreover, an inefficient intestine, especially if suffering from constipation, accumulates impurities and toxins, which may even be carcinogenic, and which cause serious and degenerative diseases. The low efficiency of the intestine also causes diseases such as anaemia and osteoporosis due to an insufficient absorption of iron and calcium.

The third level of severity includes chronic inflammatory diseases in which inflammation has caused organ lesions: diverticula, polyps and Crohn's disease, with the ulcers and scarring it produces. Chronic inflammation, beyond the anatomical boundaries of the digestive tract, causes chronic inflammation in the rest of the body too. It creates problems and causes many diseases: bone and joint disorders, autoimmune diseases such as Hashimoto's thyroiditis, kidney diseases, multiple sclerosis and many others. In extreme situations more serious diseases occur, such as cancer. Today, colon cancer is the third most frequent form of tumor after breast cancer and prostate cancer and is becoming increasingly common.

The main diseases of the digestive system

Here are the most common diseases of the digestive system and metabolism, divided into the main categories. All benefit from mycotherapy, which heals and restores well-being. The *"Bones, Teeth*

and Gums" Protocol: *Lentinus* (cause) and *Ganoderma* (symptoms) is useful for eliminating dental plaque, cause of many

diseases of the oral cavity.

1. Diseases of the oral cavity

They are diseases of the mouth and teeth. One of the main causes is dental plaque, which consists of bacteria, mainly *Streptococcus mutans* and others that feed on simple sugars and which produce acidic substances. This acidity eats away at the teeth and causes tooth decay, but also irritates all the tissues with which it comes into contact, hence causing inflammation, gingivitis, abscesses and periodontal disease. The immune defences of the mouth are also related to IgA (immunoglobulin A) designed to protect the oral mucosa. A shortage increases the risk of inflammation of the mouth and throat.

* Healing mushrooms, especially *Ganoderma* and *Lentinus*, which constitute the "Bones, Teeth and Gums" protocol, are useful in diseases of the mouth and teeth. They have powerful immunestimulating properties. *Lentinus* combats dental plaque by fighting the germs responsible for its formation (Shouji, 2000; Zaura, 2011). *Ganoderma*, on the one hand increases the IgA designed to protect the mucous membrane of the mouth, thanks to the stimulus of beta-glucans (Lehne et al., 2006), and on the other has efficient anti-inflammatory properties.

Mouth ulcers:

Ganoderma and *Auricularia* (cause and symptoms).

These are small painful ulcers that appear in the mouth and are caused by stress and toxins.

* *Auricularia* is suitable due to its anti-stress effect and *Ganoderma* due to its cleansing action.



Auricularia

Stomatitis (mouth diseases, inflammation and infection):

"Bones, Teeth and Gums" Protocol: Lentinus (cause) and Ganoderma (cause and symptoms).

In the oral mucosa there are healthy and even pathogenic bacteria, which create no problems when they are in equilibrium. Moreover, in saliva, there are salivary IgA (immunoglobulin A), which create a barrier against pathogenic microorganisms. The normal flow of saliva which is distributed on the mucous membranes of the mouth, therefore, provides effective protection against infection by bacteria, viruses and *Candida*. A decrease in salivary IgA leads to stomatitis - inflammation of the mucous membranes of the mouth, facilitating the action of pathogenic bacteria, viruses and *Candida*. A simple mouth swab of saliva detects a reduction in IgA. * *Ganoderma* and *Lentinus* are excellent providers of beta-glucans, which increase the

concentration of salivary IgA (Lehne, 2006). *Ganoderma* is also useful for its anti-inflammatory action.

Gingivitis:

"Bones, Teeth and Gums" Protocol: Lentinus (cause) and Ganoderma (cause and symptoms).

It is a painful inflammation of the gums, sometimes due to irritation from plaque, but more often due to fixed or removable prostheses. Even the natural aging process that thins the gum has an important role: having lost the support of the connective tissue, the gum is thinner and less vascularized. Consequently, it becomes more vulnerable to micro-traumas which can produce damage or inflammation.

* *Lentinus* combats dental plaque because it regenerates the correct bacterial flora of the oral cavity and increases the local immune response, while *Ganoderma* has anti-inflammatory properties. In addition, both strengthen the gums.

Tooth decay:

"Bones, Teeth and Gums" Protocol: Lentinus (cause) and Ganoderma (cause and symptoms).

It is the pathological process that ruins the mineral parts of the tooth, the enamel outside and dentin inside. When pain is felt it means that the internal mineral part, which protects the tooth pulp, has been damaged. It is caused by bacteria that form dental plaque (or tartar), in particular by *Streptococcus mutans* that, feeding on sugar, produces acidity with which it creates passages and cavities. Young teeth are more protected (hard outer enamel and internal dentin less hard), while when the gums start to retreat, at 40 to 50 years of age, the teeth are more vulnerable.

* *Lentinus* and *Ganoderma* strengthen the teeth. *Lentinus* also eliminates dental plaque bacteria that produce acidity causing tooth decay.

Periodontal disease or periodontitis:

"Bones, Teeth and Gums" Protocol: Lentinus (cause) and Ganoderma (cause and symptoms) with addition of Agaricus (cause and symptoms) as required.

It is a disease caused by dental plaque that leads to two pathological processes: the first destroys the alveolar-dental ligament that holds the tooth fixed to the jaw (periodontium); the second causes inflammation and infection in this space. Consequently, the gum becomes inflamed and bleeds easily, abscesses are formed and the teeth lose stability and tend to fall out.

* *Lentinus* and *Ganoderma* strengthen the bone. *Ganoderma* is also useful for its anti-inflammatory action. *Agaricus* is a useful germicide, necessary for the large number of bacteria present.

2. Stomach disease

Stress, which causes various types of damage when it affects the stomach, is the main cause of disease in this organ. *Hericium* is the basis of all stomach treatment. In fact, it restores the mucus that lines the stomach and protects it from acidity. Also, it helps cells damaged by chronic gastritis to regenerate.

Gastritis:

Hericium (cause and symptoms) and addition of *Ganoderma* as required (cause and symptoms).

It is a chronic disease characterized by indigestion, heartburn and pain, three conditions that can make it difficult to eat. The main cause is stress, which reduces the mucus coating present on the walls of the stomach to protect them from acidity.

* *Hericium* is effective against pain and burning because it restores the secretion of protective mucus on the whole inner wall of the stomach. If gastritis has been continuing for many years *Ganoderma* should also be added because its anti-inflammatory effect accelerates healing. Also because *Ganoderma* together with *Hericium* enhance the anti-stress effect necessary to resolve the psychosomatic cause, which is the main factor causing the gastritis.

Gastritis with *Helicobacter pylori*:

Hericium (cause and symptoms) and addition of *Ganoderma* as required (cause and symptoms).

Contrary to popular belief, *Helicobacter pylori* is present only in a minority of cases.

* *Hericium* is effective against pain and burning because it restores the secretion of protective mucus on the whole inner wall of the stomach. If gastritis has been continuing for many years *Ganoderma* should also be added because its anti-inflammatory effect accelerates healing. In addition, they are both antimicrobial, and therefore help to eliminate *Helicobacter pylori*, when present. *Ganoderma* and *Herichium* have useful anti-stress properties which act on the psychosomatic cause, which is the main factor causing the gastritis.

Gastroesophageal reflux:

Hericium, *Cordyceps* and *Auricularia* (or *Ganoderma*) (cause and symptoms).

An inflammatory disease of the oesophagus, it causes heartburn and acid reflux due to incomplete closure of the cardia, the valve separating the stomach from the oesophagus. It is caused by stomach bloating, which prevents the valve from closing completely.

* *Hericium* removes bloating, *Cordyceps* restores the stomach and *Auricularia* has anti-inflammatory and anti-anxiety properties, so resolves the inflammation of the oesophagus and the anxiety often associated with stomach disease. *Ganoderma* is a good alternative to *Auricularia* for its anti-inflammatory effects, less so for resolving anxiety.

Hiatal hernia:

Hericium and *Cordyceps* (cause and symptoms).

It is a hernia (a sac) in the upper part of the stomach, that squeezes itself above the diaphragm, near the oesophagus. The cause is stomach bloating which pushes a part of the organ upwards.

* *Hericium* facilitates the reduction of the hernia, because it eliminates the internal pressure in the stomach. *Cordyceps* strengthens the stomach muscles, opposing the hernia which, left to itself, would tend to increase. *Hericium* and *Cordyceps*, with their combined action, often reduce in size the hernia.



Grifola

Iron deficiency anemia:

Hericium and *Grifola* (cause and symptoms), *Cordyceps* (symptoms). It is a deficiency of haemoglobin (Hb), in red blood cells and, therefore, of oxygen in the blood (haemoglobin in red blood cells is used for oxygen transport). Symptoms include weakness, pale skin and mucous membranes, hair loss and brittle nails. Anemia is caused by iron deficiency. The stomach and the intestine are two organs which are fundamental for the proper absorption of this mineral. In gastritis, the stomach does not produce the factor (intrinsic factor) needed for iron-binding. In colitis, iron, whilst correctly bound, it is not absorbed due to inflammation of the intestine which alters the correct absorption function. Iron deficiency leads to a smaller amount of haemoglobin, and hence a smaller amount of oxygen in the blood.

* *Hericium* restores stomach digestion and the correct production of the factor that binds iron, while *Grifola* strengthens intestinal digestion, allowing a more complete absorption of iron. This also stimulates the bone marrow to produce more red blood cells, if lacking. *Cordyceps* is useful in anemia because it increases blood oxygenation.

3. Diseases of the small intestine

The intestine can be our strong point, because it supplies the body with nutrition and energy, so that it is healthy and full of wellbeing. But in 90% of cases it is the weak point, because if it is not respected, it becomes a dumping ground for impurities, which accumulate and spread in the blood causing various diseases. Stress and a diet including too many harmful foods are the main causes of intestinal dysfunction. Mycotherapy offers us various mushrooms which can, on the one hand, keep the intestines clean and working well and, secondly, prevent diseases that arise when the intestine spreads malaise throughout the body.

Lentinus is excellent against bloating caused by intestinal dysbiosis, i.e. by the presence of pathogenic intestinal flora. This is an annoying symptom which also indicates that the intestine is functioning poorly both as regards digestion and immunity. By repopulating the intestines with healthy lactic acid bacteria and eliminating pathogenic microorganisms, intestinal efficiency is restored. Once the intestine is healthy again bloating is eliminated and digestive functions improve. Moreover, intestinal immunity, which is closely linked general immunity, greatly improves too. Hence, the intestine, once again inhabited by healthy intestinal flora, strengthens the intestinal immune defences that are the basis of the defence system of the whole body.

Coprinus, which has an effect very similar to that of *Lentinus* in intestinal ailments, represents a useful alternative. *Auricularia* unblocks even the most constipated intestines because it moves the intestinal walls physiologically, stimulating the elimination of feces.



Coprinus

Leaky gut syndrome:

Lentinus (or *Coprinus*) and *Auricularia* (cause and symptoms). It is a disease characterized by inflammation (ileitis) and swelling of the small intestine. The consequences include pain and alterations in the elimination of feces, often with constipation. The cause is a lack of lactic acid bacteria.

* *Lentinus* or *Coprinus* are excellent at eliminating bloating, because they provide lactic acid bacteria with their favorite food: trehalose, a sugar. *Auricularia* is extremely useful for constipation.

Food intolerance:

Grifola and *Lentinus* (cause and symptoms).

Food intolerance occurs when the small intestine does not tolerate one or more foods: the most common are yeast, milk, meat, gluten. The most common symptoms are bloating, and changes in the

elimination of feces, with constipation or loose stools. The cause is not really a particular food, but inflammation of the small intestine, which results in poor digestion.

* *Grifola* exerts three important actions in the small intestine: it is an anti-inflammatory agent and a natural digestive substance that stimulates pancreatic enzymes (trypsin, amylase and lipase) and, lastly, it helps to restore stools to their normal consistency if they are too soft. *Lentinus* eliminates bloating and restores the appropriate intestinal flora, necessary for correct digestion.

Abdominal colic:

Ganoderma and *Auricularia* (cause and symptoms).

Painful spasms of the small intestine and colon. The pain almost always originates in the small intestine and often also involves the colon.

* *Auricularia* and *Ganoderma* are effective because they relax intestinal tension with an effect similar to Buscopan.

Celiac disease in adults:

“Immunity and Skin” Protocol: *Lentinus* (cause), *Ganoderma* and *Agaricus* (symptoms), with addition of *Grifola* (cause and symptoms).

It is a chronic autoimmune disease, characterized by bloating, pain, diarrhea, malabsorption, weight loss and general weakness. Gluten, which cannot be digested, leads to inflammation and damage in the intestinal villi. The cause is to be found in the immune system that produces pathological anti-transglutaminase antibodies (Ab-TGA), which destroy the TGA enzyme (trans-glutaminase) required to digest gluten.

* The “Immunity and Skin” Protocol, consisting of *Lentinus*, *Ganoderma* and *Agaricus*, is very effective in autoimmune diseases. *Grifola* is an important aid due to its antiinflammatory effect in the intestine, restoring proper intestinal digestion and normal consistency of stools.

Diverticulosis:

Lentinus (cause) *Cordyceps* (symptoms).

Diverticula are small sacs that form in the wall of the small intestine and colon. They are caused by anything that weakens the wall of the

intestine and by bloating inside the colon.

* *Cordyceps* increases muscle tone in the intestine, while *Lentinus* eliminates bloating inside the colon, because it strengthens lactic acid bacteria and proper intestinal flora.

Diverticulitis:

Lentinus (cause), *Cordyceps* and *Ganoderma* (symptoms). It is an inflammation caused by the accumulation of food that collects at the bottom of diverticula and which tends to become infected by bacteria.

* *Ganoderma* has anti-inflammatory and germicide properties. *Lentinus* and *Cordyceps* are also germicides and help to disinfect the diverticula. They also reduce the tendency of the diverticula to increase in size.

Crohn's disease and ulcerative colitis:

Grifola and “Anti-inflammatory” Protocol: *Lentinus*, *Ganoderma* and *Auricularia* (cause and symptoms).

It is a chronic inflammatory disease in which the inflammatory process, which is particularly aggressive, produces bleeding ulcers. Symptoms include bloating, diarrhea, blood in stools, weight loss. In Crohn's disease, the ulcers are found in the small intestine, while in ulcerative colitis they are found in the rectum, which is the final part of the large intestine.

* *Grifola* is an excellent anti-inflammatory agent, with an effect similar to that of Asacol (mesalamine), the most widely used antiinflammatory drug for these two diseases. *Grifola* and the “Antiinflammatory” Protocol, made up of *Lentinus*, *Ganoderma* and *Auricularia* are very effective in treating and resolving both the cause and the symptoms.

4. Diseases of the colon and the rectum

This part of the intestine is vulnerable to disease due to constipation, when feces and toxins remain in the final part of the intestine for too long. Medicinal mushrooms are extremely effective. *Auricularia* restores normal peristalsis throughout the intestine and regularizes the elimination of feces.

Irritable bowel syndrome:

“Anti-inflammatory” Protocol: Lentinus, Ganoderma and Auricularia (cause and symptoms).

>It is a psychosomatic illness, which expresses psycho-emotional distress. The main symptom is abdominal pain, which is reduced after defecation. Constipation is often present. Diarrhea is less common, but more bothersome.

* *Lentinus, Ganoderma and Auricularia* restore intestinal health. *Ganoderma* and *Auricularia* are useful for their anxiolytic effects and to improve the emotional state of mind which, when altered, causes annoying abdominal symptoms.

Colitis with constipation:

Auricularia and *Lentinus* (cause and symptoms). It is an inflammation of the colon. When the intestine is inflamed, bowel movement - the peristaltic wave, sometimes slows down. Consequently, the feces remain in the colon longer, more water is absorbed and the feces become harder and more difficult to eliminate.

* *Auricularia* can free the intestine even when constipation has persisted for years, because it reactivates natural peristalsis. *Lentinus* heals intestinal flora, allowing it to perform its proper functions.

Constipation caused by laxatives:

Lentinus and *Auricularia* (cause and symptoms).

The use of laxatives causes constipation. Some types of laxatives, in fact, eliminate large amounts of fluids and minerals. This loss of water and minerals makes the intestinal contents arrive at the rectum excessively dry and hard, causing more constipation.

* *Auricularia* reactivates natural peristalsis. *Lentinus* strengthens the intestinal defences.

Colitis with loose stools and diarrhea:

Lentinus and *Grifola* (cause and symptoms).

When the colon is inflamed it cannot absorb liquids and produces loose stools.

* *Grifola* is very useful in resolving the inflammation of the small intestine or colon. *Lentinus*, too, resolves the inflammation of the

small intestine and allows the intestinal contents to reach the colon in a correct form.

Hemorrhoids:

Auricularia and *Coprinus* (cause and symptoms). They are varicose veins located close to the anal sphincter. They are characterized by the appearance of small amounts of bright red blood due to damage to the veins, often during defecation. *Auricularia* performs two useful actions: firstly, it relaxes the muscles of the anal sphincter and rectum and secondly, it strengthens the walls of these (hemorrhoidal) veins. *Coprinus* restores healthy bacterial flora. In this way bloating, which is the second factor responsible for compression, is eliminated. Eliminating air in the intestine further facilitates intestinal motility and local circulation. The hemorrhoidal veins empty and often heal completely.

Anal fistula:

Ganoderma and *Hericium* (cause and symptoms).

It is a small channel which develops connecting the rectum with the skin, with possible leakage of fecal matter.

* *Ganoderma* and *Hericium* are able to heal the skin and close the hole.

Anal fissures:

Ganoderma and *Hericium* (cause and symptoms). They are painful wounds that are hard to heal.

* *Ganoderma* and *Hericium* stimulate the skin's ability to heal.

Anal itching:

Lentinus and *Ganoderma* (cause and symptoms). It is often caused by pinworms. If the conditions for healthy bacterial flora are lacking in the intestines, parasite infections can easily occur. The symptom is an annoying itch in the anal sphincter caused by histamine, a mediator of inflammation. Histamine, in fact, is released due to allergies or parasitic diseases.

* *Lentinus* and *Ganoderma* easily restore intestinal flora and intestinal immunity. Furthermore, *Ganoderma* has powerful antihistaminic properties.

The four levels of severity of metabolic diseases

Metabolic diseases can be divided into different levels of severity. The metabolism is the set of transformations which turns food into energy and structures. This is a delicate operation which must be respected in order to avoid its alteration, which can damage health. Initially, the metabolism starts to slow down, leading to weight gain. Other early signs of impairment are brittle hair, oily skin and acne. At the second level of severity the situation worsens, leading to metabolic diseases such as high cholesterol and blood sugar and overweight, that rapidly tend to become chronic.

If nothing is done about the cause, the first morphological changes appear, such as fatty liver (steatosis), gall stones and plaques of atherosclerosis. This group of illnesses also includes osteoporosis and inflammatory bone diseases caused by excess acidity in diet (dairy products, carbohydrates and animal proteins) that leach minerals from the bones. The fourth level of severity includes chronic diseases which affect the whole body (called systemic), such as diabetes and blockage of the arteries of the heart, kidney and brain, leading to heart disease.

The main metabolic diseases

There are four main metabolic diseases: overweight, high cholesterol, metabolic syndrome and diabetes. All have in common a high cardiovascular risk. Medicinal mushrooms are useful for reducing fat and overweight in these ailments. Moreover, they are very effective in treating diabetes, because they intervene on the causes and symptoms. Finally, they are extremely useful in the prevention of heart disease.

* *The "Fat Burning" Protocol: Grifola and Auricularia* (cause and symptoms) facilitates success when dieting. These two remedies dissolve accumulated fat and reduce appetite.

* *The "Cholesterol" Protocol: Pleurotus* (cause) and *Auricularia* (symptoms) is useful for counteracting damage due to excess cholesterol. *Pleurotus* lowers LDL "bad" cholesterol and increases the "good" HDL cholesterol. It reduces cholesterol plaques which have already formed and prevents the formation of new ones. *Auricularia* protects the artery walls.

* *The “Diabetes” Protocol: Coprinus, Grifola, Agaricus and Cordyceps* (cause and symptoms). *Coprinus, Grifola, Agaricus and Cordyceps* are useful in combating diabetes. They reduce high blood sugar; promote the production of insulin by the pancreas and its action on tissues. *Cordyceps* also increases available energy and is an excellent prevention against circulatory, heart and brain complications.

Overweight:

“Fat Burning” Protocol: Grifola and Agaricus (cause and symptoms). It is not just a disease, but is also the cause of many other illnesses, especially cardiovascular disease. Moreover, it is a source of aesthetic problems and poor self-image. The main danger is represented by cardiocirculatory complications.

* *Grifola and Agaricus* help to dispose of “rolls” of fat. *Agaricus* stimulates adiponectin, a hormone of the adipose tissue which, when activated, gets rid of accumulated fat. *Grifola* promotes the use of fat for energy production. Both reduce a craving for sweets and carbohydrates.

Emotional eating:

Auricularia and Agaricus (cause and symptoms). It is a metabolic disease, linked to psychological causes. Often the amount of stress is one of the factors involved. The urge to eat is not due to hunger, but to irritability, anxiety or dissatisfaction. To calm a restless mind with food can be dangerous, especially if selfcontrol is lacking.

* *Auricularia and Agaricus* both have antistress properties. *Auricularia* is also anxiolytic and *Agaricus* burns fat.

High cholesterol:

“Cholesterol” Protocol: Pleurotus (cause) and *Auricularia* (symptoms). High cholesterol damages the inner wall of the arteries, forming plaques which, over the years, may obstruct the passage of blood. The underlying cause of this alteration is a wearing down of the artery wall that becomes brittle and weak. For this reason the liver releases more cholesterol into the bloodstream to form plaques that strengthen and protect the arteries from worse trouble. They have a function similar to that of reinforcing patches on the elbows of

jumper sleeves. If this defensive mechanism, effective as emergency intervention, is used excessively, these plaques can block the arteries and become a real danger.

* *Pleurotus* and *Auricularia* make up the "Cholesterol" protocol because they are effective in maintaining healthy arteries. *Auricularia* protects arteries from inflammation and the formation of cholesterol plaques. Furthermore, it keeps arteries younger and more flexible. *Pleurotus* reduces high cholesterol, prevents the formation of new cholesterol plaques and also reduces the thickness of the plaques already present in the carotid, coronary and other arteries.

Prediabetes:

"Diabetes" Protocol: *Coprinus*, *Grifola*, *Agaricus* (cause and symptoms). Nowadays the reference marker for the reliable measurement of blood glucose is glycated hemoglobin. When it is too close to the levels found in diabetes there is a risk of developing the illness. In this phase insulin is already losing effectiveness (insulin resistance). In fact, it is no longer able to stimulate the cell receptors of the muscles, liver and brain correctly. These receptors, no longer sensitive to insulin, do not allow glucose to pass from the blood into the cells where it is normally used.

Type-2 diabetes:

"Diabetes" Protocol: *Coprinus*, *Grifola*, *Agaricus* and *Cordyceps* (cause and symptoms).

It is characterized by hyperglycemia (high level of sugar in the blood) and lack of energy. Glycated hemoglobin has reached the level of diabetes. There is a period when the illness seems to stabilize, but the real danger is the insidious progress of the disease which leads to serious complications, such as heart attack, stroke, kidney failure and vision loss. Another serious problem is impaired circulation in the legs, with chronic and painful skin ulcers which are difficult to heal and can develop gangrene.

* *Coprinus*, *Grifola* and *Agaricus* reduce the elevated blood glucose that occurs in diabetes, but not just because they combat the mechanisms responsible for this fact. *Coprinus* has an action similar to that of insulin, due to its vanadium content, which is an effective

hypoglycemic agent. *Coprinus* and *Grifola* protect the β cells of the pancreas, responsible for insulin production, and increase sensitivity to this hormone in the main cells which use it (the muscles, liver and brain). *Cordyceps*, in addition to being a useful hypoglycemic agent, is very useful especially for the prevention and for the treatment of cardiovascular complications, which are more frequent in diabetics than in non-diabetics.

Type-1 diabetes:

“Diabetes” Protocol: Coprinus, Grifola, Agaricus and Cordyceps (cause and symptoms), *with addition of Lentinus* (cause) as required. It is the rarest form of diabetes. It is an autoimmune disease in which abnormal auto-antibodies are formed which destroy the cells in the pancreas which produce insulin. It is caused by an ill immune system. It mainly affects young children.

* *Coprinus* is hypoglycemic and improves intestinal immunity. Also *Grifola* and *Agaricus* have effective hypoglycemic properties. *Cordyceps*, as well as being a useful hypoglycemic agent, is especially important for preventing cardiovascular damage, which is one of the most dangerous complications. To further enhance intestinal immunity it may be useful to add *Lentinus*.

CHAPTER 16

Diseases of the cleansing apparatuses: *Polyporus, Pleurotus, Cordyceps* and *Ganoderma*

*You cannot live a healthy life
on a sick planet.*

NATIVE AMERICANS 1860

Cleansing functions have to deal with the invasion of an increasing number of toxins, which are responsible for considerable damage to health, either through direct or through indirect action, and lead to the increase of free radicals. Called “molecular sharks”, according to an appropriate definition coined by Professor Sharma of the University of Ohio (USA) (Sharma, 1993), free radicals alter healthy molecules all over the body, so that they become less efficient, causing illness and old age. Healing mushrooms greatly increase the body’s ability to eliminate impurities and free radicals. It is no coincidence that their 3rd power is to strengthen the organs which deal with cleansing the body. They act in two ways: by de-toxing the body directly and by increasing the body’s cleansing ability. Therefore, since ancient times, healing mushrooms have earned a reputation for strengthening cleansing mechanisms, slowing aging and maintaining youth longer.

The causes of disease

If the cleansing function, the third basic function necessary for life, is in difficulty, at a certain point it will jeopardize the survival of the whole body. This function, in fact, must incessantly deal with impurities and toxins of all kinds. Nowadays, everything is contaminated: air, water, seas, soil and subsoil, animals and food and consequently, the human body too is affected by toxicity. So the cleansing functions are under pressure due to the large number of toxins that come from the planet on which we live and which is increasingly poisoned. Moreover, another infinite source of contamination exists within our body. They are the free radicals that are formed in every cell of the body.

Maybe we are not aware that these "toxins" are one of the most dangerous causes of aging and illness. They are continuously formed in every metabolic process in a percentage ranging between 1-4%. So, they are formed even during sleep and in greater quantities in normal daily activities, increasing silently in many common circumstances in which perhaps we do not even realize we are increasing the amount of toxins, such as: sport, poor diet, stress, chemicals, even pharmaceuticals, inflammation and diseases in general. Fewer are formed during sleep and during activities which are conducted serenely and with respect for the needs of the body. Instead, they increase in proportion to the degree of metabolic energy required by the body. Moreover, the amount of free radicals formed in contact with toxic substances such as cigarette smoke, heavy metals and hydrocarbons is by far greater.

It is therefore important to bear in mind that we produce huge amounts of free radicals in many circumstances which we consider normal. So, we have a duty to protect ourselves in earnest, by enhancing antioxidant defences and cleansing functions. For example, in many countries of Asia, from India to Japan, when people start therapy with conventional medicine they protect themselves by associating natural remedies (healing mushrooms, herbal medicines) because they are aware of the side effects and the increase of free radicals. This protection, which is regularly implemented, is considered necessary and taken for granted. Just like, when the harsh cold of winter arrives, we instinctively wrap up in warm clothes.

Otherwise, the cleansing function begins to lose efficiency and is impaired because of the extra work which the liver, kidneys, skin and antioxidant system must make to adequately detox the body. If no appropriate action is taken at the first sign of problems, the deterioration, which can even last for many years, leads to an escalation from the first dysfunctions to more serious conditions.

A critical point: the skin

The waste and toxins which the cleansing function is not able to eliminate reach the small arteries, veins and lymphatic capillaries of

the microcirculation through the blood circulation and are deposited there. At first, vital organs and the muscular apparatus are avoided due to the importance of their functions, so toxins and waste tend to be deposited in the skin, followed by the subcutaneous tissue both loose and dense and, in part, by connective tissue, which constitutes the structural part of organs.



Polyporus

This inappropriate build-up of “rubbish” is a ploy that, when used in a limited manner, allows moderate functional compensation, because the skin can initially cope. But it begins to show signs of increasing discomfort in the form of acrid sweat, bad smells, oily and dull skin. Then, symptoms of illness appear, such as acne, itching, broken capillaries, hair loss and dermatitis. If treatment is limited to looking after and healing the skin and does not intervene on the shortcomings of the function that causes these problems, excess toxins reach other parts of the body too.

A disease difficult to diagnose: toxin build-up

Toxins which are circulating, and those that accumulate gradually, produce a range of disorders which vary considerably according to the body part in which the toxins build up. For example, circulatory disorders, headaches, muscle pain, mouth sores and various other symptoms. These disorders often lead people to consult their doctors, but since these are not the classic symptoms of one particular disease, they are often not picked up by conventional medicine which bases diagnosis on laboratory tests and diagnostic imaging (CT scan, ultrasound) and often fails to find satisfactory answers.

Moreover, precise tests do not exist to assess when connective tissue is accumulating too many toxins whether produced within the tissue itself, such as free radicals, or originating in the environment, such as heavy metals, pesticides or other chemical toxins. However, we know that by starting an effective treatment protocol aimed at cleansing the affected tissue or organ, the body is restored to health. This shows that these disorders are attributable to the build-up of toxins.

Nevertheless, one indication of an increase in toxins does exist: increased acidity of the body that can be measured by testing urine pH. Even though a normal pH value is considered to be between 5 and 7, values from 5 to 6 indicate a high amount of acidity in the body, whereas values between 6 and 7 are favourable. It is worth remembering that tissue acidity can lead to the onset of disease, while alkalinity indicates health.

The 3rd power of mushrooms: a series of cleansing effects

Mycotherapy produces excellent cleansing results both through direct action, because mushrooms are great cleansers, and because they support filtration apparatuses: liver, kidneys, skin and antioxidant system. The results are tangible, because the symptoms which were due to toxin build-up disappear. Indeed, mushrooms have the task of keeping the natural environment clean. Their work is irreplaceable and probably without them life on earth would be impossible, because they transform the remains of plants and

animals that rot and decompose into healthy biological matter. They perform the very same work of transformation of toxins and cleansing in our bodies. They cleanse the liver, kidneys and skin and also all the other organs of the body starting from the most fundamental – the heart and the brain. Moreover, they provide something extra, because they destroy many toxic substances directly - in practice they are a powerful additional filter, a fifth filter. The results are truly remarkable. This is why medicinal mushrooms are as fundamental for prevention as they are for treatment. In addition, they strengthen the antioxidant defences, which are continuously put under pressure by free radicals. A correct diet is also important.

The four levels of severity of cleansing apparatus illness

Here are the main diseases of the cleansing apparatuses divided into four levels. Medicinal mushrooms are very helpful in restoring the functions of weak filtration apparatuses, acting on both symptoms and causes. Without this beneficial effect on the causes, in fact, we may not cure the disease, which instead progresses from mild forms, the first and second level of severity, to more serious and chronic illnesses.

The signs present at the first and even the second level, which are functional and do not produce lesions, often tend to be underestimated. Illnesses are often first treated only when they get to the third level, when they are more serious, because they have more obvious symptoms which are bothersome and, almost always, the first organ lesions. By this stage, recovery is further complicated, and more time is required to reduce symptoms or to return to good health. Since each organ has very different and individual characteristics, in this text before discussing the relative diseases, the four levels of severity of each of the four cleansing apparatuses are discussed.



Pleurotus

The four levels of severity of skin disease

It is not just women who are affected and worried by skin problems, even men are not indifferent. It is worth remembering that this is not a matter only of appearance: they are an indication that the whole body needs thorough cleansing. In fact, the beauty of the skin depends on the cleanliness of the interior of the body and on the antioxidant system that protects the body from aging. Toxins already start their attack in adolescence and among young people (in their twenties and thirties). At this age the skin of the face is often affected by oil, pimples and inflammation. Hair may be brittle, too.

Since the external appearance is only a mirror of what happens internally, it can be inferred that both toxins and their products free radicals, are leaving their mark throughout the body. The main cause is diet, but pharmaceuticals, mainly antibiotics and contraceptives, must not be underestimated either. These are causes that act in an

insidious manner, also because most people believe that traditional diet and pharmaceuticals are factors which induce wellbeing, and are convinced that both can be serenely administered from childhood.

The skin is the first part of the body that indicates an overload of toxins and loss of cleansing efficiency. The toxins that accumulate in the skin, in fact, alter its normal functions; it begins to lose its freshness and vitality, to have a dull color, accumulating oil, another point in which toxins build up. At the first level of severity, the skin begins to lose its freshness and vitality, accumulating oil: the color is dull, hair and nails are weaker and more brittle. If nothing is done about the causes, deterioration continues.

At the second level of severity, disorders include acne, small local inflammation, including inflammatory reactions or some small allergies due to cosmetics, but also slightly more extensive inflammatory dermatitis or psoriasis. These signals are also often associated with brittle nails and hair loss. Continuing to neglect our health and to use symptomatic treatment does not resolve the situation. When pharmaceutical treatment is suspended the problem returns and reaches the third level, with chronic symptoms and diseases that are more difficult to cure, such as eczema caused by chemicals, allergic dermatitis, nickel allergies, hives, chronic dermatitis, cystic and scarring acne, seborrheic dermatitis, atopic dermatitis, vitiligo, autoimmune alopecia, age spots, deep signs of aging, early aging, chronic and extensive psoriasis. The fourth level is rarer and illness is due to tumors.

Skin problems (Halpern, 2007):

In the field of cosmetics, alongside conventional cosmetics such as creams and lotions for external use, the innovative nutricosmetics, cosmetics for internal use, to be taken by mouth, safe and without side effects, have found increasing consensus in recent years. They are mainly derived from mushrooms and have already been successfully launched by some companies, who are aware of the wealth of beneficial properties for the skin.

* The mushrooms that make up the *"Skin Care" Protocol: Agaricus* and *Ganoderma* (cause and symptoms), are particularly suitable for

the skin.

Ganoderma and *Agaricus* are the number one cosmetic respectively of Asian (Chinese and Japanese) and Brazilian women. They take care of the skin, keeping it healthy and beautiful even over time. They nourish and hydrate the skin, which stays fresh and luminous longer. If they are very useful in prevention, they are equally effective in the treatment of skin disorders. They prevent the formation of new age spots and gradually reduce those present (Chien et al., 2008.) They also gradually reduce skin scarring, left for example by cystic acne or other forms of dermatitis.

Another useful protocol is the "*Hair*" Protocol: *Polyporus*, *Lentinus* and *Ganoderma* (cause and symptoms). As demonstrated by a team of Japanese researchers, *Polyporus* is the most conducive to hair regrowth, while *Lentinus* and *Ganoderma* contribute to strengthening hair.

Skin Beauty:

"*Skin Care*" Protocol: *Agaricus* and *Ganoderma* (cause and symptoms). The skin deteriorates for many reasons: build-up of internal toxins, weather conditions which dry the skin (intense cold and heat), smog that clogs skin pores with fine particles and stress that reduces the blood flow. Dehydration means that moisture and nutrients are lacking, which makes the skin dull and dry.

* *Ganoderma* and *Agaricus* are very useful because they combat the aggressive causes. *Ganoderma* increases blood flow to the skin, improving hydration, nutrition and the physiology of the skin pores. Both mushrooms, but *Agaricus* especially, eliminate free radicals that, by breaking down collagen, cause deterioration in the skin's structure. Healing mushrooms also lead to savings on cleansing and moisturizing cosmetics and similar products.

Oily skin:

"*Immunity and Skin*" Protocol: *Lentinus* (cause), *Ganoderma* and *Agaricus* (symptoms).

It is a dysfunction of the skin's sebaceous glands, which produce excess amounts of sebum. As a result, the skin is greasy.

* *Lentinus*, *Ganoderma* and *Agaricus* reduce, thanks to chitosan, the intestinal absorption of fat and its accumulation in the skin. *Agaricus*, in particular, but also *Ganoderma*, favour the use of fat metabolites to produce energy and hence reduce its build-up in the skin.

Perfect suntan:

"Skin Care" Protocol: *Agaricus* and *Ganoderma* (cause and symptoms). A suntan is often not homogeneous but more intense on the face and shoulders and less strong on the legs.

* *Ganoderma* and *Agaricus* make a suntan homogeneous and perfect all over the body, because they help all the functions of the skin, regulating melanin (pigment), which rises to the skin's surface to protect the deeper layers below from the sun.

Sunburn (prevention):

"Skin Care" Protocol: *Agaricus* and *Ganoderma* (cause and symptoms). Solar erythema is a burn caused by overexposure to sunlight without adequate sun protection. Symptoms are redness of the skin with pain or itching. It tends to heal without treatment, but can leave skin blemishes and lead to a loss of tone and elasticity in the skin as well as wrinkles.

* *Agaricus* and *Ganoderma* are excellent both in preventing the problem and dealing with the consequences. *Ganoderma* and *Agaricus* gradually reduce redness, itching and dry skin. They also help to prevent the subsequent development of age spots.



Ganoderma

Skin blemishes:

"Skin Care" Protocol: Agaricus and Ganoderma (cause and symptoms). They are unsightly blotches formed by the build-up of melanin on the surface of the skin. Melanin is the pigment that protects the skin from sunlight and tans it. The blemishes are caused by repeated exposure to the sun over the years, by the attack of free radicals and aging.

* *Ganoderma* and *Agaricus* lighten age spots because they restore the normal processes governing how melanin rises to the surface of the skin and then decreases. They stimulate its return to the deep part of the skin when there is no need to protect the skin from the sun. *Ganoderma* and *Agaricus* also contain an enzyme (tyrosinase) that makes the skin luminous (Chien et al., 2008). *Agaricus* also protects against photo-aging (Halpern, 2007).

Aging skin:

"Skin Care" Protocol: Agaricus and Ganoderma (cause and symptoms). The continuous production of free radicals is the main cause of premature skin aging.

* *Ganoderma* and *Agaricus* eliminate many free radicals, protecting the collagen. They are the number one beauty product used by women in China (*Ganoderma*) and Brazil (*Agaricus*).

Wrinkles:

"Skin Care" Protocol: Agaricus and Ganoderma (cause and symptoms). Free radicals ruin both the collagen and the "beauty cells" - the fibroblasts – which consequently produce less extracellular matrix: these two factors contribute to forming wrinkles. The supporting structure, made up of the scaffolding of collagen in the skin and the extracellular matrix, is no longer sufficient.

* *Ganoderma* and *Agaricus* protect the skin thanks to their high antioxidant content. In fact, they effectively neutralize most of the free radicals that are formed all the time, but which increase in some situations: UVA rays or sunlamps, smoking, diet, inflammatory diseases, stress, toxins and smog. *Ganoderma* and *Agaricus* improve blood circulation and strengthen the fibroblasts of the skin, reducing wrinkles and aging.

The main diseases of the skin, hair and nails

The skin is vulnerable, which is why it can develop inflammation and dermatitis. The causes of inflammation can be external and internal. External causes often include chemical substances for professional use and even cosmetics. Internal causes are often due to toxins that are formed in the intestine or by irritants such as alcohol, tobacco, chemicals used in the food industry and also pharmaceuticals that can give this side effect.

* The mushrooms that make up the *"Immunity and Skin" Protocol: Lentinus, Ganoderma and Agaricus* are useful in the prevention and healing of skin diseases. Really excellent results are obtained in many diseases, for example in the case of: acne, inflammatory dermatitis, allergic dermatitis, eczema and other diseases. The "Immunity and Skin" Protocol made up of *Ganoderma, Agaricus* a n

d *Lentinus* improves the circulation, nourishes, moisturizes, removes toxins and reduces free radicals.

Ganoderma has a very effective anti-inflammatory role that is completed by *Lentinus*. This mushroom reduces the development of chronic inflammatory diseases throughout the body, thanks to its cleansing effect in the intestine, facilitated by the Th2 immune defence response. This protocol restores the immune system to its healthy mode (Th1) in which inflammatory diseases tend to improve and heal. These three mushrooms have a truly excellent effect in eliminating the factors underlying diseases of the skin, nails and hair: chemical toxins (cause of eczema), inflammatory elements (cause of chronic dermatitis) and IgE antibodies (cause of allergic dermatitis). They are also very useful for combatting inflammatory and allergic reactions to cosmetics. *Lentinus*, which cleanses the intestine, protects the body in general and the skin in particular from invasion by many types of impurity. When the intestine is cleaner the skin is cleaner and luminous too. *Lentinus*, *Ganoderma* and *Agaricus* are fundamental in the prevention and treatment of skin diseases.

Acne:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is caused by excess dietary fat, which passes from the blood into the sebaceous glands, responsible for the production of sebum, the oily secretion that forms an extremely thin layer on the skin, indispensable for protecting it from external factors. If the sebum is too thick, the skin pores, which are located at the mouth of the channel of the sebaceous follicle, become blocked. Consequently, without a way out, sebum accumulates and forms pimples. Male hormones (testosterone) can also influence the onset of acne, but are not the cause.

* *Lentinus*, *Ganoderma* and *Agaricus* cleanse the intestines and skin.

Cystic Acne:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

It is a form of acne that leaves scar-like lesions.

* *Ganoderma* and *Agaricus* increase circulation, nourish, moisturize and eliminate toxins. Moreover, they reduce free radicals and hence protect the collagen and, thanks to *Lentinus*, halt the tendency towards chronic inflammation which leads to scarring.

Seborrheic dermatitis:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is an inflammation of the skin in areas where there are the greatest numbers of sebaceous glands (scalp, face, chest and ear canal). This inflammation causes high oxidative stress at the level of the hair bulb, which may lead to hair loss. The underlying cause is both psychosomatic, on the one hand, and linked to nutrition, on the other.

* *Lentinus*, *Ganoderma* and *Agaricus* are excellent for treating seborrheic dermatitis, because they eliminate the inflammatory component. *Ganoderma* and *Agaricus* also heal the skin and promote calm.

Inflammatory dermatitis not due to contact:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

This is a skin inflammation, caused by toxins from inside the body, usually from the intestine and very often linked to poor nutrition (see leaky gut syndrome).

* *Lentinus*, *Ganoderma* and *Agaricus* cleanse the intestines and skin.

Contact Occupational Dermatitis:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

This skin inflammation is caused by the presence of irritants that, over time, create inflammation directly, such as dyes for textiles and plastic products, hair dye and many other substances. The symptom is inflamed skin which is not itchy and is directly linked to contact with a particular substance.

* *Lentinus*, *Ganoderma* and *Agaricus* are useful in the treatment of inflammatory dermatitis.

Contact Dermatitis due to cosmetics:

"Bones, Teeth and Gums" Protocol: Lentinus (cause) and *Ganoderma* (cause and symptoms).

It consists in local inflammation caused by the presence of potential irritants which, over time, create skin inflammation directly, or by other substances which remove the thin protective layer of sebum and leave the skin uncovered and unprotected.

* *Lentinus* and *Ganoderma* are sufficient in the treatment of limited inflammatory dermatitis.

Contact allergy:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

Contact allergy in the skin presents as eczema. When the skin is in contact with a substance to which it is allergic, it reacts with inflammation, redness and intense itching. The skin is inflamed because a type of sensitized white blood cell (T-cell) is produced pathologically, and directly attacks the allergen, mainly metals and simple chemical substances.

* *Lentinus*, *Ganoderma* and *Agaricus* are excellent in treating eczema,

because they are able to eliminate both allergy and inflammation. *Lentinus* cleanses the intestine, hence strengthening intestinal immunity. *Ganoderma* and *Agaricus* have useful anti-allergic properties.

Ganoderma is an effective anti-inflammatory and antihistaminic agent.

Nickel allergy:

"Immunity and Skin" Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (symptoms).

Contact with nickel produces an allergic reaction, with intense itching and skin lesions.

* *Lentinus*, *Ganoderma* and *Agaricus* are able to eliminate both allergy

and inflammation

Allergy to other metals:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

Chromium and cobalt are the most common metals which produce allergy. The main source of chromium is cement, and indeed builders are especially affected, but so are many other people, because chromium is also present in detergents, in soaps, in fabrics. Cobalt is present in cement and in various metal alloys, inks, dyes, lubricant oils. The skin reacts with inflammation, redness and intense itching.

* *Lentinus, Ganoderma and Agaricus* are able to eliminate both allergy and inflammation.

Allergy to cosmetics and hair dyes:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

Contact with colorants, which are used in cosmetics and in hair dyes, determines skin symptoms, always characterized by inflammation, redness and intense itching.

* *Lentinus, Ganoderma and Agaricus* are able to eliminate both the allergic component and the inflammation.

Allergy to other chemicals:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

The chemicals in the environment are numerous and some of them cause an allergic reaction in the skin, perhaps less dramatic than allergy caused by nickel, but with similar symptoms: intense itching, inflammation and reddened skin. Dyes are a common cause of these allergic skin reactions; they are used in the textile industry, in leather processing. Chemical substances which cause allergy include detergents, synthetic fibres, latex and so on.

* *Lentinus, Ganoderma and Agaricus* are able to eliminate both the allergic component and the inflammation.

Psoriasis:

“Immunity and Skin” Protocol: Lentinus (cause), Ganoderma and Agaricus (symptoms).

It is a chronic disease that occurs in the form of red patches and plaques, covered with whitish scales, which affect some areas more frequently (elbows, scalp, knees). It is considered a psychosomatic illness. Physical stress and toxins such as smoking and alcohol contribute to the onset or worsening of the disease.

* *Lentinus*, *Ganoderma* and *Agaricus* are excellent in the treatment of psoriasis, because they are able to restore the skin to better health and eliminate toxins. Furthermore, *Ganoderma* and *Agaricus* heal skin and soothe the psyche.

Hair loss:

"Hair" Protocol: Lentinus, Ganoderma and Polyporus (cause and symptoms).

Many people suffer from abundant hair loss caused by a shortage of minerals, due, in turn, to the acidity caused by a diet rich in animal protein and carbohydrates. Psychological stress also plays an important role.

* *Lentinus*, *Ganoderma* and *Polyporus* make up the "Hair" protocol. *Polyporus*, as demonstrated by a team of Japanese researchers, promotes hair regrowth. *Lentinus* and *Ganoderma* contribute to strengthening hair.

Alopecia areata:

"Hair" Protocol: Lentinus (cause), Polyporus and Ganoderma (symptoms).

It is an autoimmune disease in which allergic (IgE) antibodies attack and inflame the hair follicles, making hair fall out and causing bald areas. Acidic nutrition, based on animal proteins and carbohydrates, as well as psychological stress, may contribute to hair loss.

* *Lentinus*, *Polyporus* and *Ganoderma* make up the "Hair" protocol: its primary objective is to eliminate auto-antibodies, restoring the immune system. *Polyporus* is important because it promotes hair growth.

Weak nails:

"Hair" Protocol: Lentinus (cause), Polyporus and Ganoderma (symptoms).

Nails flake because the calcium required for their formation is not sufficient. The cause is intestinal malabsorption.

* *Lentinus*, *Ganoderma* and *Polyporus* strengthen nails and all parts of the body short of minerals.

The four levels of severity of liver disease

After the skin, if the cleansing function continues to deteriorate, the second organ to have problems is the liver. This process often starts at around 40-50 years of age. The main causal factors are related to lifestyle: poor nutrition, sedentary lifestyle, environmental toxins, pharmaceuticals, smoking and alcohol attack the liver directly, and so it soon exhausts its margins for compensation and begins to work badly, accumulating toxins and fat, and getting larger, until the final stage which consists in degenerative diseases, with liver failure.

At the first level of severity, considered asymptomatic, the liver is actually already sending warnings that it is in difficulty with the most typical symptom - sleepiness after lunch. The liver has a lot of energy, necessary for its functions and which it distributes all over the body. The loss of energy after lunch is the symptom which indicates that the liver is starting to have problems. In traditional Chinese medicine (TCM), this disorder is considered important and is treated. An examination of the tongue confirms the "liver deficiency". We can also add Gilbert's syndrome, which is a benign disease, almost asymptomatic.

If nothing is done the second level is reached, in which liver discomfort is accentuated, presenting, above all, steatosis (enlarged liver), in which the increase in volume is due to the build-up of fat (triglycerides) within the cells, which in turn leads to a whole series of damage which can include cell necrosis. Liver function deteriorates and often the first symptom is an increase in transaminase levels. This is often a result of a diet including animal protein and fats, alcoholic beverages, pharmaceuticals and toxins. It must also be remembered that hepatitis C and HIV, of viral origin, which are the most common, can remain latent for several years. Transaminases (GOT and GPT) increase if the number of liver cells that die exceeds

that of cells that regenerate. More extensive is the damage and more numerous are the dead cells. At the second level of severity the gall bladder also begins to produce cholesterol stones.

If nothing is done when transaminase levels start to increase the third level is reached: the liver is chronically and actively inflamed and steatosis turns into hepatitis (Steatohepatitis) which, as inflammation progresses, tends towards cirrhosis. Hepatitis C and HIV are activated and symptoms appear. At the fourth level viral hepatitis C and HIV hepatitis become active and very insidious. Hepatitis C accounts for two-thirds of liver diseases and together with HIV is the leading cause of cirrhosis and liver cancer, hepatocellular carcinoma (HCC). But also alcoholic hepatitis progresses and leads to cirrhosis and liver carcinoma, the two most serious degenerative diseases.

The main liver diseases

Diseases of the liver can be divided into two main groups: hepatitis due to lifestyle and viral hepatitis. Liver diseases due to lifestyle are caused by animal foods (fat and protein), alcohol, smoking, chemical toxins and even pharmaceuticals. They endanger the health of the liver by greatly increasing free radicals. Toxins gradually ruin the whole body in this way. They are responsible for the escalation of this type of liver disease (Kaplowitz, 2002). A typical symptom is an increase in transaminase levels. Conventional medicine has no drugs to offer for this type of illness. The only treatments for the prevention and treatment of these liver disorders are supplements. Consensus for supplements based on mushrooms is increasing significantly, due to the results which can be obtained.

The second group consists of viral types of hepatitis, much more aggressive diseases, such as hepatitis C. Transaminase levels are very high, liver functions are significantly impaired, but what is worse is the fact that these diseases tend to evolve into cirrhosis or tumor. Also in these diseases healing mushrooms are an important aid both for the liver and for the whole body.

* *“Women, Liver and Later life” Protocol: Cordyceps and Ganoderma (cause and symptoms); with the addition of Grifola (or Agaricus) or*

Pleurotus, *Cordyceps* and *Ganoderma* are the basic remedies, because they are perhaps a little more powerful than *Grifola*, *Agaricus* and *Pleurotus*, which are anyway efficient. All these mushrooms are able to restore levels of transaminases (GOT and GPT), gamma GT and bilirubin to normal. They act on the symptom. They eliminate toxins, excess fats and free radicals. Furthermore, they facilitate the digestion, which leads to a saving of energy (when the liver works badly it wastes a lot of energy). They support the complex cleansing and operational functions of the liver because they strengthen each cell in the body, improving its functions, with great efficacy in all diseases of the liver, not only in those related to lifestyle, but also in those caused by viruses. In more severe illnesses four mushrooms are used.



Agaricus

* The “*Bile*” Protocol: *Pleurotus* (cause), *Ganoderma* and *Auricularia* (symptoms) reduces the formation of gallstones and helps to

elimination them.

It is also interesting to know who discovered transaminases, useful for monitoring the evolution of liver disease. Three Italian researchers of the University of Naples deserve the credit for this discovery in 1955: Professors De Ritis, Coltorti and Giusti. Transaminases are enzymes which are very useful to cells that require large amounts of energy, such as those of the liver and muscles, because they are able to transform amino acids into energy molecules. Transaminases are the main marker in most liver diseases (Halpern, 2007).

Hepatotoxicity due to pharmaceuticals

Protocol "Woman, liver and later life": Cordyceps and Ganoderma (cause and symptoms);

Pharmaceuticals can create toxicity in the liver. Side effects of toxicity can occur from a few days to 12 months after taking medicine. Among the various factors that lead to hepatotoxicity, one very important mechanism is linked to the hyper-production of free radicals, which cause an accumulation of oxidized fats in the liver cells and cell death. It is cell death which increases blood transaminases.

AST is present mainly in the liver and when levels are altered it indicates liver impairment or damage, while the ALT that is present in the liver and also in the muscles may also increase in case of muscle damage. But the most sensitive marker in the case of liver toxicity due to pharmaceuticals or other substances, such as alcohol, for example, is γ -GT (gamma glutamyl transferase). There are many pharmaceuticals which can produce hepatotoxicity and in most cases, there is no effective treatment other than stopping the medicine (Navarro and Senior, 2006).

Often the drugs that can cause liver toxicity and alter transaminases can be replaced with other less harmful pharmaceuticals, but this is not always so simple, as for example in the treatment of viral diseases such as HIV, hepatitis C, gout, epilepsy. In any case, pharmaceuticals are usually not harmless and so it is always a good idea to copy people in Asian countries who

automatically defend the body by associating some kind of natural remedy, either herbal or using healing mushrooms, when it is necessary to take a chemical drug.

The drugs that can cause liver toxicity and alter transaminases include: painkillers (Paracetamol, Nifedipine, Methotrexate), medicines for the stomach (Omeprazole), heart medications (Amiodarone, Metoprolol, Losartan), anti-cholesterol statins (Atorvastatin, Pravastatin, Fluvastatin), contraceptives, anti-androgens for the prostate (Cyproterone acetate), anti-retroviral HIV, antibiotics (Penicillins, Tetracycline, Azithromycin, Nitrofurantoin, Cotrimosazole, Rifampicin, Aminoglycosides), anti-Trichomonas vaginalis, antifungals (Metronidazole, Ketoconazole), anti-epileptic drugs (Phenytoin, Barbiturates, Carbamazepine), anti-psychotics (Valproic acid, Risperidone), blood thinners (Ticlopidine, Heparin) and medication for gout (Allopurinol).

* Mycotherapy is very effective for restoring the health of the liver and for protecting the liver from toxic pharmaceuticals or even just from side effects. The “Women, Liver and Later life” Protocol consists of *Cordyceps* and *Ganoderma* and is extremely effective. These mushrooms improve liver function and restore transaminase (GOT and GPT), gamma GT and bilirubin levels to normal if they are altered.

Steatosis (enlarged liver):

“*Women, Liver and Later life*” Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms), with addition of *Pleurotus* (cause and symptoms). The liver is filled up with excess fat and consequently increases in volume. A diet with too much animal fat and alcohol is the cause.

* *Ganoderma* and *Cordyceps*, which make up the “Women, Liver and Later life” Protocol, with the addition of *Pleurotus*, gradually free the liver of the load of fat accumulated over the years. They reverse the trend: the liver “slims down” and is cleansed within six to nine months. It is extremely gratifying to document these improvements with ultrasound imaging of the liver.

Nonalcoholic fatty liver disease (NAFLD):

"Women, Liver and Later life" Protocol: Ganoderma and Cordyceps (cause and symptoms), with the addition of *Pleurotus* (cause and symptoms).

It is a pathological build-up of fat and triglycerides in the liver tissue which, over time, causes steatohepatitis (inflammation of the liver). Steatosis is asymptomatic because the liver, although enlarged, is not painful, and therefore in most cases diagnosis happens by chance. Instead, when in the second phase the liver becomes inflamed, transaminase levels (ALT and AST), especially AST, increase. At this stage the liver begins to be more extensively damaged. Causes lie in a diet with too much animal fat and protein, together with alcohol abuse, chemical toxins or also side effects of medication.

* *Ganoderma* and *Cordyceps*, which make up the "Women, Liver and

Later life" Protocol, with the addition of *Pleurotus*, are effective in combating steatosis. First of all, they stop the build-up of fat in the liver and then they gradually reduce and eliminate it.

Alcoholic steatohepatitis:

"Women, Liver and Later life" Protocol: Ganoderma and Cordyceps (cause and symptoms), with addition of *Pleurotus* (cause and symptoms). This disorder depends on excess alcohol consumption. Transaminases ALT and AST are elevated, but the most sensitive marker is γ -GT (gamma glutamyl transferase), which increases.

* In the "Women, Liver and Later life" Protocol *Ganoderma* and *Cordyceps*, with the addition of *Pleurotus*, firstly restore levels of transaminases and gamma GT to normal because they act on the cause and the symptom. By restoring and strengthening the functions of liver cells, they restore the entire body to better health. Moreover *Pleurotus* eliminates fat. Later, they also cleanse the liver, resolving steatosis.

Nonalcoholic steatohepatitis NASH:

"Women, Liver and Later life" Protocol: Ganoderma and Cordyceps (cause and symptoms), with addition of *Pleurotus* (cause and symptoms). The build-up of lipids in the hepatocytes beyond a

certain level causes cell death, thus leading to hepatitis and liver inflammation. It is a dangerous disease, with symptoms similar to those of viral hepatitis.

* The “Women, Liver and Later life” Protocol made up of *Cordyceps* and *Ganoderma* with the addition of *Pleurotus* restores high transaminases to normal levels, even when the liver is inflamed as a result of steatosis. *Cordyceps*, *Ganoderma* and *Pleurotus* strengthen the functions of liver cells, restoring the whole body to better health. *Pleurotus* maintains its role in eliminating accumulated fat. Later, it also cleanses the liver, resolving steatosis.

Alcoholic hepatitis:

“*Women, Liver and Later life*” Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms), with addition of *Pleurotus* (cause and symptoms). More than a certain amount of alcohol causes inflammation, hepatitis, with damage similar to that caused by viral infections, with elevated transaminases, cell death, and symptoms of poor liver function like nausea, poor digestion, weakness. If nothing is done progression brings deterioration and even cirrhosis.

* The “Women, Liver and Later life” Protocol made up of *Cordyceps* and *Ganoderma* with the addition of *Pleurotus* restores high transaminase levels to normal, even when the liver is inflamed as a result of excess alcohol consumption. *Cordyceps*, *Ganoderma* and *Pleurotus* strengthen the functions of the liver cells, restoring the whole body to better health.

Gilbert's syndrome:

“*Women, Liver and Later life*” Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms).

It is a benign disease characterized by elevated indirect bilirubin, the final metabolic waste product of hemoglobin. Indirect bilirubin, in order to be processed by the liver, requires a carrier protein (ligandine) which carries large amounts to the liver cells, where it is transformed into direct bilirubin (processed), ready to be eliminated with the bile. It forms bile salts, fundamental for “dissolving” fat. It is considered a congenital, incurable disease due to the hereditary lack of this carrier protein.

* *Cordyceps* and *Ganoderma* are able to resolve the problem of excess bilirubin, which is considered a disease, by strengthening the liver so that the functions of each liver cell are at such high levels that they compensate for the lack of the carrier and eliminate bilirubin. This is a unique event because it is beyond anything conventional medicine believed possible. There are no other known plants or remedies able to obtain this result. Instead, TCM has known for centuries that healing mushrooms are able to do this task.

Biliary sand:

“Bile” Protocol: Pleurotus (cause), Ganoderma and Auricularia (cause and symptoms).

These concretions in the gall bladder are extremely small (2-3 mm) and are formed mainly of bilirubin and cholesterol. They are a precursor of gallstones. The liver seeks to eliminate excess cholesterol with the bile, so as to avoid its accumulation. However, if the percentage of cholesterol in the bile is too high, part is deposited in the gall bladder as biliary sand. Since the gall bladder is connected to the rest of the body, it is obvious that excess fat and cholesterol represent a general problem.

* The “Bile” Protocol consisting of *Pleurotus (cause)* and *Ganoderma* and *Auricularia (cause and symptoms)*, helps the gall bladder to eliminate biliary sand. It also helps the rest of the body, starting from the liver and the arteries, to eliminate excess cholesterol. *Pleurotus* reduces the amount of total cholesterol circulating in the blood. In addition, together with *Ganoderma*, it reduces the synthesis of cholesterol in the liver and the bile. It prevents both the formation of new concretions and an increase in volume of existing ones. *Auricularia* stimulates the muscles of the gall bladder and bile duct (excretory duct of the gall bladder) to eliminate these small concretions.

Gallstones (small):

“Bile” Protocol: Pleurotus (cause), Ganoderma and Auricularia (cause and symptoms).

Gallstones are small formations, often measuring one centimetre or less and consisting, in the majority of cases (80%), of minute

clusters of cholesterol. They do not cause problems when they are still so small and are often discovered by chance. The cause is excess cholesterol present in the liver, which tries to eliminate it with bile and, when the percentage (density) of cholesterol is too high, forms gallstones.

* *Pleurotus* reduces the amount of total cholesterol, while *Ganoderma*, lowering the density of cholesterol in the bile, prevents both the increase in volume of existing gallstones and the formation of new ones. *Auricularia*, with its dilating effect on the muscle of the bile duct (excretory duct of the gall bladder), favors the expulsion of smaller stones.

Hepatitis A:

“Antivirus” Protocol: Ganoderma, Cordyceps and Grifola with the addition of Agaricus (cause and symptoms).

It is a viral hepatitis, rare nowadays, caused by the hepatitis A virus (HVA), food borne because the virus carrying the infection can be found in raw fish and in cured meats. It is characterized by jaundice, nausea and vomiting.

* *Cordyceps*, *Ganoderma* and *Grifola* increase antiviral immunity, reduce the virus’s ability to replicate, so that it cannot reproduce, and promote the health of liver cells, reducing altered transaminase levels. When hepatitis is more aggressive it can be useful to add *Agaricus*.

Hepatitis B:

“Antivirus” Protocol: Ganoderma, Cordyceps and Grifola with the addition of Agaricus (cause and symptoms).

It is not a very common type of viral hepatitis, caused by the hepatitis B virus (HVB). Infection occurs through contact with infected blood. When the disease is particularly aggressive it can be useful to add *Agaricus*.

* *Cordyceps*, *Ganoderma* and *Grifola* increase antiviral immunity, reduce the virus’s ability to replicate, so that it cannot reproduce, and promote the health of liver cells, reducing altered transaminase levels.

Hepatitis C:

“Antivirus” Protocol: Ganoderma, Cordyceps and Grifola with addition of Agaricus (cause and symptoms).

It is the most widespread viral hepatitis. It is caused by the hepatitis C virus (HCV). It can remain dormant or not be very aggressive for many years, even 5, 10 or 20. At this stage the main symptom may be tiredness or there may be some warning signs of a weak immune system, such as a tendency to develop illnesses which give a high temperature, or symptoms connected with the liver such as nausea, indigestion and elevated transaminase levels. When the disease becomes aggressive it can be extremely destructive, first in the form of hepatitis (very high transaminases) and then progressing to cirrhosis.

* The "Anti-Virus" Protocol, consisting of *Cordyceps*, *Ganoderma* and *Grifola*, with the addition of *Agaricus*, is extremely effective for hepatitis C. *Ganoderma*, *Cordyceps*, *Grifola* and *Agaricus* have excellent antiviral properties. They produce interferon, a protein which strengthens the antiviral defences of the body. *Cordyceps* and *Ganoderma*, in particular, prevent the virus from reproducing. They also improve liver health and the body's energy.

Liver Cirrhosis:

“Antivirus” Protocol: Ganoderma, Cordyceps and Grifola with addition of Agaricus (cause and symptoms).

It is a serious disease of the liver characterized by the death of liver cells which are replaced by fibrous scar tissue. Chronic liver failure happens gradually, causing very obvious weakness, digestive problems and severe intoxication.

* The same protocol that is used in hepatitis C is equally useful in cirrhosis. They are different diseases, but the same mushrooms are useful because they are very effective in halting and limiting cirrhosis damage. *Cordyceps*, *Ganoderma* and *Grifola* of the "Anti-Virus" Protocol are used together with *Agaricus*. They restore the health of liver cells, tend to limit elevated levels of transaminases and blood urea and improve the digestion and the general conditions of the body. They increase energy. *Cordyceps* and *Ganoderma* limit the formation of new fibrous scar tissue which forms cirrhosis. Indeed,

researchers have discovered that they can also eliminate some existing fibrosis (cirrhosis).

The four levels of severity of kidney disease

The kidney, which is an organ that receives an enormous amount of blood flow, usually develops disease between 60 and 70 years of age, when toxicity in the body has ruined the main arteries. And, in fact, diseases linked to blood flow into the kidneys make up the most important types of illnesses. But they are not only the only ones. The kidneys, in fact, are also affected by autoimmune and chronic inflammatory diseases, serious illnesses which are more frequent in children and young adults.

The first level of severity, characterized by mild symptoms and weakness of the filtration system, can lead to kidney sand. The second level consists in kidney stones - minor alterations that do not affect the main function of the kidney, which is excretion. Elevated creatinine levels are an early indication that the kidneys are weakening.

Diseases of the third level are nephritis and nephrosis, with escalation towards renal failure. At the fourth level, kidney structure is seriously impaired and therefore no longer able to perform its functions. Nephritis and nephrosis produce very serious symptoms, such as chronic renal failure, and gradually lead to dialysis.

* Mycotherapy is remarkably effective for all of these diseases, even for the most serious. The *"Kidney" Protocol*, consisting in *Polyporus*, *Ganoderma* and *Auricularia*, is very useful for kidney diseases such as nephritis and nephrosis, as confirmed by both traditional Chinese medicine and modern science. In particular, *Polyporus* has had an excellent reputation for its ability to support renal function, both in prevention and in healing, since ancient times. It supports the kidneys in eliminating excess fluids. *Ganoderma* and *Auricularia* also have powerful anti-inflammatory and vasodilatory properties, allowing more blood to pass through the kidneys. *Cordyceps* or *Lentinus* may be a useful addition in these diseases.

Kidney stones:

Polyporus (cause) and *Auricularia* (symptoms).

They are concretions of small dimensions mainly formed of calcium or phosphate (70%). When they are formed of crystals of a very small size they are called kidney sand, while they are called gravel or stones when they are larger. A main cause is high acidity of urine (pH 5).

* *Polyporus* is excellent in preventing the formation of kidney stones because it reduces the acidity of urine (eliminating a lot of citrate). *Auricularia*, on the other hand, which dilates the ureter (tube that leads out of the kidney), promotes the elimination of existing kidney stones.

Nephritis (or glomerulonephritis):

“Kidney” Protocol: Auricularia (cause), *Ganoderma* and *Polyporus* (symptoms) and addition of *Lentinus* (cause) as required,

This is an inflammation of the kidneys, more precisely of the glomeruli, the part made up of renal blood vessels (arterioles), through which the volume of liquid (plasma) to be purified passes. This liquid (GFR Glomerular Filtrate) is collected by the renal tubules. Malfunctioning of the renal arterioles causes in particular the loss of proteins, which are essential for health, in the blood. The key symptom is proteinuria (protein in the urine) with a fairly high proportion of albuminuria (albumin in the urine). Albumin is the first protein that is lost with the urine because it is the most abundant and the smallest in the blood. Proteinuria is a reliable marker of impaired and damaged kidneys. Creatinine is sometimes also elevated.

* *Auricularia*, *Ganoderma* and *Polyporus* are very useful in reducing inflammation, proteinuria and elevated creatinine. *Ganoderma* and *Auricularia* are more important because they reduce the arteriole malfunctioning which causes the disease, in addition to effectively lowering proteinuria and albuminuria. Moreover, both are useful anti-inflammatory agents which can resolve chronic inflammation. *Polyporus* is important because it protects renal tubules from damage caused by renal proteinuria. It also effectively combats elevated creatinine levels. *Lentinus* is a very useful addition in order to increase the general anti-inflammatory effect, starting from the intestine. *Lentinus* increases the anti-inflammatory effect, together

with *Ganoderma*, because the immune system is restored to the mode (Th1) in which inflammatory diseases tend to improve and heal. The inflammatory markers (ESR, CRP, IL-6, TNF-a) circulating decrease gradually.

Nephrosis (or nephrotic syndrome):

“Kidney” Protocol: Auricularia, Ganoderma and Polyporus (cause and symptoms) with the addition of *Cordyceps* (symptoms).

It is a degenerative disease of the glomeruli and tubules of the kidney, characterized by proteinuria (protein in the urine). There is a loss of protein at the glomeruli, which harms the kidney tubules -the real laboratory of the kidneys. They have the task of filtering the liquid collected (glomerular filtrate), about 180 liters per day, to form about two liters of urine, with which to eliminate toxins, and to retrieve the other 178 liters of water which pass through them each day.

* *Auricularia, Ganoderma, Polyporus and Cordyceps. Auricularia, Ganoderma and Polyporus* reduce proteinuria, in three different and complementary ways. *Auricularia* maintains the normal size of the renal vessels, combating pathological leakage of protein. *Ganoderma* has an important anti-inflammatory effect while *Polyporus* protects the real laboratory of the kidney: the kidney tubules. *Cordyceps* reduces fibrosis (sclerosis).

Focal segmental glomerulosclerosis:

“Kidney” Protocol: Auricularia, Ganoderma and Polyporus (cause and symptoms) with the addition of *Cordyceps* (symptoms).

Glomerulosclerosis (FSGS) is a disease that destroys the kidneys, which are transformed into a mass of scars. The key symptom is proteinuria (protein in the urine).

* *Auricularia, Ganoderma, Polyporus and Cordyceps. Auricularia, Ganoderma and Polyporus* reduce proteinuria, in three different and complementary ways. *Auricularia* maintains the normal size of the renal vessels, combating pathological leakage of protein. *Ganoderma* has an important anti-inflammatory effect while *Polyporus* protects the real laboratory of the kidney: the kidney tubules. *Cordyceps* reduces fibrosis (sclerosis).

Nephritis (or glomerulonephritis) from β -hemolytic

***Streptococcus*:**

“Immunity and Skin” Protocol: Lentinus, Ganoderma and Agaricus (cause and symptoms) with the addition of *Auricularia* (symptoms). Nephritis is a serious inflammation of the kidneys. The main symptoms are blood in the urine (hematuria) and oedema. There are two causes: on one hand the aggressiveness of β -hemolytic *Streptococcus* and on the other, probably, a weak immune system.

* *Lentinus, Ganoderma and Agaricus* are useful to increase the effectiveness of the immune system, with the addition of *Auricularia*, a mushroom which is extremely useful for maintaining good kidney filtration. *Auricularia, Ganoderma and Polyporus* reduce proteinuria, in three different and complementary ways. *Auricularia* maintains the normal size of the renal vessels, combating pathological leakage of protein. *Ganoderma* has an important anti-inflammatory effect.

Nephritis due to Lupus or SLE (systemic lupus erythematosus):

“Immunity and Skin” Protocol: Lentinus, Ganoderma and Agaricus (cause and symptoms) with the addition of *Auricularia* (symptoms). It is an autoimmune disease, which involves the production of anti-nuclear, anti-DNA, anti-ENA, anti-cardiolipin and antiphospholipid auto-antibodies. As in β -hemolytic *Streptococcus* nephritis, immune complexes form and, settling at the level of the renal glomerulus, cause inflammation. Initially, the main symptom is hematuria, but over time symptoms are complicated by proteinuria. The capillaries of the glomerulus become severely impaired, which tends to lead to chronic renal failure.

* *Lentinus, Ganoderma and Agaricus* are useful in autoimmune diseases involving autoantibodies. The addition of *Auricularia* is useful for increasing the effectiveness of the immune system, and for maintaining efficient renal filtration. *Lentinus, Ganoderma and Agaricus* are used to restore the health of the immune system (Th1) so that autoantibodies are no longer produced. *Auricularia* strengthens the anti-inflammatory action of *Ganoderma*.

Chronic renal failure:

“Kidney” Protocol: Auricularia, Polyporus and Ganoderma (cause and symptoms), with the addition of *Pleurotus* (cause and symptoms). It is a disease in which the kidneys do not filter the blood sufficiently, leaving it too full of impurities. Beyond a certain limit, kidney dialysis is required.

* *Auricularia, Polyporus and Ganoderma*, with the addition of *Pleurotus* increase the amount of blood that is filtered by the kidneys. In addition, *Auricularia* and *Ganoderma* dilate the arteries, so that they take more blood to the kidneys, which are able to purify a greater amount of blood, eliminating impurities. *Pleurotus* eliminates the plaques of atherosclerosis present in the arteries which lead to the kidneys, and thanks to its diuretic properties, is useful in the production of urine, with the elimination of waste substances. *Polyporus*, being an excellent diuretic, enhances renal function in the elimination of fluids.

Renal Dialysis:

Polyporus and *Ganoderma* (symptoms).

Dialysis allows the blood to be purified and replaces the purifying action of the kidneys when they are not able to perform this task. Sometimes the kidneys are only partially impaired and therefore maintain some, reduced, filtration capacity. Although the technique is carefully controlled, there is danger of infection because of contact between the blood and the cannule of the equipment used.

* *Polyporus* is used to maintain any remaining kidney function. *Ganoderma* and *Polyporus* are useful because they have excellent antibiotic properties; they support the immune system, preventing infection, and are excellent purifiers of the body.

The four levels of severity of antioxidant system disease

The antioxidant system protects the body from free radicals, which are the main cause of aging; when there are too many they can trigger pathological processes. The antioxidant system protects not only the beauty of the skin but also the health of the whole body: muscles, tendons, heart, arteries, brain, liver, pancreas, kidneys and everything else. They therefore play an important role in the prevention of diabetes and in the elimination of pollutants.

As there are no tests or routine health exams to assess the amount of toxins accumulated or the amount of free radicals produced, a link cannot be established between the action of these pathological mechanisms and the onset of disease. Even the symptoms caused by free radicals and toxins are vague. Perhaps that is why we tend to live as if all this did not exist. However, the existence of these mechanisms can easily be demonstrated by logical deduction. Detoxifying and protecting the body from toxins and free radicals eliminates many ailments and improves health.

The first two levels of disease are characterized by functional symptoms which are initially transitory and then tend to last longer, while at higher levels there are chronic symptoms which are likely to spread throughout the body or lead to the deterioration of the organ involved. A large amount of scientific research has clarified the link between free radicals and the onset of chronic disease in different parts of the body: skin, heart, arteries, central nervous system, metabolism. This is the damage caused by free radicals that are formed due to environmental toxins: heavy metals, radiation and chemotherapy drugs. In this text, diseases in which free radicals are formed predominantly within the body will not be dealt with.

Here are the four levels of severity of antioxidant system illness in detail. The first level of severity is characterized by less serious disease, short-lived, due to an initial weakness of the cleansing system. Already towards 30 or 40 years of age, the antioxidant defence system, if it is not supported with sufficient amounts of fruit and vegetables (five portions a day), or with mushrooms or supplements, is no longer able to protect from aging and disease. Toxins create damage all over the body, producing free radicals. They damage the microcirculation formed by small arteries, veins and lymphatic capillaries, muscles and connective tissue in any organ, where they are partly deposited. They lead to the onset of circulatory disorders, headaches, muscle pain, mouth sores, foulsmelling urine and various symptoms, according to the affected part of the body.

At the second level of severity there is a range of ailments linked to the build-up of toxins, such as acne, sore muscles, impaired

microcirculation, which improve by strengthening the cleansing function. At the third level plaques of arteriosclerosis, neurological diseases, diabetes, and obstructive bronchitis appear. The fourth level of severity includes chronic degenerative diseases, such as emphysema, heart attack, stroke, dementia, Parkinson's disease.

To mention all the chemical toxins that pollute the environment would require a very long list. Here is a short list of air pollutants present in the smog that envelops large towns and cities: sulphur oxides and nitrogen oxides, carbon monoxide, micro-solid or liquid particles that remain suspended in the air, benzene and other polycyclic aromatic hydrocarbons (PAHs) and heavy metals (arsenic, cadmium, nickel and lead). Heavy metals and hydrocarbons are highly toxic substances which, day after day, poison the body and cause chronic disease. According to research, they are among the causes of degenerative diseases as well as cancer.

Moreover, water which is contaminated, not only by these pollutants, but also by many other waste chemicals from industry, contaminates everything, including food. Smoking, alcohol, X-rays, radiotherapy and chemotherapy can also be included. Even stress, sport, and a diet with products of animal origin contribute to increase the production of free radicals. These "molecular sharks", double or triple the mechanisms of aging and disease.

* The "*Smoking and Metal Chelation*" Protocol has two powerful allies in all diseases caused by free radicals: *Pleurotus* and *Ganoderma*. These mushrooms have powerful cleansing properties. They protect in two ways: both by strengthening antioxidant activity and by chelation of heavy metals. They greatly strengthen the antioxidant defences, the only protection for the body since they eliminate the enormous production of free radicals with which heavy metals poison our health. Mushrooms are great chelators in nature, able to bind to, and eliminate, toxic metals.

Smoking (with the risk of cancer):

"Smoking and Metal Chelation" Protocol: Pleurotus and Ganoderma (cause and symptoms).

The combustion of tobacco produces benzopyrene, a carcinogenic hydrocarbon which produces serious damage (heart attack and lung cancer) through the production of enormous amounts of harmful free radicals.

* *Pleurotus* and *Ganoderma* are two powerful allies in all diseases caused by free radicals. Some studies have documented that they are able to transform carcinogenic benzopyrene into biological matter. For this reason, they may be able to reduce the risk of cancer.

Dioxin:

“Smoking and Metal Chelation” Protocol: Pleurotus and Ganoderma (cause and symptoms).

It is a carcinogenic hydrocarbon that is formed by burning waste or petroleum fuels. It causes degenerative diseases and cancer, through the production of massive amounts of free radicals.

* *Pleurotus* and *Ganoderma* have the ability to transform dioxin into biological matter. They may also reduce the risk of cancer produced by these substances.

Chemotherapy (side effects):

“Smoking and Metal Chelation” Protocol: Pleurotus and Ganoderma (cause and symptoms); with the addition of *Agaricus and Cordyceps* (cause and symptoms).

Anticancer chemotherapy is the pharmaceutical treatment used against cancer. It causes extensive side effects, due to its cytotoxic action, with which it kills cells that reproduce more quickly, such as cancer cells, but also healthy cells with rapid growth, such as those of the blood, especially the white blood cells that live between one and a few days, the cells of the stomach and intestines, the cells of the hair follicles. This explains the most common side effects: hair loss, loss of white blood cells (leukopenia), weakened immune function with mouth inflammation or infection, anemia with weakness, vomiting and diarrhea.

* *Pleurotus*, *Ganoderma*, *Cordyceps* and *Agaricus* support the body's cleansing functions, through the reinforcement of the liver which is invaded with large amounts of debris and substances which

originate from dead cells and must be eliminated. They also act directly by cleansing out free radicals. *Pleurotus* and *Ganoderma* are also excellent anti-inflammatory agents which can combat the inflammation generated by toxins. *Agaricus* and *Cordyceps* increase the body's energy. *Ganoderma* and *Agaricus* restore white blood cells to normal levels.

Radiotherapy:

Agaricus, *Grifola* and *Ganoderma* (cause and symptoms).

Radiation therapy is the use of X-rays to combat cancer. As well as affecting tumor cells, it also affects the cells of the bone marrow, in particular white blood cells and red blood cells.

* *Ganoderma* and *Agaricus* eliminate the free radicals that cause well documented damage and side effects. *Grifola* promotes the production of white blood cells and the production of red blood cells, as do *Ganoderma* and *Agaricus*.

Radiotherapy dermatitis:

Agaricus and *Ganoderma* (cause and symptoms).

A series of programmed treatments (often very numerous) affects and damages not only cancer cells but also the skin, which often develops inflammation and burns, even in subcutaneous tissues.

* *Ganoderma* and *Agaricus* are important cosmetics that fight damage in the skin from free radicals, such as aging, wrinkles and inflammation.

Smog:

"*Smoking and Metal Chelation*" Protocol: *Pleurotus* and *Ganoderma* (cause and symptoms).

Those who live in areas contaminated by smog must protect themselves from heavy metals (lead), hydrocarbons derived from burning and also from fine particles.

* *Pleurotus* and *Ganoderma* chelate metals, that is, identify them, bind to them and eliminate them from the body. They are just as useful in protecting the body from free radicals and in activating the immune system of the airways, which deals with capturing and eliminating fine particles in smog.

Mercury (amalgam removal):

“Smoking and Metal Chelation” Protocol: Pleurotus and Ganoderma (cause and symptoms).

When dental amalgams made with mercury are removed a part of this substance is spread throughout the body. Fortunately, this amalgam material has been used less and less by dentists in recent years.

* *Pleurotus* and *Ganoderma* chelate and bind to heavy metals such as mercury and then eliminate them from the body.

CHAPTER 17

Diseases of the energy apparatuses (muscle, mind, heart, hormones and structure): *Cordyceps, Agaricus, Ganoderma and Auricularia*

The 1st power of mycotherapy is in strengthening the body's defences, its 2nd in improving digestive processes and its 3rd in strengthening the cleansing functions of the body. Its 4th power is to increase the amount of energy produced, distributed and made available. Mushrooms are able to act both on a general level in the body as well as individually in an organ and apparatus and at a capillary level in individual cells. Healing mushrooms increase energy levels in everyday life and during sport: muscular, mental, cardiovascular, hormonal, sexual and static-structural energy. Two mushrooms are often required to significantly improve health and vitality in all these apparatuses. People taking healing mushrooms are pleasantly surprised when they find that not only do they feel more energetic, but also more healthy.

The causes of illness

Mental, cardiac, circulatory, hormonal and muscle illnesses are more and more common. In most cases, stress is the main cause of problems; it is increasingly widespread and affects not only the work environment, but also personal and family life. Stress, in fact, entails a great expenditure, if not a waste, of energy. When an organ is overexploited, it deteriorates and tends to reduce its margins of compensation more and more, until it weakens and becomes ill.

Think of the heart: it needs oxygen, sugar and fat in order to produce a large amount of energy. If the availability of these raw materials decreases due to stress, which causes vasoconstriction of the coronary arteries and reduces blood flow, it also decreases its functional capacity. In the early stages of stress, this work, which is more intense, wears down the apparatus directly and also acts indirectly: it increases the amount of free radicals (see [Chapter 16](#)), harmful molecules that can cause, for example, inflammation and

damage to many organs: muscles, blood vessels, brain, heart, bones and joints). Another cause of illness is insufficient or poor quality sleep. This causes a shortage of energy, but above all prevents the repair of the day's microtraumas. In fact, this kind of maintenance is performed specifically during deep sleep, when the hormones which repair small alterations in organs and tissues, in particular the GH, the growth hormone, are activated.

An important role is also played by lack of movement, which weakens the bones and joints, so that they lose elasticity and a full range of movement, leading to stiffness and pain. Sport enhances energy because when we are fit, climbing the stairs or walking or even sitting for hours is much easier and painless. But also to do a sport to an extreme level or without taking antioxidants is harmful. In fact, a large amount of free radicals is produced during sport. Free radicals ruin cellular functions in general, but also ruin the production of cellular energy, which leads to a generalized shortage of energy.

Critical points: the mind, female apparatus and heart

Every day, energy is used up and the body's resources decrease. In traditional Chinese medicine (TCM) an examination of the tongue reveals the amount of energy, or rather, of the two energies, used up. In fact, in TCM, energy (called Qi), is made up of renewable energy and *jing* energy which is part of our constitution, received by our parents at birth and which cannot be increased. Renewable energy can be added to through breathing, food and healthy habits. Constitutional energy (*jing*), which determines the course and length of life of each person, cannot be added to but only conserved thanks to emotional serenity, careful nutrition, proper rest and appropriate mental and physical activity. If these legitimate requests are neglected, the body burns its capital of basic nonrenewable energy (*jing*) to obtain energy and at the age of 50-60 years (or even sooner) has already developed some chronic ailments that require long-term therapy. All apparatuses are affected by a shortage of energy, but some are more vulnerable because they perform the most delicate tasks for life or have lower margins for compensation

and are the first to present problems: the mind, followed by the female sexual apparatus, the circulation and the heart.

Things get worse with age

When energy is plentiful, all the apparatuses and systems are efficient, as can be seen from their proper functioning. For example, to assess the well being of the mind, the most important indications are sleep, the regularity of the female hormonal cycle, the absence of tachycardia and anxiety. These are the first functions that alter when our psychological balance begins to falter. In general, indicators of a correct level of personal energy are a normal blood pressure and heart rhythm (when there is too much mental stress, both often increase), a menstrual cycle of 28 days in women, neither shorter nor longer, a good night's sleep and regular exercise.

Unfortunately, nowadays, our pace of life is very intense and stressful, we have to deal with heavy workloads and many commitments and rarely adopt an appropriate healthy lifestyle (nutrition, rest and exercise). As a result, many people use up more energy than they produce, eroding non-renewable capital in a neverending spiral that worsens as times passes, due to the constant bombardment of stimuli and shorter and shorter recovery times. This process begins at an early age: in fact, teenagers often suffer from a lack of energy when the seasons change. Things do not improve with age, on the contrary, lack of energy is often a problem and is increasingly common especially among adults who perform too much intensive activity. Furthermore, pregnancy and breastfeeding require a lot of energy. Another stage of life in which energy seems to be lacking is during the menopause and later life.

The four levels of severity

The functions in which energy is the key element remain healthy when the energy balance is in equilibrium: if the balance between the energy used up and the energy produced is negative, imbalances arise and then produce illness. The energy apparatuses are very sensitive to environmental conditions and are badly affected by dealing with stress, which is increasingly common and impactful in the lives of each of us.



Cordyceps

The first symptom of stress is the weakening of the muscles, mind, heart and the hormonal and musculoskeletal apparatuses. Functional psychological disorders appear, such as anxiety, insomnia, psychosomatic disorders, headaches, painful muscle strain, lumbar and cervical pain, menstrual irregularities, dizziness, tachycardia and extrasystoles. Diseases tend to stabilize and become chronic at the second level of severity. As regards the sexual apparatus these may include more severe menstrual irregularities, oligomenorrhea (missing a period every four), polycystic ovaries, decreased libido, fertility disorders. As regards the circulatory system, the early stages of high blood pressure can include swings and fluctuations and chronic headaches. Psychological disorders include depression, panic attacks, anxiety disorders and chronic insomnia.

If nothing is done to change the situation, things get worse and other disorders characterized by structural changes appear, such as fibroids, endometriosis, chronic arterial hypertension, which starts to cause circulatory problems, varicose veins, coronary stenosis, cardiac arrhythmias and angina, stenosis of the carotid arteries, initial forms of retinopathy, deterioration in eyesight, chronic obstructive bronchitis and emphysema.

The fourth level of severity is characterized by chronic degenerative diseases, in which a structure, which has been drastically altered, is no longer able to perform its function. Chronic arterial hypertension may have contributed to damaging the arteries and the blood circulation. Coronary stenosis may be present together with angina and the risk of heart attack, stroke and chronic renal failure. Other examples are vascular dementia and Alzheimer's disease, in which there is a neurological deficit due to the degeneration of the nerve cells (neurons) of the cognitive centres. While vascular dementia is caused by a chronic impairment in the supply of blood to the brain, Alzheimer's disease is due to the degeneration of nerve cells. Another disease of the fourth level is Parkinson's disease, linked to the degeneration of the nerve centers which control voluntary muscle movement (the basal ganglia).

Diseases of the energy apparatuses

Here are the main diseases of the apparatuses which deal with the production and distribution of energy and an indication of the medicinal mushrooms which can be used to treat them by eliminating causes and symptoms and restoring weakened functions.

1. Psycho-emotional disorders

The mind and emotional state are very sensitive to stress. When we are under too much stress, our efficiency and serenity are greatly reduced. Unfortunately, the rapid pace of life, competitiveness and the tendency to set ourselves targets which are hard to achieve lead to anxiety and insomnia as well as a lack of self-esteem and depression. The psychological situation can complicate everyday life. Routine commitments seem too stressful, complex or tiring, because our psychological state is influenced by fear, pessimism,

melancholy and despondency. These are symptoms of depression, a condition that hinders, but can also even impede, a fully active life. Mycotherapy is useful in these cases: *Auricularia* is beneficial for anxiety, *Cordyceps* and *Agaricus* are best suited for depression, while *Ganoderma* is useful both for anxiety and for depression. Healing mushroom remedies are a great help in treating these diseases when they are at a mild or moderate stage. However, even in the most serious cases, healing mushrooms in combination with psychotropic drugs are useful, because they can often reduce the dosage of medicine required.

* When anxiety and insomnia are more severe, it is worth using the "*Stress, Circulation and Joints*" Protocol: *Auricularia* and *Ganoderma* (cause and symptoms), in which the presence of *Ganoderma* provides backup to the action of *Auricularia*, a useful aid to reduce and often resolve anxiety and insomnia. *Ganoderma* combats both anxiety and the mood changes which often accompany anxiety. Their association also combats mixed anxiety-depressive disorder. Mental energy increases, partly because it is not wasted in physical and mental tension.

* "*Energy and Mood*" Protocol: *Cordyceps* and *Agaricus* (cause and symptoms).

This protocol is suitable for those who seek greater energy and a better mood. It enhances both physical and mental stamina. *Cordyceps* increases personal energy: it gives about two extra hours of energy per day in everyday life and improves sports performance by approximately 10%. These benefits are due to the fact that it increases the oxygenation of the blood. *Agaricus* also significantly increases physical and mental stamina, because it enhances the brain mediators (norepinephrine and dopamine) involved in the production of psychophysical energy. *Agaricus* and *Cordyceps* are also useful to improve the symptoms of mild depression which can appear in everyday life and in promoting the psycho-emotional skills required for demanding tasks.



Agaricus

Insomnia:

Auricularia (cause and symptoms).

Often the first symptom of anxiety is light sleep, which is disturbed and leaves us tired. As a result, physical and mental energy are reduced. Healing mushrooms may not suffice if insomnia is severe, otherwise, they can resolve the situation.

* *Auricularia* is very effective. If insomnia is severe, it can be useful to start off with large dosages, of between 4 and 10 grams.

Anxiety:

Auricularia (cause and symptoms).

Anxiety is a normal experience that, if occasional, does not interfere with the quality of life, but if it becomes chronic and dominant it transforms everyday life into a state of tension, full of unnecessary fears. *Auricularia* is a useful aid in reducing and often resolving

anxiety and insomnia. It is excellent in helping to deal with stress more serenely and in warding off anxiety and insomnia. It increases mental energy, preventing it from being wasted in tension.

Anxiety-depressive disorder:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma (cause and symptoms).

Anxiety-depressive disorder very often involves more severe anxiety and insomnia. Mood fluctuates or drops, adding depression to anxiety, although the latter remains the dominant symptom.

* *Ganoderma* combats both anxiety and the mood changes which often accompany anxiety. Their association also combats the mixture of anxiety and depression. Mental energy increases, partly because it is not wasted in physical and psychological tension.

Psychosomatic illnesses:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma (cause and symptoms).

Simplifying, these are diseases in which emotional distress is reflected in the organs, muscles and viscera. The nerves connect the brain with the whole body and in addition to motor impulses, also convey mental factors. The list is very long, and includes: headache, dizziness, cervical and lumbar pain, gastritis, colitis, nonbacterial cystitis, menstrual irregularities, difficulty conceiving, menopause, tachycardia and extrasystoles.

* *Auricularia* especially, and also *Ganoderma*, harmonize overly intense stimulation from the brain, especially when produced in the centers of tension and stress (sympathetic nervous system). Moreover *Ganoderma* especially, but also *Auricularia*, protect organs, viscera and muscles at a peripheral level from emotional tension.

Panic attacks:

“Heart and Mind” Protocol: Ganoderma, Auricularia, Cordyceps (cause and symptoms).

A panic attack is an anxiety disorder which consists in a sudden state of intense malaise, with strong agitation, trembling throughout the body, particularly in the chest, palpitations or tachycardia,

accompanied by fear of death and the impression that a heart attack is in progress. Actually, the heart and the rest of the body have no physical problems. It is just a state of anxiety, however unpleasant.

* *Auricularia* and *Ganoderma* are useful in mild or moderate forms.

Auricularia especially, but also *Ganoderma*, relieve anxiety, shaking and agitation. *Cordyceps* is a useful addition, because it increases the

oxygenation of blood in the brain, restores energy and improves mood. These three mushrooms improve the psychological state: they reduce anxiety, improve mood and increase mental stamina.

Depression:

"Energy and Mood": Cordyceps and Agaricus (cause and symptoms) with the addition of Ganoderma (cause and symptoms).

It is characterized by a sad mood, pessimism, a tendency to isolate oneself and loss of initiative and desire to do things. Healing mushrooms are useful in mild or moderate forms.

* *Cordyceps* and *Agaricus* increase mental energy and improve mood. *Agaricus* also stimulates the brain mediators norepinephrine and dopamine, which are necessary to improve mood, increase vitality and raise morale. *Cordyceps* increases the oxygenation of blood in the brain, which improves mood. *Ganoderma* is also a useful addition to improve mood and mental stamina. It also reduces anxiety, which is always present in depression.

Fibromyalgia:

"Heart and Mind" Protocol: Ganoderma, Auricularia, Cordyceps (cause and symptoms).

It is characterized by depression, accompanied by widespread muscle pain and considerable fatigue.

Agaricus and *Cordyceps* increase mental energy and improve mood. *Ganoderma* reduces anxiety and depression. *Agaricus* also stimulates the brain mediators norepinephrine and dopamine, which are necessary to improve mood, increase vitality and raise morale. *Cordyceps* increases the oxygenation of blood in the brain, which improves mood. *Ganoderma* is a useful anti-inflammatory agent that also reduces pain.

2. Lack of physical and mental energy

An intense pace of life, heavy workloads and lots of commitments are often taken to the limit. Many people use up more energy than they produce, and end up exhausted. Mycotherapy increases energy in different occasions when it may be needed. For studying, work and sport, in everyday life, in pregnancy, during breastfeeding, during illness or convalescence, or in old age. In sport, mycotherapy is accepted by the IOC (International Olympic Committee) because it is not classified as doping. It is a source of health, which protects an athlete during intense physical activity, starting from the functions most subject to fatigue, such as the heart, the respiratory system, the mind, muscles and joints. Moreover, it is harmless, without side effects.

* The “*Energy and Mood*” Protocol: *Cordyceps* and *Agaricus* (cause and symptoms); with the addition of *Ganoderma* (cause and symptoms) as required. People tend to be increasingly lacking in physical and mental energy. Although the causes vary, the combination of *Agaricus* and *Cordyceps* mushrooms significantly increases stamina and vitality. *Agaricus* stimulates the brain mediators norepinephrine and dopamine, which increase energy and raise morale. *Cordyceps* increases the oxygenation of the blood by between 5 and 20%, which is equivalent to an improvement in physical performance of 8.3%.

These are the results obtained in a study coordinated by Professor Yi (2004). The improvement in sport performance is similar to that obtained by athletes when they train at high altitude, a way to increase blood oxygenation. For example, those who do gym say that, when taking *Cordyceps*, their weight lifting performance increases by 10%. Both mushrooms improve the emotional state in everyday life. If they are used during competitions they reduce anxiety and improve outcome, because they promote a more effective use of an athlete’s mental resources. *Cordyceps* and *Agaricus* protect athletes from injury, but not as much as *Ganoderma* which, with its potent anti-inflammatory effect, is useful for preventing and resolving inflammation and microtrauma.

* *The "Women, Liver and Later life" Protocol* made up of *Ganoderma* and *Cordyceps* increases energy. *Cordyceps* increases energy production, while *Ganoderma* improves its distribution through support to the heart and blood circulation, preventing heart problems and stroke. Both improve the emotional state in daily life or sports results, if used during competitions. They protect athletes from injury.

Sports:

"Energy and Mood" Protocol: Cordyceps and Agaricus (cause and symptoms), with the addition of *Ganoderma* (cause and symptoms). Maybe not all, but most people who do various sports are not satisfied with their results and want to improve their performance. To reach this objective, training, motivation and enthusiasm are essential, but it is also important to prepare the body for intense physical intensity whether competitive or non-competitive. Those who do sports try to increase their stamina, to quickly eliminate lactic acid, which is formed in the anaerobic phase during short high intensity physical activity, and to recover well after the effort. They also need to dispose of the large amount of free radicals that are formed during sports activities, which attack the body in two ways: accelerating aging and increasing the risk of injury.

* *Cordyceps* and *Agaricus* increase performance. *Cordyceps* has shown a minimum increase of 8-10% in sports performance. They are essential as protection from free radicals and injury. *Ganoderma*, with its potent anti-inflammatory effect, is useful for preventing and resolving inflammation and microtrauma.



Ganoderma

Intense studying and examinations:

"Energy and Mood" Protocol: Cordyceps and Agaricus (cause and symptoms).

Studying intensely produces mental fatigue. If studying is aimed at passing exams or school tests, extra stress is added. Very intense mental work and stress reduce productivity.

* *Cordyceps* and *Agaricus* increase cognitive performance, both in terms of greater mental stamina and in terms of protecting against stress.

Tiredness in the evening:

"Energy and Mood" Protocol: Cordyceps and Agaricus (cause and symptoms). When, after a day at work, we come home exhausted.

* *Cordyceps* and *Agaricus* allow two to three hours more energy per day. In this way work can be accomplished more easily, without

ending up exhausted in the evening. We can feel more energetic in the evening.

Fast pace of life:

“Energy and Mood” Protocol: Cordyceps and Agaricus (cause and symptoms).

During periods of overwork or when, in addition to work, we must also look after children or family or assist people who are sick or in need of care, more energy is required.

* *Cordyceps* and *Agaricus* increase energy and resistance to stress allowing us to put up with very long difficult and even stressful periods.

Breast-feeding:

“Energy and Mood” Protocol: Cordyceps and Agaricus (cause and symptoms).

Breastfeeding is a phase in which women have very low energy levels and depleted reserves of biological substances (vitamins, minerals and so on).

* *Cordyceps* and *Agaricus* provide extra energy, while *Polyporus* defends hair that may fall out more than usual.

Change of season:

“Energy and Mood” Protocol: Cordyceps and Agaricus (cause and symptoms).

These are transition stages in which a change in the temperature outside forces the body to change too, so it needs more energy (see [Chapter 7](#)).

* *Cordyceps* and *Agaricus* provide extra energy.

Aging:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

The production and the distribution of energy lessens over the years.

* *Cordyceps* increases energy production, while *Ganoderma* improves its distribution by supporting the heart and blood circulation. Prevention of heart problems, stroke.

Convalescence:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

The body needs help and more energy while recovering from illness.

* *Cordyceps* increases energy production, while *Ganoderma* improves

its distribution through the bloodstream. Both accelerate recovery from illness.

3. Neurological disease

The nervous system (central and peripheral) consists of two main components: nerve tissue and blood circulation. The study of these two parts is the basis for taking care of the nervous system when it is healthy or ill. Neurological diseases stem from an alteration in one of these two components. Also in these diseases, one of the main causes is the attack of free radicals, which silently lead to a degeneration of neurons, nerves and nerve centers. All medicinal mushrooms are able to neutralize this danger. However, some of them are more effective, because they have other, more specific, active ingredients, useful to strengthen and protect the nerves and the brain. For this reason they are a useful resource both in preventing, and in treating, illnesses.

* The *“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma* (cause and symptoms) is useful because it improves circulation and is usually effective both in painful conditions (headache and similar ailments) and in other neurological diseases, when the brain circulation needs help.

In other neurological diseases such as Parkinson's disease and multiple sclerosis, in which the disease directly affects the nervous tissue, the *“Heart and Mind” Protocol* consisting in *Ganoderma, Auricularia* and *Cordyceps* (cause and symptoms), with the addition of *Agaricus* or *Hericium*, as required, is more suitable.

In dementia and Alzheimer's disease the *“Woman, liver and later life” protocol* consisting in *Ganoderma* and *Cordyceps* (cause and symptoms) is useful.

Tension headache and migraine:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma (cause and symptoms)

Pain crises, such as headache, migraine headache and headache caused by muscle tension, are usually related to alterations in cerebral blood flow, which in turn are very often caused by psychological and physical stress.

* *Ganoderma* and *Auricularia* resolve these painful symptoms, because they restore proper circulation. They are not useful for immediate pain relief, but as a basic treatment of the cause which, however, leads to resolution of symptoms. Often they resolve the problem completely; sometimes they reduce the frequency and severity of headaches.

Parkinson's disease (chronic):

“Heart and Mind” Protocol: Ganoderma, Auricularia, Cordyceps (cause and symptoms) with addition of *Agaricus* or *Heridium* (cause and symptoms).

It is a chronic disease characterized by tremors at rest and difficulty in movement. It depends on the action of free radicals, which cause the degeneration of the brain centers (basal ganglia) that control movement. These centers, therefore, no longer produce adequate amounts of dopamine, the brain mediator necessary for movement. This deficiency is the origin of Parkinson's disease.

* *Agaricus* facilitates movement by increasing dopamine. *Cordyceps*, instead, reinforces physical muscle strength and stamina weakened by the disease. Furthermore, as do *Ganoderma*, *Auricularia* and *Agaricus*, it eliminates free radicals, especially in the nervous system. Finally, *Ganoderma* and *Auricularia* significantly reduce tremors.

Multiple sclerosis:

“Heart and Mind” Protocol: Ganoderma, Auricularia, Cordyceps (cause and symptoms) with the addition of either *Agaricus* or *Heridium* (cause and symptoms) or *Lentinus* (cause).

It is a chronic inflammatory disease. Because of the destruction of the myelin sheath, the nerves gradually lose their ability to conduct impulses. Moreover, the plaques that replace the myelin sheath

impair the passage of nerve impulses. Over the years it leads to a progressive loss of movement, severely restricting independence.

* *Ganoderma*, *Auricularia* and *Cordyceps* are useful but it is better to add *Agaricus*, *Hericium* or *Lentinus*. *Auricularia* and *Cordyceps* are very effective for the nervous system. *Ganoderma* and *Auricularia* have powerful anti-inflammatory properties and dramatically improve the blood flow in the muscles, which improves energy. The body is losing physical strength and *Cordyceps* provides it. *Ganoderma*, *Auricularia* and *Hericium* have been shown to regenerate parts of the damaged myelin sheath in laboratory studies. *Agaricus* also increases muscle energy. *Lentinus* enhances the general anti-inflammatory effect. Although four mushrooms are normally recommended, the use of even five remedies intensifies the positive effects of the treatment on both the symptoms and causes.

Memory loss and aging of brain functions:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

A small amount of memory loss is often a warning sign of brain aging. This process worsens and begins to involve other brain functions unless it is treated effectively.

* *Ganoderma* and *Cordyceps* improve cerebral blood flow. *Cordyceps* also improves cerebral oxygenation. Memory and cognitive functions are affected positively.

Vascular dementia:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms), with the addition of *Agaricus* as required (cause and symptoms).

The most common form of dementia is caused by a serious deterioration of the blood circulation in the brain. The cerebral circulation network is reduced, because some arteries become blocked, partly or entirely, and in some areas of the brain, which are left without blood, brain cells die. This symptomatology is described with the appropriate metaphor "checkerboard" because problems in circulation affect some centers but not others. As a result, some functions are damaged, while others, strangely, are preserved: for

example, a person may not be able to add up numbers, but tells stories about their childhood. Or, vice versa, has no problem adding, but can neither remember nor talk about past memories.

* *Ganoderma* and *Cordyceps* improve circulation and oxygenation. *Agaricus* increases norepinephrine, an important brain mediator. These three mushrooms gradually tend to restore some damaged functions. *Agaricus* increases mental stamina which can be useful to enhance awareness.

Alzheimer's disease:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms), with the addition of *Agaricus* as required (cause and symptoms).

This disease leads to a massive and homogeneous deterioration in brain function. Sense of time and space are lost together with the meaning of words, numbers, memories and, as the disease progresses, eventually those affected are unable even to recognize loved ones. These losses in brain function are caused by neuron degeneration. It is believed that a major cause of this disease is the attack of free radicals that, over the years, seriously damage neurons. The neurons accumulate an inert substance (amyloid) which leads to a serious deterioration of cognitive functions.

* *Ganoderma* and *Cordyceps* improve circulation and oxygenation. *Agaricus* increases norepinephrine, an important brain mediator. These three mushrooms gradually tend to protect, maintain and restore some damaged functions. *Agaricus* increases mental stamina which can be useful to enhance awareness.

4. Respiratory Disease

Diseases of the respiratory tract are either infectious, such as influenza and similar illnesses, or allergic, such as asthma. Another major group of illnesses consists of degenerative diseases that impair breathing because they reduce air flow, leading to respiratory failure and the need to use oxygen. *Cordyceps* is extremely beneficial in these conditions because it increases the oxygenation of the blood. Even the sleep apnea syndrome, in which breathing is

briefly interrupted during sleep, is helped considerably by *Cordyceps*.

Sleep apnea syndrome:

Cordyceps and *Auricularia* (cause and symptom).

Sleep apnea is defined as a partial restriction of the airways, which causes a temporary reduction in air flow during sleep. As a result, >blood oxygenation decreases. Various causal factors include overweight and disturbed sleep.

* *Cordyceps*, increasing the oxygenation of the blood, compensates for reductions in breathing. *Auricularia* improves the quality of sleep.

Chronic obstructive pulmonary disease (COPD):

Lentinus (cause), *Ganoderma*, *Auricularia* and *Cordyceps* (symptom).

It is an inflammation that affects the bronchi due to prolonged exposure to irritants, such as smoke or chemicals (adhesives, dyes) used for work. It reduces airway calibre impairing respiratory flow. In addition, it causes coughing and bronchial wall thickening, two conditions that further reduce respiratory flow.

* *Lentinus*, *Ganoderma* and *Auricularia* are useful for their antiinflammatory properties. *Cordyceps* improves oxygenation by 5-20% and can prevent or reduce the use of an oxygen tank.

Pulmonary emphysema:

“*Women, Liver and Later life*” Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms).

Emphysema is a disease that reduces the portion of the lung (alveoli) in contact with the blood. As a result, blood oxygenation decreases, resulting in respiratory failure and requiring the use of an oxygen tank.

* *Cordyceps* improves oxygenation by 5-20% and can prevent or reduce the use of an oxygen tank. *Ganoderma* is useful as a cortisone like antiinflammatory agent halting the chronic inflammation that destroys the lung alveoli, the exchange surface between the oxygen and the blood.

5. Cardiovascular disease

The cardiovascular system is able to work day and night without stopping. Unfortunately, stress and a busy lifestyle force this apparatus to work at a fast pace, often close to the limit. This pressure means that its margins for compensation are reduced, and the first functional problems and symptoms start to arise. High blood pressure, tachycardia and extrasystoles are some of the most common symptoms. When these symptoms come and go they indicate that the heart is having some difficulty in performing its tasks. They may be a sign of anxiety, stress, abuse of coffee and alcoholic beverages, the presence of toxins in the body. But if these symptoms become frequent and tend to take root they tell a different story: they are symptoms of heart disease.

One such illness, for example, high blood pressure, is certainly not a serious illness, but it is the prelude to more severe heart disease. High blood pressure is not only a disease in itself. It is also a sign that the cardiovascular system as a whole is in trouble. It indicates that the arteries let through less blood and that the heart, which is the pump, must increase the pressure to push the blood and to maintain the constant blood flow rate required, thus increasing its work. Therefore the heart has more difficulty, it reduces its margins for compensation and loses effectiveness, increasing the risk of illness.

High blood pressure also indicates that the blood, flowing in the arteries at a higher pressure, is wearing down the artery walls. Hence, the artery walls thicken more and more, less blood can flow through and blood pressure increases to maintain a constant flow of blood. This is the vicious circle that weakens the heart and raises blood pressure more and more. So, over the years, the heart and the arteries damage each other and this leads to heart and circulatory diseases, such as heart attack, stroke, kidney and retinal diseases.

* Mycotherapy is extremely useful in the prevention and treatment of cardiovascular disease. There are four mushrooms which can help a great deal. *Polyporus*, *Auricularia*, *Cordyceps* and *Ganoderma* mainly, over the years have proved their worth. Two protocols give significant results with a simple mechanism.

* The “*Hypertension*” Protocol: *Polyporus* and *Auricularia* (cause and symptoms) is very effective in both the prevention and the treatment of high blood pressure. Both reduce blood pressure, only when it is high, with two complementary mechanisms: *Polyporus* is a diuretic that removes excess fluid, *Auricularia* dilates the arteries.

* The “*Heart and Mind*” Protocol: *Cordyceps*, *Auricularia* and *Ganoderma* (cause and symptoms) is very effective in both the prevention and the treatment of cardiovascular disease. *Cordyceps*, *Auricularia* and *Ganoderma* are excellent in improving coronary circulation, increasing the oxygenation of the heart, strengthening its energy, regulating heart rate and blood pressure. They improve the efficiency of the heart both in everyday circumstances, when the pace of life is particularly intense, and in sports. These three mushrooms are extremely helpful in some diseases of the cardiovascular system, such as atrial extrasystoles, arrhythmias and high blood pressure. They improve: blood pressure, the ECG waveform, heart rate, coronary artery circulation and the strength of the heart. They reduce anxiety and stress, protecting the cardiovascular system from the effect of emotions, which would otherwise cause rapid heartbeat and increase blood pressure. Moreover, by improving general psychological well-being, they also improve concentration, memory, mood, energy and muscle strength.

Heart disease (prevention):

“*Heart and Mind*” Protocol: *Cordyceps*, *Auricularia* and *Ganoderma* (cause and symptoms).

We all need a good form of prevention against cardiovascular disease, which is by far the number one cause of mortality.

* *Cordyceps*, *Auricularia* and *Ganoderma* maintain correct reference parameters of the cardiovascular system; blood pressure, ECG waveform, heart rate, coronary artery circulation, and the strength of the heart are maintained in optimal conditions.

High blood pressure:

“*Hypertension*” Protocol: *Polyporus* and *Auricularia* (cause and symptoms).

High blood pressure is an illness which tends to get worse over the years and to involve other parts of the body because it ruins the arteries and the heart. It is a vicious circle that weakens the heart and raises blood pressure more and more. Hence, over the years the heart and the arteries damage each other and lead to heart and circulatory diseases, such as heart attack, stroke, kidney, and retinal diseases.

* *Auricularia* and *Polyporus* (cause and symptoms) are very useful in reducing high blood pressure and also for protecting the walls and the work of the heart.



Auricularia

Atrial extrasystoles (or supraventricular):

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma (cause and symptoms).

An extrasystole is a premature heartbeat, which may occur sporadically. In this case the electrical impulse controlling the heart

beat has small irregularities. As long as the extrasystoles are sporadic, the cause that requires attention is minor (anxiety, coffee). When, instead, extrasystoles are much more frequent, it is described as cardiac arrhythmia, which is by far the most common form. The underlying causes are many: anxiety, psychological stress, physical fatigue or excess coffee, smoking, alcohol and high blood pressure.

* *Auricularia* and *Ganoderma* regulate the heart rate, because they balance the onset and conduction of the electrical impulse that controls the heartbeat. They reduce and eliminate supraventricular extrasystoles, but also improve the ECG waveform, coronary artery circulation and the strength of the heart. *Auricularia* and *Ganoderma* help the central nervous system in regulating blood flow properly. The arteries are often contracted, letting little blood through. Moreover, *Auricularia*, especially, and *Ganoderma* are also great vasodilators and can combat even mild hypertension.

Supraventricular tachycardia:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma (cause and symptoms).

In this case, the frequency of the heartbeat increases. The causes are as for atrial extrasystoles.

* *Auricularia* and *Ganoderma* regulate the heartbeat, bringing down the heart rate to an appropriate value. They also improve the ECG waveform, blood circulation in the coronary arteries and the strength of the heart.

6. Circulatory disease

Blood circulation is essential to life. When blood flows in the blood vessels in adequate amounts, health flourishes. Similarly, in agriculture, when irrigation canals bring plenty of water to farmlands, the harvest is plentiful. On the contrary, if the arteries, the channels which have the task of distributing the blood, let little blood pass through, they cause illness. The factors responsible for preventing the passage of blood in the arteries are stress and obstruction due to atherosclerosis. Continuous stress increases adrenaline and constricts blood vessels which, thus contracted, let less blood pass through. The mechanism which causes arteriosclerosis is the

thickening of the artery walls due to the formation of cholesterol plaques. There are many conditions and diseases that produce this damage, such as diabetes, obesity, metabolic diseases, high blood pressure, smoking, sedentary lifestyle and leaky gut syndrome (see [Chapter 15](#)).

Two protocols give significant results with a simple mechanism:

* The “*Stress, Circulation and Joints*” Protocol: *Auricularia* and *Ganoderma* (cause and symptoms).

Auricularia and *Ganoderma* combat the action of stress on blood vessels, which can relax, dilate and allow a more adequate flow of blood. Moreover, they regulate favourably the nerve centres that control blood flow. These two mechanisms lead to vasodilation, especially thanks to *Auricularia* and also to *Ganoderma*, which allow the arteries to transport an adequate amount of blood once again.

* The “*Cholesterol*” Protocol: *Pleurotus* (cause) and *Auricularia* (symptoms).

Auricularia and *Pleurotus*, excellent anti-inflammatory agents, are especially effective on arterial wall inflammation, which precedes and constitutes the starting point for the formation of cholesterol plaques. They are useful in preventing the formation of new cholesterol plaques but also decrease the thickness of those already formed. They reduce aging of the arteries, which become more elastic and flexible again. In this way they also improve blood pressure and circulation, benefitting the organs that are most at risk (heart, brain, kidneys and retina) and for which this protection is very important. These two mushrooms are indicated in diseases of the veins, in particular for failing saphenous veins in the legs and for fluid retention.

Tinnitus:

“*Stress, Circulation and Joints*” Protocol: *Auricularia* and *Ganoderma* (cause and symptoms).

They are very annoying sounds perceived by the ear. The most common cause is due to circulation problems.

* *Auricularia* and *Ganoderma* are vasodilators that make the circulation of blood in the ear vessels easier and quieter. The blood

flows more silently and noise is reduced.

Raynaud's phenomenon:

"Stress, Circulation and Joints" Protocol: Auricularia and Ganoderma (cause and symptoms).

It is a chronic circulatory disorder of the hands, which first become white due to lack of blood and then deep red due to the returning blood flow. This is caused by the cold, but also by psychological stress.

* *Auricularia* and *Ganoderma* are excellent vasodilators and often reduce the problem effectively. They improve both the symptom (vasoconstriction) and the cause (cold and anxiety).

Vision loss due to retinopathy (diabetic retinopathy):

"Stress, Circulation and Joints" Protocol: Auricularia and Ganoderma (cause and symptoms).

Retinopathy is a disease that affects the sight, due to poor blood circulation. The retina loses its visual function because of decreased blood circulation. It is a common complication of diabetes. In diabetes, arteries are at considerable risk of damage (thickening of the arterial wall with partial or total obstruction of the vessel).

* *Auricularia* and *Ganoderma*, improving circulation in the retina, significantly protect the eyes: sight stops worsening and often improves.

Takayasu's disease (arterial inflammation):

"Anti-inflammatory" Protocol: Lentinus (cause), *Ganoderma* and *Auricularia* (symptoms), with the addition of *Pleurotus* (cause and symptoms).

It is an inflammation of the walls of the aorta and its branches, particularly the arteries of the arms and head, as well as others (kidneys and lungs). The inflammation that thickens the arterial wall partially obstructs the artery and causes a reduction in blood flow. But it can also lead to blockage of the artery. The key symptoms are fatigue and an increase in blood pressure. Over the years, there could be damage to the kidneys, as well as heart disease.

* *Lentinus*, *Ganoderma*, *Auricularia* and *Pleurotus* are all useful and effective antiinflammatory agents which can reduce and or even

resolve inflammation of the artery walls. The disease subsides and blood circulation improves. These mushrooms also lower blood pressure if it is high, and protect the most sensitive areas of the body such as the heart, kidneys and retina.

Carotid artery stenosis (cholesterol plaques):

"Cholesterol" Protocol: Pleurotus (cause) and Auricularia (symptoms). The main cause of stenosis, i.e. narrowing, of the carotid arteries is atherosclerosis, a degenerative disease linked mainly to the lifestyle typical of industrialized societies.

* *Auricularia* is an excellent antiplatelet agent. It improves the health of collagen and elastin, which provide strength and elasticity to the walls of the capillaries (arterial and venous). *Pleurotus* reduces the formation of new cholesterol plaques and thrombi on the vein walls and reduces those already present.

Buerger's disease (Thromboangiitis obliterans):

"Anti-inflammatory" Protocol: Lentinus (cause), Ganoderma and Auricularia (symptoms), with the addition of Pleurotus (cause and symptoms).

It is the occlusion of the leg arteries, which leads to skin damage, ulcers and sometimes even gangrene. The cause is always the inflammation of the arterial wall that causes atherosclerosis.

* *Lentinus, Ganoderma, Auricularia and Pleurotus* combat and reduce inflammation of the artery walls, gradually halting the disease. Furthermore, they increase the blood flow and improve blood circulation.

Dilated and damaged capillaries (telangiectasia):

"Hypertension" Protocol: Polyporus and Auricularia (cause and symptoms).

They are superficial capillaries, dilated and easily visible, red or bluish in color, on the skin of the face (cheeks, nose) or lower limbs (feet, legs, thighs). They are the result of a rupture of the collagen of the capillary wall, which consequently weakens its structure and dilates as if it were a varicose vein. It is important to realise that these obvious small external injuries are an important indication of the conditions of the microcirculation within the body. The

deterioration of the arterial and venous capillaries is caused by wear and tear and stress. The capillaries in the legs can be damaged by poor blood circulation in the legs, which is often associated with vein disease. Those of the face, instead, are frequently associated with hypertension and the presence of toxins (alcohol and tobacco).

* *Auricularia* improves the health of collagen and elastin, which ensure strength and elasticity to the walls of the capillaries (arterial and venous), while *Polyporus*, a diuretic, reduces fluid retention in the lower limbs and lightens the work of the microcirculation.

Fluid retention:

Polyporus (cause and symptoms).

The circulatory system of the lower limbs has its weak point in venous return which, with water retention, is the first sign of dysfunction. If, during the day, we stand or sit for long periods of time the ability of the blood to return from the legs to the heart, in the opposite direction to gravity, decreases. Fluid accumulates at the feet and the legs swell and become painful, leading to a sensation of fatigue. A vicious circle is then set up: the swelling, in fact, impairs and slows down circulation in the skin microcirculation and in the muscle veins even more. Accumulating blood and fluid ruin capillaries and saphenous veins with their weight. In the summer, the heat increases vasodilation and fluids in interstitial spaces, creating even greater discomfort.

* *Polyporus* is a powerful natural diuretic, which eliminates excess fluids, slims down and frees swollen legs and promotes lymphatic drainage.

Venous insufficiency:

"Hypertension" Protocol: Polyporus and Auricularia (cause and symptoms).

Impaired venous return progressively damages the saphenous veins of the legs. These veins have valves, which keep blood moving upward by opening only to send the blood back up towards the heart with less effort. If the circulation is difficult, the valves no longer close perfectly, are ruined, the blood pools and varices are formed (permanent pathological dilatation of the veins). Varicose veins are

due to physical inactivity, overweight, use of oral contraceptives or conditions such as deep vein thrombosis.

* *Auricularia* improves the health of collagen and elastin, which provide strength and elasticity to vein walls. *Polyporus* is diuretic and facilitates venous return.

7. Blood Diseases

The blood can be affected by a deficiency of energy. One of the most common blood diseases is anemia, which is characterized by a deficiency of hemoglobin, the protein used for transporting oxygen and which is located in red blood cells.

* *Grifola* is useful in anemia, because it increases the production of hemoglobin and red blood cells while *Cordyceps* increases blood oxygenation and red blood cells. But there may also be a deficiency of white blood cells, important for immune defence. In this case the “*Immunity and Skin*” Protocol: *Lentinus* (cause), *Ganoderma* and *Agaricus* is extremely successful.

Iron deficiency anemia:

Grifola (cause and symptoms) and *Cordyceps* (symptoms), with the addition of *Ganoderma* as required.

Iron deficiency anemia is very common, because it is caused by a lack of iron, and is considered the world's most common nutrient deficiency. Impaired intestinal function that prevents the absorption of iron is a main cause.

* *Grifola*, by improving the condition of the intestine, restores good absorption of iron. Secondly, it stimulates the bone marrow to produce more red blood cells. *Cordyceps* increases blood oxygenation as well as red blood cells. *Ganoderma* is a useful addition in more severe anemia, because it stimulates the bone marrow to produce red blood cells.

Leukopenia:

“*Immunity and Skin*” Protocol: *Lentinus* (cause), *Ganoderma* and *Agaricus* (symptoms).

Leukopenia is characterized by a reduction in the amount of white blood cells, which are blood cells with an immune defence effect, for

example because of HIV infection, treatment with immunosuppressants and chemotherapy.

* *Lentinus*, *Ganoderma* and *Agaricus* make up the "Immunity and Skin" Protocol, and are effective in restoring the amount of immune cells to correct levels.

8. Diseases of the female sexual apparatus

The hormonal axis that connects the pituitary and the ovaries regulates women's menstrual cycle, sexual desire and potential pregnancy. In normal conditions, it is a perfect mechanism. But if the psycho-emotional state is adversely affected by stress then menstrual irregularities, polycystic ovaries, endometriosis, low fertility and fibroids may appear. *Ganoderma* can be used to prevent and treat these problems. Its effectiveness is demonstrated by the fact that in Asian countries, where this mushroom is widely used, the sexual apparatus of most women is in optimal health. Also *Cordyceps* is useful for gynecological disorders and to combat the symptoms of premenopause and menopause.

* "*Women, Liver and Later life*" Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms).

First of all, *Ganoderma* and *Cordyceps* stimulate the ovaries, increasing the synthesis of oestrogen and progesterone, with a stimulus similar to that of the pituitary. Moreover, thanks to their excellent anxiolytic and antidepressant properties, they improve or restore psychoemotional well being, which is necessary for the pituitary gland to stimulate the ovaries to produce oestrogen and progesterone properly. They are excellent as prevention to maintain the female apparatus in good health throughout life. They effectively combat diseases such as irregular menstruation or menopause symptoms.

Menstrual irregularities:

"*Women, Liver and Later life*" Protocol: *Ganoderma* and *Cordyceps* (cause and symptoms).

There are many women who suffer from menstrual irregularities, with a longer or shorter menstrual cycle. In these cases the biological clock, regulated by the perfect hormonal synchronism of the pituitary

and ovaries, is altered. The underlying cause is almost always psycho-emotional or due to stress.

* *Ganoderma* and *Cordyceps* have two extremely useful effects that help to restore the regularity of the menstrual cycle. They exert a stimulus similar to that of the pituitary, which increases the synthesis of oestrogen and progesterone by the ovaries. Moreover, thanks to their excellent anxiolytic and antidepressant properties, they improve or restore psycho-emotional well being, which is necessary for the pituitary gland to stimulate the ovaries to produce oestrogen and progesterone properly.

Loss of sexual desire:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

Desire depends primarily on two factors: a biological element, linked to oestrogen and a psychological component. On a biological level, loss of desire may be a consequence of alterations in oestrogen levels, surgical menopause involving removal of the ovaries, or natural menopause. But much more frequently it is a side effect of certain pharmaceuticals, particularly birth control pills. On a psychological level several factors can reduce sexual desire: the birth of a child, conjugal monotony, conflict with partner, work and family stress are all factors that can contribute.

* *Ganoderma* and *Cordyceps* increase the synthesis of oestrogen, the hormone of sexual desire, and have very good anxiolytic and antidepressant properties which are effective in improving psychoemotional state and hence rekindling desire.

Reduced female fertility:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

Often the cause that prevents women from conceiving when they wish to is lack of energy. This deficiency affects hormone mechanisms which therefore lack strength. The underlying cause is almost always psycho-emotional or due to stress.

* *Ganoderma* and *Cordyceps* restore both general energy and that of the sexual apparatus. Moreover, they combat stress and increase

psycho-emotional well being, which is important for pregnancy.

Polycystic Ovary Syndrome:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps, with the addition of Agaricus (cause and symptoms).

A polycystic ovary forms when the follicle that matures the egg cell ready to be fertilized does not burst and release the egg cell but instead forms a cyst in the ovary. It is associated with an hormonal deficiency which means that the reproductive system is not stimulated adequately. Menstrual irregularities appear frequently, sometimes together with problems of acne or oily skin.

* *Ganoderma* and *Cordyceps* stimulate the ovaries adequately, making the menstrual cycle more regular. *Agaricus* is a useful addition, because it improves the skin, which becomes smoother and soft, as well as emotional well-being.

Endometriosis:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps, with addition of Agaricus (cause and symptoms).

It is a disease in which cells of menstrual blood are not eliminated, but collect in various areas of the reproductive tract, bowel or bladder. These cells are sensitive to female hormones (oestrogen and progesterone) and therefore tend to increase in size and create pain.

* *Ganoderma*, *Cordyceps* and *Agaricus* stimulate and strengthen the female sexual apparatus adequately, resulting in significant improvements.

Endometrial polyp:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

They are benign growths that originate in the endometrium. They are very often asymptomatic but sometimes associated with hormonal dysfunctions, which also produce other symptoms such as period pain and menstrual irregularity. It is thought that they develop in relation to female hormonal disorders (abnormalities of oestrogen and progesterone).

* *Ganoderma*, *Cordyceps* and *Agaricus* reinforce the female sexual apparatus and improve hormone balance; they prevent polyps from increasing in size and often reduce symptoms: both pain and heavy periods.

Uterine fibroids:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

It is a benign growth that originates in the muscle tissue of the uterus (myometrium). Its development is related to female hormonal disorders (abnormal oestrogen and progesterone). Very often there are no symptoms, but when symptoms occur, the most common are period pain and heavy, prolonged menstrual bleeding or bleeding between periods. They are found more frequently from 35 to 40 years of age onwards.

* *Ganoderma*, *Cordyceps* and *Agaricus* reinforce the female sexual apparatus and improve hormone balance; they prevent fibroids from increasing in size and often reduce symptoms: both pain and heavy periods.

Pre-menopause:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

In this phase, periods are irregular, at times very close together, sometimes very far apart, sometimes very light while other times heavier.

* *Ganoderma* and *Cordyceps* are very effective because they increase the stimulation of the ovaries, with an effect similar to that of the pituitary hormones.

Menopause:

“Women, Liver and Later life” Protocol: Ganoderma and Cordyceps (cause and symptoms).

Menstruation stops. The most typical symptom is represented by hot flushes.

* *Ganoderma* and *Cordyceps* are very useful because they eliminate this symptom quickly.

9. Diseases of the male sexual apparatus

Illnesses of the male sexual apparatus very often lead to a decline in sexual function with a decrease both in sexual desire and performance. There are two main causes: psychological factors which account for by far the majority of cases (90%), while the remaining 10% are due to biological causes and a combination of both. For example, fatigue after intense physical or mental effort, stress, anxiety or even toxins in the body, in particular due to too many cigarettes or alcoholic beverages, can all play a negative role. There may also be a decline in testosterone levels or lower sensitivity to hormonal action by the cells involved in the production of sperm or in sexual performance. Psychological factors that can reduce or eliminate sexual desire include: the birth of a child, conjugal monotony, conflict with partner, work and family stress.

* *Cordyceps* (cause and symptoms).

Cordyceps is an excellent remedy for maintaining and strengthening male sexual apparatus functions. *Cordyceps* improves blood flow in the corpus cavernosum of the penis strengthening erection. Since *Cordyceps* also has good anxiolytic and antidepressant properties, it improves the psycho-emotional state, which helps to rekindle desire.

* “Prostate” Protocol: *Grifola* and *Ganoderma* (cause and symptoms). The use of *Grifola* and *Ganoderma* is beneficial for prostate health. *Ganoderma* and *Grifola* improve urine flow, which is no longer obstructed by the increase in volume of the prostate (benign prostatic hyperplasia).

Loss of desire (libido):

Cordyceps (cause and symptoms).

In men, desire is linked both to biological and psychological factors.

* *Cordyceps* stimulates the testicles to produce more testosterone (male hormone), when it is lacking. But it also stimulates the tissues to be more sensitive and more active in responding to hormonal action. Consequently, desire, sexual performance and fertility improve. *Cordyceps* strengthens erection. Since *Cordyceps* also has good anxiolytic and antidepressant properties, it improves the psycho-emotional state, which helps to rekindle desire.

Reduced male fertility:

Cordyceps (cause and symptoms).

This problem is almost always due to insufficient sperm mobility and quantity. It is caused by a reduction in testosterone levels or lower sensitivity to hormonal action by the testicle cells involved in the production of sperm.

* *Cordyceps* stimulates the testicles to produce the male hormone which is lacking. Consequently, desire, sexual performance and fertility improve.

Erectile dysfunction:

Cordyceps (cause and symptoms).

It is a disorder which consists in the inability to complete sexual intercourse. The cause in over 90% of cases is psychological. It can also be due to a decrease in testosterone levels.

* *Cordyceps* stimulates the testicles to produce the male hormone which is lacking. Consequently, desire, sexual performance and fertility improve. Its excellent anxiolytic and antidepressant properties improve the psycho-emotional state and help to rekindle desire. Improving blood flow to the corpus cavernosum of the penis strengthens erection.

Benign prostatic hyperplasia:

"Prostate" Protocol: Grifola and Ganoderma (cause and symptoms).

An increase in the volume of the prostate compresses the urethra that passes through it and obstructs the flow of urine. It causes a frequent urge to urinate without completely emptying the bladder. Indeed, only a few drops of urine are produced. The need to urinate is very frequent, especially at night.

* The use of *Grifola* and *Ganoderma* is beneficial for prostate health. *Ganoderma* and *Grifola* improve urinary flow, which is no longer obstructed by the increase in volume of the prostate.

10. Bone Disease

The skeletal system, composed of bones and joints, performs the function of supporting and protecting the internal organs and acts as a sort of warehouse for mineral salts. This is why it is so important to limit acid foods (meat, dairy products and carbohydrates), which are responsible for bone loss.

* Significant help is provided by the "*Bones, Teeth and Gums*" Protocol," consisting of *Lentinus* and *Ganoderma*, with the addition of *Cordyceps* as required. *Lentinus* and *Ganoderma* strengthen bones and increase bone synthesis, while *Cordyceps* protects existing bone. *Lentinus* is rich in natural vitamin D. These three remedies combat bone diseases, such as osteoporosis and arthritis. *Cordyceps* is also a useful addition, especially in severe cases, because it extends bone life. It is also able to reduce the action of bone erosion (resorption), caused by a type of cell present in the bone (osteoclasts), that have this function.

Bone fractures:

"Bones, Teeth and Gums" Protocol: Lentinus (cause), *Ganoderma* (symptoms), with the addition of *Cordyceps* (symptoms) as required. Bone fractures cause intense pain. Soft tissues are almost always involved (ligaments and tendons), and there are bruises and effusions. Treatment requires immobility and avoiding load-bearing, which causes loss of muscle mass and tone.

* *Lentinus* and *Ganoderma* increase the synthesis of new bone. *Cordyceps* is a useful addition because it extends the life of existing bone. Moreover, it protects and maintains the muscle tone and mass longer during the period of immobility. For this reason its use for fractures facilitates and accelerates recovery, allowing loadbearing more quickly.

Osteoporosis:

"Bones, Teeth and Gums" Protocol: Lentinus (cause), *Ganoderma* (symptoms), with the addition of *Cordyceps* (symptoms) as required. In osteoporosis the decrease in bone density makes the bones more brittle and more prone to fracture. This process begins in the second half of life and progresses with age. It is actually caused by bad habits: acidic nutrition (animal foods and carbohydrates) and a sedentary lifestyle. Acidic foods impoverish bones by leaching minerals from them. The second determining factor is the absorption of calcium required for bone synthesis. It depends on good intestinal function, otherwise the calcium in foods is not absorbed. But it also depends, in proportion, on physical exercise. If this is lacking,

calcium absorption is scarce, while if it is plentiful, calcium absorption is high.

Menopause is considered the "pathological" mechanism responsible for osteoporosis. During menopause, women produce the oestrogen required by the bones through the adrenal gland. But the administration of oestrogen, called hormone replacement therapy (HRT) inhibits the natural production of the adrenal gland. When the administration of oestrogen by mouth is suspended, the adrenal gland finds it very difficult to start producing oestrogen again after it has been inhibited, often for years, and osteoporosis worsens.

* *Lentinus* and *Ganoderma* strengthen bones with different mechanisms. In particular they facilitate the transport of calcium to the bones and the synthesis of new bone. *Lentinus* increases bone synthesis because it favors the intestinal absorption of calcium and supplies the body with vitamin D: these are two substances which are allies of the bones. *Ganoderma* increases bone synthesis because it increases the oestrogen produced by the adrenal gland, promoting bone health. *Cordyceps* is also a useful addition, especially in severe cases, because it extends bone life.

Dental implants at risk (Maxillary Osteoporosis)

"*Bones, Teeth and Gums*" Protocol: *Lentinus* (cause), *Ganoderma* (symptoms), with the addition of *Cordyceps* as required (symptoms). Osteoporosis in the maxillary bones depletes the hard mineral part of the bone which hence becomes more brittle. The result is that dental implants, which need a tough and compact bone for fixing and holding screws, are short-lived.

* *Lentinus* and *Ganoderma* strengthen the bone making it more compact and solid, increasing the lifespan of dental implants. It is no coincidence that some dentists recommend using healing mushrooms for several months before placing a dental implant. *Lentinus* also eliminates the dental plaque bacteria which produce tooth decay and periodontal disease, while *Ganoderma* protects the gums and the rest of the oral cavity. In delicate cases *Cordyceps* should also be added.

11. Joint Disease

The joints are a weak point in the osteoarticular apparatus, because they are made up of cartilage, which is relatively soft, covering the ends of bones. The articular cartilages allow movement, but because of this rubbing are subject to everyday wear and tear and inflammation. As a result, the cartilage thins, splits and becomes inflamed. The most common disease is arthritis, also called osteoarthritis. It is a degenerative disease, which causes inflammation and pain. Generally the most affected joints are those most subject to loadbearing such as the lower back, hips and knees, those which are used most or those which are most affected by bad posture -for example, the common pains in the elbow and wrist due to use of the computer mouse. Even repeated micro-traumas, for example in sport or at work, or unfavourable repetitive movements play an important role. Finally, the other three risk factors: acidic diet, lack of physical activity and psychosomatic factors that weigh on the joint and muscular apparatus must also be included. * Great help is provided by the *“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma*, with the addition of *Lentinus* (cause and symptoms) as required.

Circulation and Joints

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of *Lentinus* (cause and symptoms) as required

Very often the joints are inflamed and cartilage is damaged. *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. The addition of *Lentinus* increases the anti-inflammatory effect significantly. It restores the immune system response mode from Th2 (proinflammatory) to Th1 (anti-inflammatory). *Lentinus* and *Ganoderma* help to strengthen cartilage.

Cervical osteoarthritis:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of *Lentinus* (cause and symptoms) as required.

Cervical osteoarthritis, also called spondyloepiphyseal arthritis, is osteoarthritis of the joints of the cervical spine. It is a degenerative disease, which can be linked to the degeneration of the intervertebral discs in the area. A pathological mechanism causes the progressive and slow erosion of the cartilage that covers the joints subject to excessive loading, for example due to postural errors, sports injuries, work activities which are heavy or that involve fixed positions for long periods of time, injuries such as so-called "whiplash", which consists in rapid extension and flexion of the cervical spine in quick succession, or other structural disorders such as scoliosis and kyphosis. Cold weather and environmental conditions, such as extremely damp conditions, can make symptoms worse.

Over the years the joints wear out and produce inflammation, which becomes chronic. One of the pathological consequences of inflammation is the formation of osteophytes, visible on X-rays as beaks and bone spurs. These beaks compress vessels and nerves, creating pain, injury, chronic inflammation, irritation of the nerves and limit movement. The disease tends to worsen over time, although not rapidly.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. Adding *Lentinus* increases the anti-inflammatory effect considerably and together with *Ganoderma* helps to strengthen cartilage.

Shoulder osteoarthritis:

"Stress, Circulation and Joints" Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

The shoulder is sore due to inflammation of the cartilage, which causes pain on movement. Inflammation is often also influenced by poor health of the intestine.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. Adding *Lentinus* increases the anti-inflammatory effect considerably and together with *Ganoderma* helps to strengthen cartilage.

Lower back Osteoarthritis:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

Also known as sciatica, it is a disease characterized by severe pain both at rest and, above all, during movement, which is significantly reduced. The pain spreads mainly to the back of the thigh and leg, but can also reach the back of the ankle and the foot, or spread to the front of the hip and thigh. There are many disorders that can compress nerve roots and cause sciatica. The most common are lumbar disc herniation, protrusions, muscle contractions, chronic inflammation.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. Adding *Lentinus* increases the anti-inflammatory effect considerably and together with *Ganoderma* helps to strengthen cartilage.

Hip osteoarthritis:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

The hip joint is subject to wear and tear because of movement and body weight. When this involves the cartilage covering the femur, it triggers an inflammatory process and a lot more pain.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. Adding *Lentinus* increases the anti-inflammatory effect considerably and together with *Ganoderma* helps to strengthen cartilage.

Knee osteoarthritis:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

The knee must support much of the body weight, so it is often subject to inflammation and severe pain.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents, which reduce inflammation and pain and protect cartilage. Adding

Lentinus increases the anti-inflammatory effect considerably and together with *Ganoderma* helps to strengthen cartilage.

Rheumatoid arthritis:

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (cause and symptoms), *with addition of Cordyceps* (symptoms).

It is an autoimmune disease, caused by an impaired immune system that produces autoantibodies. These affect the synovial membrane that covers the joints. Consequently, over the years, the joints, starting from those of the hands and feet, are damaged and deformed, causing great pain and limiting movement. Anticitrulline autoantibodies are the most stable markers of rheumatoid arthritis and allow the disease to be monitored.

* *Lentinus*, *Ganoderma* and *Agaricus* are useful because they act by blocking the production of autoantibodies that are the cause of the disease. *Cordyceps* is useful for defending the bones.

12. Muscle Disease

Muscle pain is extremely common. Often x-rays and CT scans do not show signs of alterations worthy of note, because the bones and joints are not altered. There are various functional disorders of the muscles: tension, pain, contractures and strains. Contracted muscles compress the blood vessels and nerves. Consequently, the reduced blood flow causes hypoxia, acidity and pain, with nerve compression adding further pain. The factors causing these muscle problems are psycho-emotional stress, incorrect posture, inappropriate positions during sleep and repetitive incorrect movements. Moreover, scoliosis, obesity, pregnancy, smoking and toxins that invade the body when the intestine is in bad health (leaky gut syndrome) favor the onset of these disorders and their chronicity.

* *“Stress, Circulation and Joints” Protocol: Auricularia* and *Ganoderma*, with the addition of *Lentinus* (cause and symptoms) as required.

Auricularia and *Ganoderma* relax muscle tension and dilate blood vessels, restoring correct blood circulation. They also regulate the control of the blood circulation in the central nervous system. In

addition, since they have an anxiolytic effect, they are good at reducing the psychological tension which affects the muscles. The muscles are relaxed, not sore, contractures are released and the muscles are strengthened.

Neck (cervical) pain:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

The neck is the part of the body perhaps most vulnerable to pain, because since it has to support the head, it tends to have a rather accentuated basic physiological tension. For this reason, a slight increase in tension has pathological effects. Moreover, important vessels and nerves pass through this limited space, so even a modest compression easily triggers painful reactions.

* *Auricularia* and *Ganoderma* relax muscle tension and dilate blood vessels, restoring correct blood circulation. In addition, since they have an anxiolytic effect, they are good at reducing psychological tension.

Pain in the shoulder and arm (brachialgia):

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

Pains that start in the neck often radiate down the arm but also towards the back and between the shoulders.

* *Auricularia* and *Ganoderma* relax muscle tension and dilate blood vessels, restoring correct blood circulation. In addition, since they have an anxiolytic effect, they are good at reducing psychological tension.

Backache (lumbago):

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required. Lumbago, more commonly known as backache, is a common disorder that affects the muscles of the spine.

* *Auricularia* and *Ganoderma* relax muscle tension and dilate blood vessels, restoring correct blood circulation. In addition, since they

have an anxiolytic effect, they are good at reducing psychological tension.

Muscle contracture:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

A simple contracture is an increase of involuntary and permanent muscle tone, which is more contracted and causes widespread but only slight pain. A pulled muscle, instead, is a lesion of medium severity that is caused by an overstretching of the muscle. The pain is sharp and sudden and is often followed by a muscle spasm. In many cases the pain is bearable and movement can continue.

* *Auricularia* and *Ganoderma* increase the blood circulation that nourishes the muscles and supports neuromuscular tone, both of the nerve and of the muscular component, with a return to normal muscle tone.

Muscle tear:

“Stress, Circulation and Joints” Protocol: Auricularia and Ganoderma, with the addition of Lentinus (cause and symptoms) as required.

Overstretching the muscle can produce a muscle tear – the muscle fibres are torn and there is frequently bruising.

* *Auricularia* and *Ganoderma* increase the blood circulation that nourishes the muscles. *Ganoderma* promotes healing and reconstruction affects the muscles andn of broken fibers.

Muscle cramps:

Cordyceps and *Auricularia*, (cause and symptoms).

Extremely painful and sudden muscle spasms due to excessive physical effort which produces too much lactic acid.

* *Cordyceps* reduces lactic acid and, together with *Auricularia*, increases the blood circulation that nourishes the muscles.

Summer muscle cramps:

Polyporus (cause and symptoms) and *Auricularia* (symptoms).

Extremely painful and sudden muscle spasms which occur when there is a deficiency of potassium.

* *Polyporus* and *Auricularia* increase the blood circulation that nourishes the muscles.

Polymyalgia rheumatica:

“Anti-inflammatory” Protocol: Auricularia, Ganoderma and Lentinus (cause and symptoms).

It is a chronic inflammatory disease that causes pain and morning stiffness, with marked functional impairment, in at least two of the following parts of the body: neck, back, shoulders and hips. Inflammation affects the muscles and joints. The cause is a weakened immune system. Conventional medicine suggests life long use of cortisone.

* *Auricularia* and *Ganoderma* are powerful anti-inflammatory agents which heal inflamed and painful cartilage, tendons and muscles; *Lentinus* is useful to restore basic anti-inflammatory mechanisms in the immune system. *Auricularia* and *Ganoderma* also strengthen the emotional state often demoralised by the disease.

Myasthenia gravis (autoimmune disease):

“Immunity and Skin” Protocol: Lentinus (cause), *Ganoderma* and *Agaricus* (cause and symptoms).

It is an autoimmune disease, caused by an impaired immune system that produces auto-antibodies which affect the upper eyelid so that it tends to droop down over the eye.

* *Lentinus*, *Ganoderma* and *Agaricus* are useful because they restore the health of the immune system. Consequently, the autoantibodies, which are the cause of the problem, disappear or decrease.

PART E

INFORMATION ON EACH OF THE 10 HEALING MUSHROOMS

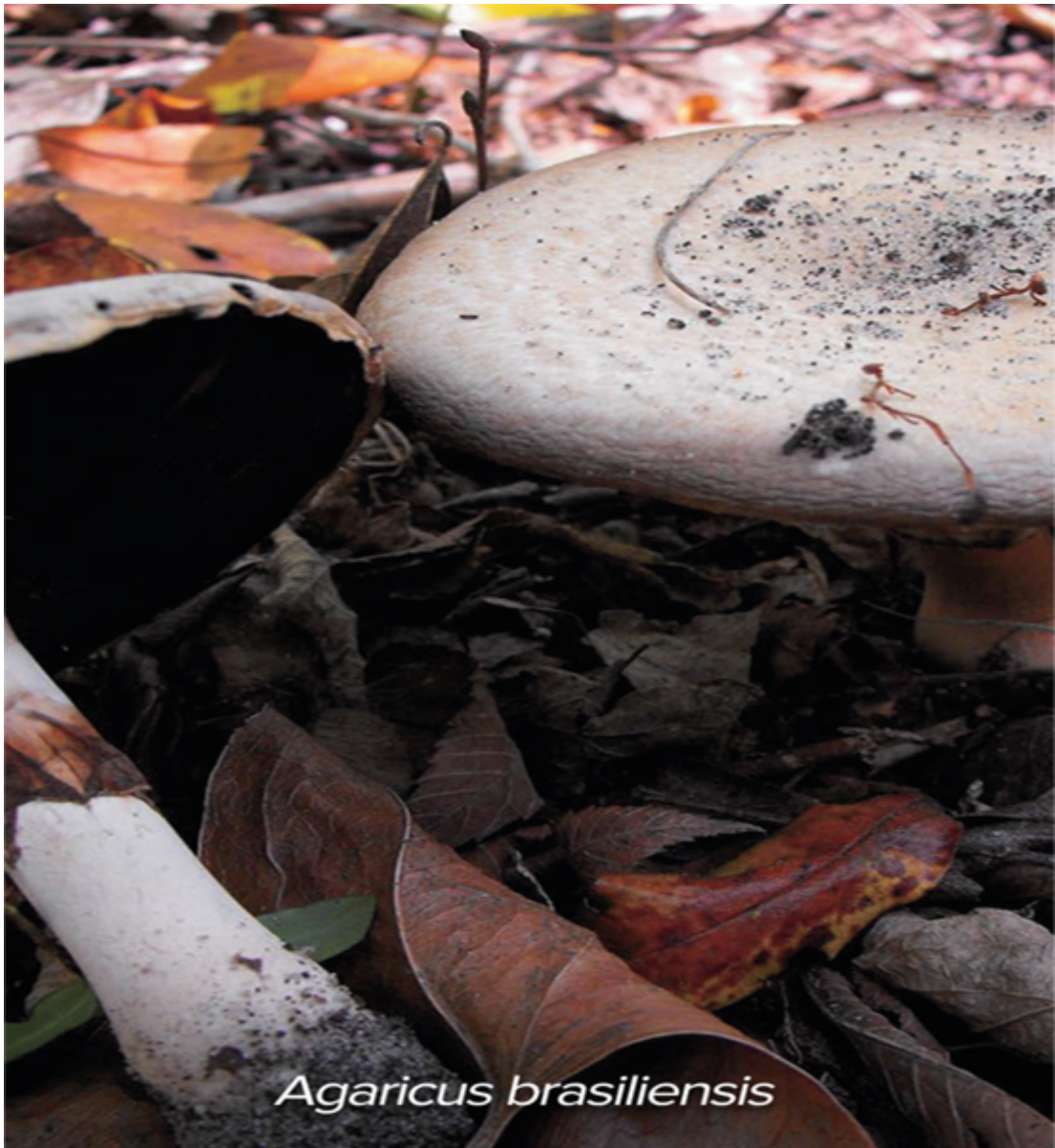
*All healing mushrooms have beneficial effects
at different levels, helping
to keep the body healthy
and to heal existing diseases.*

*However, since each mushroom has
specific healing powers
it is important to get to know them in detail,
discovering the essential functions of each.*

*On the following pages you will, therefore,
find a detailed description of:*

*Agaricus, Auricularia, Coprinus,
Cordyceps, Ganoderma, Grifola,
Hericium, Lentinus, Pleurotus and Polyporus.*

*It is surprising how the same mushroom
is able to restore health in very different parts of the body
such as, for example, the skin, heart and liver.*



Agaricus brasiliensis

AGARICUS

(*Agaricus brasiliensis*)

To get rid of allergies, have beautiful skin, a slim body and more energy

After *Ganoderma*, this is the mushroom which has been studied most in universities around the world. This is due to the fact that *Agaricus brasiliensis* has extremely important effects, and is able to bring about significant improvements both in the main body organs and from an aesthetic point of view.

Historical information

Agaricus brasiliensis has attracted the interest of scientists since the early 1960s, when Dr. Cinden and his team of researchers at the University of Pennsylvania found that the inhabitants of a region of Brazil lived much longer and were less prone to disease than the rest of the population. Experts, intrigued by the large number of centenarians in the area, decided to analyze the habits and lifestyle of the residents. They discovered that the secret to their health was *Agaricus*, a concentration of very interesting active ingredients useful for maintaining excellent health well into old age, as well as providing high energy and very beautiful skin, despite aging caused by time and the sun. Even today, the traditional medicine of the area wards off infectious diseases, dermatitis, allergies, diabetes, hepatitis, psychological disorders and so on thanks to *Agaricus*. For this reason it is called God's mushroom, "cogumelo de Deus" in Portuguese (Halpern, 2007).

In Japan, where research and culture regarding longevity and prevention of degenerative diseases have profoundly influenced the way of life, much of the population has started to take this remedy on a daily basis - in just three decades it has become one of the most popular remedies in the Japanese islands. After *Ganoderma* it is now the most studied mushroom in universities worldwide.

Strong points

Today, *Agaricus brasiliensis* is popular and appreciated worldwide for its ability to boost the immune system, which becomes almost

invincible for pathogens, in a manner comparable to the "Great Wall of China". The immune defences become very effective especially against bacteria of the urinary and respiratory tracts (Bernardshaw et al., 2005), but also against allergies, both in prevention and in treatment (Ellertsen and Hetland, 2009). This is confirmed by two studies conducted at the University of Oslo. Equally important is the fact that it helps to control appetite when trying to lose weight and reduces high blood sugar in diabetes. In addition, *Agaricus* makes the skin very beautiful, considerably increases mental and physical energy and supports the nervous system and mind in case of illness.

Active ingredients

Agaricus brasiliensis has such a large amount of active ingredients that it is fundamental in many different situations. Here are its main active ingredients:

- beta-glucans, powerful immune-stimulators, active against bacteria, viruses and the dreaded *Candida*. It is the mushroom with the highest amount of these impressive substances;
- terpenes, essential oils that give it a pleasant aroma reminiscent of almonds and which have significant anti-inflammatory and antibiotic potential. Professor Bernardshaw of the University of Oslo, after conducting a study on septicemia (Bernardshaw et al., 2005), concluded that *Agaricus* can be considered a viable alternative to antibiotics;
- 13 ZE-LOH, a bactericide (Osaki et al., 1994);
- cytochrome P-450, which is the set of tools used by the liver and hence its main functional resource;
- digestive enzymes, such as amylase, which helps digest starches; lipase, which facilitates the digestion of fats; trypsin and other proteases involved in the digestion of meat and protein (Halpern, 2007);
- powerful antioxidants, which protect the skin, organs and tissues, such as the liver, heart and brain, from free radicals produced by various sources, mainly UVA rays, sport, high metabolic demands, stress, cigarettes, toxins and smog;

- tyrosinase, an enzyme that reduces excess melatonin (the pigment that gives color to the skin), useful for whitening dark skin marks. This enzyme is also invaluable in the brain, where it increases the brain mediators dopamine and norepinephrine, which are required for many functions (Chien et al., 2008).

A mushroom full of health

Despite being a single supplement, *Agaricus brasiliensis* could be considered a set of different supplements, because it improves many body functions. It significantly strengthens the immune system, reduces overweight, makes skin beautiful and strengthens the psyche. It can be used to improve the whole body, because it has all four powers.

1st power: diseases related to the immune system and to inflammation

Diseases from pathogens

It is useful in all illnesses, syndromes and problems characterized by an immune system which is weak against pathogens: thanks to its beta-glucans, in fact, it enhances the whole defence system (macrophages, lymphocytes), so that it becomes "invincible" against viruses, bacteria and *Candida*. It can be used both as prevention and as treatment. For example, for small children and the elderly, who often fall ill due to flu viruses, it provides almost total protection. *Agaricus* has a strong antibiotic effect (Bernardshaw et al., 2006), also thanks to the bactericidal substance 13ZE-LOH (Osaki et al., 1994), and a good antiviral effect (De Sousa Cardozo et al., 2011).

Allergic disease and autoimmune disease

Moreover, when the immune system is impaired, as in allergic diseases and autoimmune diseases, the *Agaricus* mushroom is almost always a first choice. Researchers have clarified that the basis of allergic disease is an alteration of the immune system, which is in the Th2 response mode and hence produces pathological IgE antibodies - anti-pollen, nickel, dust or other substances - which cause the allergic reaction. However, *Agaricus* restores the immune system to Th1 response mode, in which defence is cellular (Takimoto et al., 2008). In Th1 response allergic IgE antibodies are no longer

produced and allergic diseases gradually heal (Ellertsen and Hetland, 2009). Common allergies include asthma and atopic dermatitis (Morimoto et al., 2008). The mechanism is similarly impaired also in autoimmune diseases, and consequently *Agaricus* acts in the same way. It triggers the onset of healing with equally positive results. Autoantibodies responsible for the disease are gradually no longer produced.

* In detail it is effective against:

Diseases from pathogens

- influenza (Bernardshaw et al., 2005)
- flu-like syndromes (*ibid.*)
- sore throat (pharyngitis) (*ibid.*)
- bronchitis (*ibid.*)
- pneumonia (*ibid.*)
- cystitis and recurrent cystitis (*ibid.*)
- vaginal *Candida*
- cold sores (De Souza Cardozo et al., 2011)
- genital herpes

Allergic disease

- allergic rhinitis (Ellertsen and Hetland, 2009)
- urticaria (*ibid.*)
- atopic dermatitis (Morimoto et al., 2008)
- asthma (Takimoto et al., 2008)

Autoimmune disease

- Hashimoto's thyroiditis
- Graves' disease
- Sjögren's syndrome
- other autoimmune diseases

Other mushrooms which can be added to improve results: *Ganoderma* and *Lentinus*.

2nd power: diseases related to digestion, weight and metabolism

Metabolic diseases: overweight and diabetes

Agaricus brasiliensis is extremely useful for overweight for three reasons. Firstly, it stimulates adiponectin, a hormone of the adipose

tissue that burns accumulated fat. Secondly, it acts favorably on the metabolism of carbohydrates. Lastly, it maintains stable sugar levels in the blood and this is an important factor because the more this parameter remains stable, the more it reduces appetite.

It has been shown to be useful in diabetes. In one study, it reduced insulin resistance by 25%, glycated hemoglobin (HbA1c) by 2.1% and weight as well, increasing levels of adiponectin by 20%, all in three months (Hsu et al., 2008a). Glycated hemoglobin is a reference marker for blood sugar. It is a reliable indication of blood sugar level and hence ideal for monitoring diabetes; it is stable and therefore does not fluctuate throughout the day like blood sugar itself (Vitak et al., 2015; Yurkiv et al., 2015).

* In brief, it is invaluable for:

Metabolic disease

- overweight (Hsu et al., 2008a)
- prevention of diabetes (Hsu et al., 2008a; Vitak et al., 2015; Yurkiv et al., 2015)
- diabetes (Hsu, 2008a; Vitak et al., 2015; Yurkiv et al., 2015)

Other mushrooms which can be added to improve results: *Grifola* and *Coprinus*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Liver disease

This mushroom renews and strengthens the set of tools (cytochrome P-450 and anti-oxidant enzymes) with which liver cells become active and transform, through biochemical processes, all the substances that they receive, and also cleanse the body from toxins and harmful chemicals, such as alcohol. For this reason it promotes liver function and health.

When the liver begins to develop toxicity or steatosis (enlarged liver) and transaminase levels begin to rise, *Agaricus* reduces these levels and restores health to the liver. Even in hepatitis A, B and C, *Agaricus* fights the virus and strengthens the weakened liver. In a study of 20 patients with hepatitis C, *Agaricus* demonstrated its effectiveness by reducing γ -GT (gamma glutamyl transferase), the

most important marker of hepatitis C, in 80% of cases (Inuzuka and Yoshida, 2002). In a study of four patients with hepatitis B, *Agaricus* restored transaminase AST levels of 246 (normal aspartate transaminase 8-48 U/l) and ALT of 151 (normal 10-55 U/l), which were very high, to normal, demonstrating its effectiveness in normalizing liver function (Hsu et al., 2008b).

Skin problems and diseases

It is an excellent beauty ally: it prevents and reduces wrinkles, because it increases the antioxidant capacity of the skin, eliminating free radicals that attack collagen (the scaffolding of the skin) (Hyde et al., 2010). Secondly, it protects the skin from UVA rays, harmful elements that further increase the production of free radicals (Halpern, 2007). Thanks to its tyrosinase (enzyme) content it makes the skin luminous and equilibrates melanin, lightening age spots (Chien et al., 2008). Moreover, people using this remedy have reported that a suntan becomes more homogeneous, both on the torso and on the legs, without the problem of sunburn.

It is also very effective in skin diseases, particularly in curing acne, inflammatory dermatitis, allergic dermatitis, eczema. It restores immune defences to Th1 response mode; it eliminates the factors underlying weakness or impairment of the immune system, resolving skin inflammations (chronic dermatitis) as well as contact eczema (harmful substances, cosmetics, etc.), urticaria and allergic dermatitis (Morimoto et al., 2008).

Defence against free radicals

Agaricus has been shown to inhibit the action of benzopyrene, a carcinogenic substance which is formed in cigarette smoke, in exhaust fumes from vehicles and industry and in burned meat (Osaki et al., 1994). Antioxidant action reduces benzopyrene carcinogenicity also mediated by a significant increase in free radicals (Angeli et al., 2009).

*In detail, it can be used for:

Liver disease

- high transaminase (Hsu et al., 2008b)
- hepatitis A and B (*ibid.*)

- hepatitis C (Inuzuka and Yoshida, 2002; Grinde et al., 2006)
- liver toxicity
- hepatitis (e.g. due to pharmaceuticals, alcohol and diet)

Skin problems and disease

- homogeneous suntan (Chien et al., 2008)
- protects the skin from solar and artificial UVA rays (Halpern, 2007)
- acne
- atopic dermatitis (Morimoto et al., 2008)
- allergic dermatitis (*ibid.*)
- inflammatory dermatitis
- eczema (*ibid.*)
- reactions to cosmetics (Hyde et al., 2010)
- skin blemishes (Chien et al., 2008)
- wrinkles (Hyde et al., 2010)

Defence against free radicals

- protects against benzopyrene (Osaki et al., 1994)

Other mushrooms which can be added to improve results:
Ganoderma and *Lentinus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Physical and mental energy: sport, work and convalescence.

Agaricus brasiliensis, thanks to its high tyrosinase content, promotes the synthesis of levodopa (L-Dopa), which is a precursor of important neurotransmitters such as dopamine and norepinephrine (Halpern, 2007), useful in increasing both physical and mental energy. For this reason it is invaluable in sport, intense work and during periods of convalescence.

Depression

It is also useful in depression, because it increases dopamine and norepinephrine, two neurotransmitters that are deficient in depression and which cause low mood and lack of energy. This mushroom therefore improves mood, drive and the desire to do things (Zhang et al., 2015).

* In brief, it is useful in these cases:

Physical and mental energy

- sports
- intense work
- intense studying
- convalescence

Depression

- depression (Zhang et al., 2015)

Other mushrooms which can be added to improve results:

Auricularia and *Ganoderma*.



Auricularia auriculae-judae

AURICULARIA

(Auricularia auriculae-judae)

To protect the mind, heart, intestines and joints

Its abundant adenosine content makes *Auricularia* particularly useful in diseases of the nervous and cardiovascular systems, both as prevention or to reduce existing symptoms. It is an excellent remedy for anxiety, improving serenity and energy during the day, on one hand, and rest at night on the other. Moreover, it is an effective anti-inflammatory agent. It is a phenomenal remedy for constipation, resolving even the most stubborn cases, by restoring normal physiological bowel movement without losing precious fluids and minerals.

Historical information

Auricularia has been used for over a thousand years in traditional Chinese medicine. It has the interesting distinction of being the first mushroom to be cultivated in ancient times. Experts with great skill managed to grow it as early as the seventh century A.D., demonstrating the interest it attracted at the time - an interest which has remained equally strong up to modern times. It was once used mainly to treat hemorrhoids, to stop excessive uterine bleeding, moisturize the skin and mucous membranes, combat dry eyes and heal a dry cough. Nowadays scientific knowledge has revealed the mechanisms of action through which it protects the heart, supports the mind and cures inflammation.

Its powers in four apparatuses - intestines, joints, heart and mind - make it a very useful mushroom for improving quality of life. Thanks to this awareness *Auricularia* powder is added to flour for bread in Taiwan. The aim is to reach a large number of people in the simplest way possible, thereby improving the health even of those who live in remote areas of the country. The bread tastes pleasant, is extremely healthy and without side effects (Fan et al., 2006).

Strong points

This mushroom has a number of beneficial effects, useful on many levels. Firstly, its effectiveness in the prevention and treatment of

hypertension and heart disease makes it a basic remedy for mankind nowadays - its regular use is advisable to reduce the risk of these diseases. One of the mechanisms which contributes to this effect is vasodilation, which promotes blood circulation in all organs, beginning with vital organs such as the heart and the brain. Another is the fact that it strengthens the microcirculation and the veins (making it the ideal solution for broken capillaries and varicose veins).

But its "work" is not limited to the cardiovascular system. *Auricularia* is also invaluable for its anxiolytic effect, which is of great help in anxiety, insomnia and in diseases characterized by psychosomatic symptoms, such as gastritis. This effect is also useful for contracted muscles, since it eliminates tension and relaxes them. That is why it provides relief from pain in the neck, back and shoulders. It is also useful for other pains of a slightly different kind but always involving muscle tension such as headache, tinnitus (because it relaxes the muscle wall of the arteries) and period pain.

Auricularia, finally, stands out for its anti-inflammatory effect, invaluable for the whole organism, because inflammation is a very common symptom. Its anti-inflammatory efficacy is of equal magnitude to that of methotrexate, a powerful anti-inflammatory drug used for Crohn's disease and also for rheumatoid arthritis. It is worth remembering that even in psychosomatic diseases there is often an inflammatory component, so *Auricularia*, which has both excellent anti-inflammatory and anxiolytic properties, provides a double benefit.

Active ingredients

It has the advantage of being the mushroom richest in adenosine, an element found in nearly all the cells of the body, because it has very special characteristics. Adenosine is a powerful natural antiinflammatory agent that is contained in every cell of our body and is used to prevent and resolve inflammation. When our cells are low in adenosine, we develop inflammatory diseases. In these cases it is very useful to supply cells with adenosine, so as to restore antiinflammatory defences.

Cardiac symptoms are more likely to develop when the cells of the heart are low in adenosine. To replenish the cellular reserves of adenosine by administering *Auricularia*, due to its very effective cardiogenic properties, is therefore an excellent preventive and curative strategy in heart disease. It increases the strength of the heart, prevents and reduces tachycardia and extrasystoles (abnormal heartbeat), thins the blood and increases vasodilation. In addition, it reduces blood pressure only when it is high, not when it is normal.

Basically, adenosine is a sort of system that coordinates and manages several basic physiological processes in the heart, the brain and throughout the body at a vascular level. It constantly fine-tunes and regulates the circulation, heart activity, the inflammatory and immune mechanisms and the nervous system. Moreover, through the nerve pathways and the nerves it adjusts and adapts the functioning of the heart, circulation, muscles, inflammation and nerve activity in the most favorable way. The adenosine system resolves disease, but also acts as a marker. In fact, in normal conditions it has a value of 0.1-0.3 μM , which increases during illness (Akkari et al., 2006). For example, if tissue is inflamed, its concentration increases by up to five times - 0.5-0.6 μM ; if there is a lack of O_2 , it increases by up to 10 times - 4-10 μM , (Bours et al., 2006).

Among the other active ingredients contained in the *Auricularia* mushroom, it is worth remembering:

- β -glucans (beta-glucans), which have, in particular, an anti-inflammatory effect (Ukai et al., 1983);
- AAPs (*Auricularia auricula* polysaccharides), which have different functions and are: anticoagulant (Yoon et al., 2003), cardiogenic (Wu et al., 2010), hypocholesterolemizing (Chen et al., 2008), immunostimulant (Zuo et al., 2008), chelating (Mau et al., 2001) and antioxidant;
- anticoagulant polysaccharides, which thin the blood to avoid the formation of clots or thrombi, while maintaining the normal clotting process. In this way, there is no danger of abnormal bleeding, since in case of necessity, for example in the presence of wounds, a clot forms (Yoon et al., 2003);

- cardiogenic polysaccharides, which improve the strength of the left ventricle of the heart, which pumps a greater amount of blood. In addition, one study found that they have an antioxidant effect that can enhance heart function in elderly mice (Wu et al., 2010);
- chelating polysaccharides that capture and eliminate toxic metals due to their antioxidant properties (Mau et al., 2001);
- sulphated acidic polysaccharides (SAAAP) and sulphated neutral polysaccharides (SNAAP), which have significant antioxidant effects;
- terpenes, which have powerful analgesic effects, making the mushroom suitable for period pain, abdominal colic, constipation especially spastic, muscular contractions, cervical pain, low back pain and muscle tension due to stress or stiffness in general;
- various nutritional components, such as vitamins, minerals, trace elements.

Important information

According to some authors, but not all, *Auricularia* can hinder pregnancy. Therefore, as a precaution, it is better for pregnant women or those who want to become pregnant not to use it. The reason is not clear, perhaps the mushroom over relaxes the muscle tone of the uterus, necessary for pregnancy.

Another precaution, that is somewhat questionable, is the alleged incompatibility between *Auricularia* and synthetic anticoagulant drugs. *Auricularia* maintains the ratio between thrombin and anti-thrombin at a normal level, preventing both bleeding and pathological clots. Its excellent blood thinning action is definitely not feared, but instead prized in Taiwan, where a very high percentage (up to 9%) of *Auricularia* powder is added to the flour with which bakers prepare bread for the population. It is likely, therefore, that in this case there are people who use synthetic anticoagulant drugs together with the *Auricularia* present in the bread or in other bakery foods, without developing compatibility problems. However, those who still prefer not to add together the effect of the two remedies can choose one.

1st power: diseases related to the immune system and to inflammation

Diseases from pathogens

(Zuo et al., 2008)

Thanks to the beneficial substances which it contains (β -glucans and AAPs), *Auricularia* is a good anti-inflammatory agent. It also has an immunostimulatory effect on the white blood cells that defend the body from pathogens.

Inflammatory disease

(Ukai et al., 1983)

Rheumatoid arthritis and other inflammatory diseases, especially of the bones and joints, such as arthritis and tendinitis, respond well to this mushroom. This is thanks to its adenosine content, which reduces symptoms of inflammation and consequently pain. Inflammation of the stomach, small intestine, colon and respiratory tract respond equally well. Beta-glucans also make a useful immunostimulant and antibacterial contribution, for example in bronchitis, pharyngitis, rhinitis, sinusitis, conjunctivitis, in which inflammation is caused by pathogenic microbes. In all these cases, *Auricularia* works both as prevention and as treatment, reducing the symptoms when diseases are present.

Autoimmune disease: rheumatoid arthritis and Sjögren's syndrome

Auricularia is also used in Sjögren's syndrome, a chronic inflammatory autoimmune disease. In fact, in addition to having an antiinflammatory effect, it improves another aspect of the disease: the dryness caused by obstruction of the salivary and lacrimal glands. Adenosine increases vasodilation and, therefore, the supply of fluid to the tissues so it increases saliva and tears. It also relieves dry cough and dry skin, two other features of the disease. *Auricularia* is also useful in rheumatoid arthritis, especially due to its antiinflammatory action.

* In detail it is effective for:

Inflammatory component in diseases caused by pathogens

(Ukai et al., 1983)

- bacterial diseases (such as flu and sore throat)
- bronchitis

- pharyngitis
- rhinitis
- sinusitis
- conjunctivitis

Inflammatory disease

(Ukai et al., 1983)

- inflammatory diseases in general
- arthritis
- tendonitis
- back pain

Autoimmune disease

- rheumatoid arthritis
- Sjögren's syndrome

Other mushrooms which can be added to improve results:
Ganoderma, *Agaricus* and *Lentinus*.

2nd power: diseases related to digestion, weight and metabolism

Digestive system disease

Auricularia also frees up even the most constipated bowels. Thanks to its adenosine content, in fact, it fights intestinal inflammation and restores peristalsis, the movement that is necessary for proper defecation. Moreover, adenosine also acts at a psychological level, eliminating both apparent anxiety, of which we are aware, but also hidden anxiety, of which we are not aware and which is somatized in the intestine.

Psychological symptoms are fearsome enemies of digestive system function and are often responsible for diseases such as constipation and colitis. Adenosine regulates the nerves which reach the intestine from the control centres of emotional functions, protecting intestinal function from unfavorable stimuli. It does not act, therefore, like the majority of purgatives that attract large amounts of fluid and mineral salts to the colon in order to complete defecation, removing them from the rest of the digestive system that becomes dehydrated. This loss of intestinal fluids worsens constipation because it makes the intestinal contents that are further up the

intestine extremely dry and difficult to move along. Intestinal transit is slowed and even when it arrives at the end of the colon contents will be dry and hard and difficult to expel. Hence, another purgative will be required and whether it is chemical or natural makes little difference if fluids and mineral salts are lost - the result will be a habit of chronic laxative use.

Auricularia, then, is also useful for its anti-inflammatory action in leaky gut syndrome, which is characterized by swelling and inflammation of the small intestine. Its use is just as beneficial in colitis, since this disorder consists in an inflammation of the lining of the colon. Instead, intestinal colic (abdominal) produces strong muscle pain with intestinal bloating. In this case *Auricularia* has an analgesic effect similar to the conventional medicine Buscopan, which relaxes muscles, and an anti-inflammatory effect that combats visceral inflammation.

Diverticulitis is another disease due to the bloating associated with leaky gut syndrome which greatly benefits from the use of *Auricularia*. Intestinal bloating, over time, weakens the wall of the colon and pouches called diverticula form. Inflammation develops if residues or pathogenic bacteria stagnate in diverticula.

This mushroom can also resolve hemorrhoids, varicose veins at the anal sphincter, caused by compression exerted on the wall of the intestine which obstructs the veins. *Auricularia* reduces pressure on the veins in two ways: it facilitates defecation, eliminating feces that accumulate in the intestine as well as bloating, and relaxes the contracted intestinal wall. It strengthens the structure of the vein wall made of elastic fibres (elastin) and collagen.

In conclusion, *Auricularia* is useful to preserve the health of the colon and rectum, and to combat disease in this part of the body thanks to its anti-inflammatory (Ukai et al., 1983) and antispasmodic effects, which encourage defecation. These two properties also make it the ideal remedy for Crohn's disease, for ulcerative colitis and biliary colic. In the latter case it is also invaluable because its effects are similar to those of the conventional medicine Buscopan, relaxing the muscles of the gall bladder and biliary tract and reducing

pain. Sometimes it even helps a blocked gallstone to pass into the intestine, resolving the problem.

Metabolic disease

Anxiety is also at the root of emotional eating, which leads us to eat not because we have a real appetite but to compensate for a negative emotional state. However, in this way the problem is not solved but rather multiplied because emotional eating also causes weight gain. That is why *Auricularia* is a perfect appetite suppressant remedy. Finally, thanks to the antioxidant effect polysaccharide (AAP) effect, it inhibits the oxidation of "bad" LDL cholesterol, which forms cholesterol plaques (Chen et al., 2008).

* In brief, it is useful for:

Digestive system disease:

(Ukai et al., 1983)

- chronic constipation
- chronic use of laxatives
- colitis
- leaky gut syndrome
- intestinal colic (abdominal)
- diverticula and diverticulitis
- hemorrhoids
- Crohn's disease
- ulcerative colitis

Metabolic disease:

(Chen et al., 2008)

- emotional eating
- high cholesterol
- atherosclerotic plaques

Other mushrooms which can be added to improve results: *Lentinus*, *Grifola*, *Hericium*, *Pleurotus* and *Coprinus*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Kidney disease

Adenosine is an excellent vasodilator, which increases the amount of blood filtered by the kidneys (GFR) and protects the walls of the

renal arteries, facilitating the functions of these important organs. For this reason *Auricularia* is useful in the prevention of kidney disease, but also in the treatment of chronic kidney diseases, such as focal segmental glomerulosclerosis (FSGS) and chronic renal failure: it helps, in fact, to recover part of the functionality lost over time. Adenosine is a great help in renal colic, characterized by an extremely acute muscle pain due to spasm of the ureter, the tube that runs from the kidney to the bladder. The analgesic effect similar to Buscopan relaxes the muscles of the ureter and sometimes allows the stone to pass into the bladder and be expelled, resolving the problem.

Skin

The excellent vasodilation effect of this mushroom also moisturizes dry skin, a beneficial effect which has traditionally been long recognized (Halpern, 2007).

Chelation of heavy metals

The polysaccharide content (AAP), moreover, makes this mushroom useful for the chelation of heavy metals that are present in the organism. Smog, food and contaminated water, mercury released during the removal of tooth fillings and other contaminants poison the liver, blood and all body tissues where they transit or are deposited.

* In detail, it can be used for:

Kidney disease

- focal segmental glomerulosclerosis (FSGS)
- chronic renal failure
- renal colic

Skin problems

- dry skin (Halpern, 2007)

Chelation of heavy metals

- removal of mercury in dental amalgams;
- irritation of the airways due to smog (lead, hydrocarbons and particulate matter)

Other mushrooms which can be added to improve results: *Ganoderma*, *Cordyceps* and *Polyporus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Thanks to its content in cardiogenic polysaccharides and adenosine, *Auricularia* is probably the best ally for a healthy heart and cardiovascular system. Adenosine is invaluable for the health of the entire nervous system, since it plays a crucial role in promoting the well-being of both neurological and psychological functions.

Coronary artery disease

(Wu et al., 2010; Berne, 1980; Toda et al., 1982; Pelleg and Porter, 1990)

Auricularia is useful in the prevention and treatment of circulatory diseases because adenosine, dilating the vessels, ensures a plentiful supply of blood, oxygen and nutrients to tissues and a continuous "cleansing action", accelerating the elimination of metabolic wastes (such as CO₂, nitrogen, LDL "bad" cholesterol and damaged molecules). This action is especially important for the heart: vasodilation of the coronary arteries, in fact, ensures a constant supply of oxygen to the heart muscle, so that it is well protected from hypoxia (lack of oxygen), which is the cause of many heart diseases and even heart attacks.

Auricularia also has an anticoagulant effect and maintains the correct balance between coagulation and its inhibition: it blocks platelets and prevents the formation of blood clots, thinning blood when needed, and preventing thrombosis. Compared with anticoagulant drugs it is slower, but just as effective in promoting the flow of blood (Yoon et al., 2003). Finally it is also interesting to highlight that it reduces the work of the heart. In practice, the heart muscle has to work less to pump thinner blood in blood vessels that offer lower resistance.

Extrasystoles, tachycardia and arrhythmia (prevention)

Adenosine also has the beneficial ability to maintain a normal and correct frequency of the heart rate. In fact, it monitors the overproduction of adrenaline, the hormone that increases under stress and accelerates the heartbeat. Furthermore, it calms the heart rate, with an effect similar to that of beta-blockers, from which

however it differs in the mechanism of action. Consequently, it combats extrasystoles, tachycardia and other alterations of the heart rate such as arrhythmias, for which it also has a preventive effect.

Hypertension

In hypertension, this mushroom reduces high blood pressure through vasodilation (blood flows more easily and exerts less pressure in the dilated vessels). Furthermore, since it prevents arteries from hardening, blood pressure does not increase. In addition, it prevents atherosclerosis. With its anti-inflammatory effect it resolves microlesions in the walls of blood vessels that give rise to inflammation in the walls and produce atherosclerosis.

Stroke and other vascular diseases of the kidney and retina

By ensuring a constant supply of oxygen, *Auricularia* protects not only the heart from hypoxia, but also other vital or important organs, like the brain, the retina of the eye (which in the case of diabetes may become impaired, leading to severe sight loss because of the reduced blood flow) and the kidneys, which become ill when the flow of blood decreases.

Headache

The vasodilatory effect guaranteed by adenosine is also useful against headaches. This problem, in fact, is characterized by an initial stenosis (narrowing) of the cerebral arteries, followed by dilation upstream where, due to the increased permeability of the arterial wall, a quantity of fluid flows out that compresses a part of the brain, causing pain. *Auricularia*, thanks to its ability to maintain good dilation of arteries, prevents stenosis occurring and hence the onset of the mechanism that causes headaches.

Tinnitus

Auricularia is excellent for tinnitus, noises in the ear caused by an alteration of the blood circulation due to changes in blood pressure or cholesterol plaques. In fact, thanks to the vasodilatation of the arterial vessels, it restores smooth and silent blood flow.

Broken capillaries

Blood rises from the leg to the heart thanks to deep venous circulation. If this system is impaired, first it damages the

microcirculation and then the saphenous veins, the large veins of the lower limbs, forming varices. *Auricularia* is useful for maintaining the elasticity and the structure of the capillaries. In this way it prevents them breaking due to poor microcirculation, resulting from poor circulation of the veins. These blemishes occur mostly in the legs, but also on the face and within the rest of the body, where they cannot be seen, but cause damage, for example, to the kidneys, the brain and the retina.

Varicose saphenous veins

Varicose veins are formed in a context of venous insufficiency. *Auricularia* is a remedy which strengthens the walls of the veins, because it enhances two essential structural elements: collagen and elastin. By counteracting venous insufficiency in the deep veins of the leg, it prevents the formation of varicose veins. It is also useful in the treatment of varicose veins, because firstly it avoids them worsening and then gradually improves the situation.

Anxiety, insomnia and psychosomatic illnesses

This mushroom is very useful also for treating anxiety, insomnia, sleep disturbances and psychosomatic illnesses - diseases that produce physical symptoms, but have a psychological origin. In all these conditions, as well as in stress, neurons of the relevant neural circuits release large amounts of adenosine and are depleted of this brain mediator, which has a crucial role in maintaining serenity. Its decrease has a key role in the development of anxiety, insomnia and other psychosomatic symptoms. *Auricularia*, by supplying adenosine to neurons, acts on the cause of these illnesses, alleviates symptoms and also improves physiological functions, increasing psychophysical efficiency as a whole. In other words, *Auricularia* improves the function of the nerve centres that regulate sleep and wakefulness. In addition, it also has a direct anxiolytic effect by increasing GABA (GABAergic effect) in the centers where anxiety (nucleus accumbens, locus coeruleus) and sleep disorders (ventrolateral preoptic nucleus of the anterior hypothalamus) are produced. Its efficacy is superior to that of other plants considered useful in these cases (such as Valerian and the Indian Ginseng

Ashwaganda) and approaches that of a chemical anxiolytic drug. The latter is more useful in the acute phase, while the mushroom is effective in the long term.

Tremor and Parkinson's disease

Auricularia is very useful in treating tremors. It controls and harmonizes the impulses which are exchanged between the higher centres of the central nervous system. Moreover, it normalizes the impulses that travel along the peripheral nerves to the muscles and organs of the body. Finally, it has an antispasmodic effect: it releases muscle tension and stiffness and also reduces tremor.

Muscle pain

The remedy is useful in cases of low back sciatica, neck pain, joint pain in the hands, shoulders and arms. In fact, it acts as an antispasmodic agent, resolving stiffness, spasms and muscle tension; as a vasodilator, increasing blood flow that removes pain mediators, and as an anti-inflammatory agent. The anti-inflammatory action is very important in these disorders, because continuous muscle tension produces pain and inflammation in the tendons and nerves.

Joint pain

Its anti-inflammatory action is also very useful in rheumatoid arthritis and trauma. Adenosine is a natural anti-inflammatory agent stored in the cells, which the body releases into the blood and in the inflamed joint to resolve inflammation (Akkari et al., 2006).

Very high concentrations (10 to 100 μM) were detected in the synovial fluid of patients with rheumatoid arthritis (Haskò and Cronstein, 2004).

Period pain

It is also helpful for period pain, which is gradually reduced.

* In brief, it is useful in:

Heart disease

- coronary artery disease
- extrasystoles
- tachycardia
- arrhythmia (prevention)

- prevention and treatment of circulatory diseases
- atherosclerotic plaques obstructing coronaries and cerebral arteries
- heart attack and stroke (as prevention)

Circulatory disease

- hypertension
- headache
- tinnitus
- diabetic retinopathy
- broken capillaries
- varicose veins and peripheral venous insufficiency

Psycho-emotional disorders

- anxiety
- insomnia
- psychosomatic illnesses

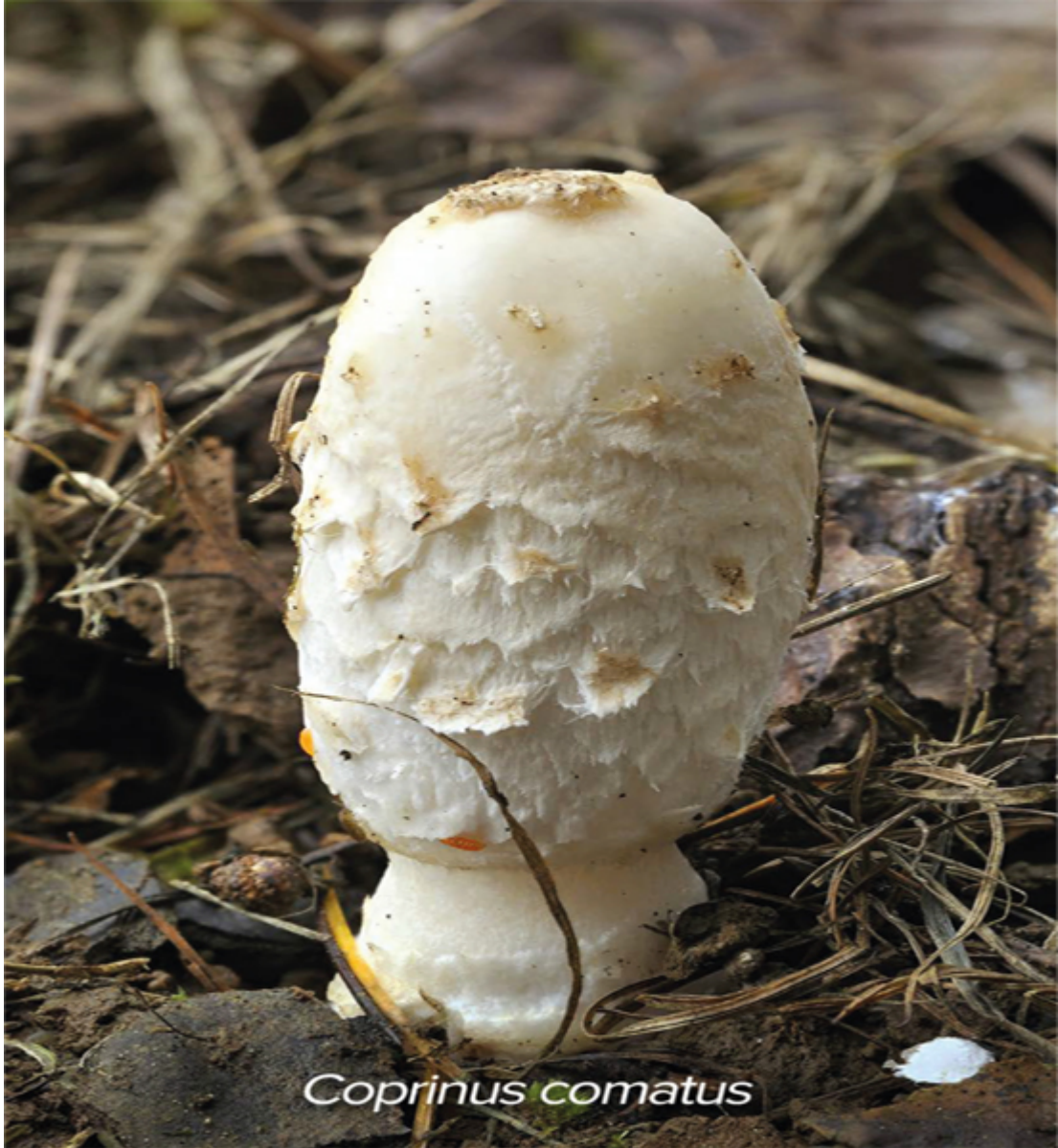
Neurological disease

- tremor
- Parkinson's disease

Muscle, joint and menstrual pain

- neck and low back pain
- shoulder pain
- period pain
- rheumatoid arthritis

Other mushrooms which can be added to improve results:
Ganoderma, Polyporus and Cordyceps.



Coprinus comatus

COPRINUS (*Coprinus comatus*)

Effective for diabetes, hemorrhoids and liver toxicity

Coprinus is appreciated above all for its ability to promote sugar metabolism, reducing blood sugar, and to improve the health of the intestine, enhancing intestinal immunity and cleansing the liver.

Historical information

Perhaps best known as "ink mushroom", it is a humble mushroom which is also present in our meadows. In traditional European medicine it is considered beneficial for the digestion and for treating hemorrhoids. This popular tradition was first confirmed scientifically in 1934, when some researchers decided to study its properties. Research conducted in the following years confirmed its benefits for the intestine and for hemorrhoids and, above all, have highlighted its important hypoglycemic effects.

Strong points

Nowadays, *Coprinus* is considered very useful for the prevention and improvement of hyperglycemia and diabetes, because it significantly reduces the amount of sugar in the blood when levels are high. It is useful both in type 1 diabetes (which often begins in childhood), when the basic autoimmune mechanism destroys insulin, and in type 2 diabetes (typical of adults), when insulin is present but is not very effective (this is called insulin resistance). The hypoglycemic effect of *Coprinus* had already been studied thirty years ago (Bailey et al., 1984), but it is only in recent years that modern laboratory techniques have shown that this effect is due to the presence of vanadium (Han et al., 2003 and 2006). *Coprinus* is also important because, by nourishing intestinal lactic acid bacteria, it restores the intestinal flora, so it can effectively combat the intestinal bloating present in chronic colitis and constipation. It is also very effective for hemorrhoids.

Active ingredients

This mushroom contains some active ingredients which are particularly beneficial for the health of the body. These include:

- colloidal vanadium, a very rare mineral, which has an effect similar to that of insulin. Thanks to this peculiarity it can, as shown by some studies, reduce high levels of glycosylated hemoglobin and blood sugar (two important parameters in diabetes);
- manganese, which further contributes to the control of sugar metabolism;
- vitamin C, which is present only rarely in mushrooms;
- trehalose, a disaccharide (composed of two glucose molecules) which is the preferred nourishment for lactic acid bacteria in the intestine. Since *Coprinus* is very rich in this prebiotic it improves the bacterial flora of the intestine, which is impaired in many diseases;
- beta-glucans, powerful immunostimulants, including D 1-6-beta-glucans which are extremely rare in nature;
- terpenes, which are powerful immunostimulants, capable of combating low immunity and aggressive agents that attack the body.

1st power: diseases related to the immune system and to inflammation

Inflammatory disease and pathogenic microbes (or germs)

Thanks to its beta-glucan and terpene content, *Coprinus* stimulates the immune system extremely effectively. It improves the immune system when it is weakened and is useful against viruses and other infectious pathogenic germs. It also has an antibiotic effect, defending the body from diseases caused by pathogenic bacteria, such as those of the airways, fever and flu. It is also very useful against vaginal *Candida*.

Moreover, its anti-inflammatory properties are also important. It combats and renders harmless one of the most powerful factors (NF-kB), which sustain chronic inflammatory processes, making it useful in cases which are normally difficult to resolve (Asatiani et al., 2011). Many people who take it for diabetes and other metabolic diseases are, unknowingly, protected also from diseases caused by harmful microorganisms. The mushroom, in fact, does not act only when the

symptoms are already present, but also as prevention and protects against recurrences.

* In detail it is effective against:

Diseases due to pathogenic germs (or microbes)

- influenza (Efremenkova et al., 2001)
- bronchitis (*ibid.*)
- pharyngitis (*ibid.*)
- vaginal *Candida* (*ibid.*)

Other mushrooms which can be added to improve results: *Ganoderma* and *Agaricus*.

2nd power: diseases related to digestion, weight and metabolism

Metabolic disease: diabetes

Coprinus is invaluable in combatting deterioration in the mechanisms responsible for metabolizing sugar and which can lead to diabetes. Moreover, it revitalizes and protects the β cells of the pancreas, which produce insulin, and increases the sensitivity of the muscles, liver and brain to this hormone. Therefore, it contrasts the reduced effectiveness of insulin when it is no longer able to reduce blood sugar. This remedy is very effective both in the prevention of diabetes, in individuals who notice an increase in glycosylated hemoglobin, and in people who already have diabetes, to combat the disease's insidious progress, which requires the amount and number of anti-diabetic drugs to be increased over the years. Diabetes worsens the quality of life, wastes energy, forces sufferers to follow a strict diet and damages the circulatory system. Therefore, it can cause serious cardiocirculatory illness, in the legs, coronaries, brain, kidneys and retina.

Digestive system disease: intestinal flora

Coprinus, thanks to its trehalose content, which feeds lactic acid bacteria, is useful in restoring the intestinal flora to health, necessary for the proper functioning of the intestine. So, the progression of the intestinal contents becomes easier, intestinal wall motility improves and regular bowel movement is restored. Before long, constipation disappears, the walls of the intestine relax, blood circulation in the

rectum and the anal sphincter improves, varicose veins are emptied and slowly the walls of the veins return to their normal and original form. Hemorrhoids therefore first reduce in size and then disappear. A study conducted by Dr. Badalyan showed that the use of *Coprinus* is useful both in the prevention and in the treatment of various infections due to intestinal protozoa (Badalyan and Sisakyan, 2005).

* In brief, it is useful for:

Metabolic disease:

- prevention and treatment of adult diabetes (Type 2) (Bailey et al., 1984; Han et al., 2003 and 2006)
- infant diabetes type 1 (*ibid.*)

Digestive system disease

- intestinal bloating
- chronic colitis
- intestinal pain
- hemorrhoids
- constipation
- infection from intestinal protozoa (Badalyan and Sisakyan, 2005)

Other mushrooms which can be added to improve results: *Grifola*, *Ganoderma*, *Auricularia* and *Cordyceps*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Liver disease

Coprinus exerts an excellent cleansing action in the liver: it can penetrate even liver cells with high toxicity (e.g. due to drugs, alcohol and diet) and cleanse them thoroughly. The fact that it is able to lower high levels of transaminases demonstrates how it can restore this organ to complete health.

* In detail, it can be used for:

Liver disease

- liver toxicity (Lee et al., 2005)
- hepatitis (e.g. due to pharmaceuticals, alcohol and diet) (*ibid.*)

Other mushrooms which can be added to improve results: *Ganoderma*, *Cordyceps* and *Polyporus*.

CORDYCEPS

(*Cordyceps sinensis*)

Increases energy, helps in sports, enhances sexuality, protects the heart and lungs

It is a mushroom with many uses. In fact, it strengthens the body with all four healing powers. It boosts immunity, protects the digestive system, in particular from diverticula and gastroesophageal reflux, improves sugar metabolism, promotes liver cleansing and health, detoxifies the kidneys, enhances mental and physical energy and protects the mind, the heart and sexual organs (Ng and Wang, 2005; Paterson, 2008).

Historical information

Originally from Tibet, *Cordyceps* has been much loved and used in traditional Chinese medicine for various diseases for centuries: respiratory diseases, kidney disease, liver disorders, hyperlipidemia (increased levels of fat in the blood), cardiovascular problems, hyposexuality. Researchers have discovered that it allows human beings to live at very high altitudes, up to 4-5000 meters, because it increases the oxygenation of organs and tissues. Real examples of the exceptional performance provided by *Cordyceps* in a low-oxygen environment are the people of Tibet, but even more so the Sherpas, the mountain porters, traditionally used to carrying weights even up to 40-50 kilos on their shoulders along the steep paths of the Himalayas.

Strong points

One of the strengths of *Cordyceps* is its ability to increase physical and mental energy, a feature that makes it very popular with athletes, but also with people with an intense pace of life. Its strengths, however, do not end there. It enhances sexuality in both men and women. Modern research has confirmed the age-old reputation that traditional Chinese medicine assigned to *Cordyceps* in re-establishing and improving sexual function. In addition, it has excellent cardiogenic properties useful in the prevention and

treatment of heart disease. Furthermore, it reduces anxiety and depression and improves sleep. Finally, it provides a valid support in anemia and in respiratory failure and strengthens the kidneys.

Active ingredients

Cordyceps contains many useful substances, such as:

- beta-glucans, which stimulate the immune system;
- cordycepin (deoxy-adenosine), a small molecule similar to adenosine, which strengthens the immune system. It has antibiotic and antiviral properties, preventing the growth of viruses and bacteria by blocking the replication of their DNA or RNA. It is particularly useful in HIV and viral hepatitis. In addition, it is very important because it increases the oxygenation of the blood, in fact it retains more oxygen at each respiratory act and constitutes an excellent prevention of hypoxia of the heart and also of all other organs (brain, kidneys etc.). It also reduces high blood pressure due to vasodilation and is a blood thinner;
- adenosine, very abundant in this mushroom. This is one of the reasons why *Cordyceps* has an excellent vasodilator effect, which promotes blood circulation throughout the body. The heart, especially, benefits from the increased blood supply which provides more strength and greater health, but so do the brain, kidneys and retina, organs of vital importance. Adenosine also reduces the work of the heart muscle, lowers high blood pressure and thins the blood. Moreover, it reduces anxiety and is a very effective antiinflammatory agent;
- cytochrome P450, the main set of liver enzymes with which this organ transforms the substances that reach the liver. This is the very best of what nature can offer;
- antioxidant enzymes, in particular superoxide dismutase (SOD), the main anti-free radical enzyme;
- polysaccharides CS-F30 and CS-F10, which in laboratory studies have been shown to lower blood sugar;
- terpenes, essential oils that give it a pleasant aroma and are characterized by considerable anti-inflammatory and antibiotic potential;

- cordycepic acid (D-mannitol), a urinary germicide.

1st power: diseases related to the immune system and to inflammation

Inflammatory disease and pathogenic microbes (or germs)

Thanks to its beta-glucans and terpenes, it enhances immune system functions in two ways. Many researchers have highlighted the fact that on the one hand it strengthens the immune system against pathogenic germs and on the other it has a direct germicidal effect against bacteria, viruses, *Candida* and other pathogenic microorganisms (Koh et al., 2002; Kuo et al., 2005 and 2007; Li et al., 2009). In addition, cordycepin inhibits DNA synthesis, thus preventing viruses and bacteria from reproducing. This action is demonstrated for the majority of viruses, including the HIV virus and for bacteria (Holliday and Cleaver, 2004). Healthy cells instead are not inhibited because they possess a mechanism with which they can repair DNA.

With its high adenosine content, which is a powerful antiinflammatory agent in general, *Cordyceps* combats inflammatory and painful diseases. For this reason it is extremely useful in preventing both inflammatory diseases and those caused by pathogenic microbes. Moreover, this remedy is also able to reduce the symptoms of existing pathologies. This is demonstrated by the fact that when the most vulnerable people, such as children and the elderly, take the mushroom, they spend whole winters without suffering from the flu, sore throat or bronchitis.

Allergies, asthma and respiratory inefficiency

The mushroom is also invaluable in treating allergies. In fact, in addition to the beneficial effects described above, it has another very useful role in asthmatics: it increases the amount of oxygen captured in each breath and prevents and combats asthma attacks involving contraction of the muscles of the bronchi.

For the same reason, *Cordyceps* is a useful aid for all those with poor respiratory efficiency such as those suffering from pulmonary emphysema.

Autoimmune disease

This remedy equilibrates the immune system even in case of autoimmune diseases, characterized by the production of autoantibodies that lead to chronic inflammation, with increasingly severe damage. It is especially beneficial in rheumatoid arthritis and in inflammatory diseases of the bones and joints. In fact, it defends articular cartilage and also the bones from inflammation and age-related wear and tear.

* In detail it is useful for:

Diseases due to inflammation and pathogenic microbes (or germs)

- diseases related to a weak immune system (Koh et al., 2002; Kuo et al. 2005 and 2007)
- influenza (*ibid.*)
- pharyngitis (*ibid.*)
- bronchitis (*ibid.*)
- herpes (Holliday and Cleaver, 2004)
- cystitis
- hepatitis
- HIV (*ibid.*)
- vaginal *Candida*

Allergies, asthma and respiratory inefficiency

- allergies
- asthma (Lin et al., 2001)
- emphysema

Autoimmune disease

- (Chen et al., 1993)
- rheumatoid arthritis
- autoimmune diseases

Other mushrooms which can be added to improve results: *Ganoderma*, *Lentinus*, *Agaricus*, *Grifola* and *Auricularia*.

2nd power: diseases related to digestion, weight and metabolism

Digestive System

Thanks to adenosine and cordycepin, which soothe and strengthen psychological functions, *Cordyceps* alleviates the anxiety which

greatly hinders intestinal functions. In fact, anxiety can cause irritable bowel syndrome, constipation, colitis and gastritis. This mushroom is able to restore tone and strength to the muscle wall of the intestine, combating diverticula, and to the wall of the stomach, protecting against hiatal hernia, gastroesophageal sphincter problems, gastroesophageal reflux.

Metabolic Disease

This mushroom is excellent in the prevention and treatment of diabetes (Kiho et al., 1993 and 1999). First of all, thanks to the presence of cordycepic acid and polysaccharides, it is beneficial in regulating high blood sugar levels. Moreover, thanks to adenosine, it protects the heart and vessels from the complications that can arise over time.

* In brief, it is useful for:

Digestive System

- gastroesophageal reflux
- intestinal diverticula

Metabolic disease

(Kiho et al., 1993 and 1999)

- high blood sugar
- diabetes

Other mushrooms which can be added to improve results: *Hericium*, *Ganoderma*, *Auricularia*, *Agaricus*, *Grifola* and *Coprinus*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Liver disease

Cordyceps is very effective in the liver, useful for both prevention and treatment. First of all, it greatly increases the strength and effectiveness of this organ, which is the main biochemical laboratory of the body, but also a great cleanser: in fact, it performs a thorough detoxification of the body, eliminating free radicals, harmful molecules and even dangerous toxins. As for its healing powers, many researchers have shown that *Cordyceps* restores high transaminase levels to normal, especially in the presence of intoxication, dysfunction and hepatitis A, B and C. In the latter case,

it also increases the body's antiviral defences and prevents the viruses responsible for disease from reproducing (Yang et al., 1994; Holliday et al., 2005). In cirrhosis, it firstly stops the formation of fibrosis and then reduces it because it reabsorbs some parts (Liu and Shen, 2003). In a study of 22 patients with cirrhosis the administration of 6-9g of *Cordyceps* per day for three months significantly improved liver parameters (Holliday et al., 2005).

Kidney disease

Cordyceps supports the health of the kidneys. In fact, thanks to adenosine, it facilitates the flow of blood and nutrients to these organs and protects capillaries and vessels. Moreover, it protects and regenerates the cells of the renal tubules, the real biochemical laboratory that separates and recovers useful substances from those that must be eliminated as urine. Finally, it promotes the removal of toxins that would otherwise remain in the blood, ruining the walls of the vessels and organs they reach, in particular the liver, heart and brain. In a clinical study of 69 patients undergoing kidney transplantation *Cordyceps*, at a dose of three grams per day, was shown to protect the kidney from the side effects caused by administration of cyclosporine, to improve immune function and to restore altered levels to normal, all without interfering with antirejection immunosuppressants (Huang et al., 1990).

Skin

Finally, *Cordyceps* has a cosmetic function: it eliminates free radicals and the enzymes that attack collagen, the protein that gives elasticity and support to the skin. In addition, it blocks a large proportion of the inflammatory processes of the skin, providing a useful contribution in all skin diseases of inflammatory origin, such as acne, dermatitis and eczema.

* In detail, it can be used for:

Liver disease

- high transaminase levels (Holliday et al., 2005)
- viral hepatitis A, B and C (Yang et al., 1994; Holliday et al., 2005)
- cirrhosis (Liu and Shen, 2003; Holliday et al., 2005)

Kidney disease

- chronic renal failure
- nephritis
- kidney transplant (Holliday and Cleaver, 2004)
- nephrosis

Skin

- acne
- dermatitis
- wrinkles
- eczema

Other mushrooms which can be added to improve results: *Pleurotus*, *Ganoderma*, *Cordyceps* and *Polyporus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

More energy: sports, intense pace of life and convalescence

This mushroom increases oxygenation in the blood by 4.8% and work rate by 8.3% (Yi et al., 2004). And, in fact, it has been used to improve sports performance with stunning results. At the Chinese National Games in Beijing, for example, Chinese athletes amazed the world with their incredible performance. They then reported having used *Cordyceps* during the weeks of training and during competitions. Suffice it to say that Wang Junxia lowered the women's 10,000 m world record by 42 seconds and the women's 3,000 meters world record by 2 seconds. Qu Yunxia set a new world record in the women's 1,500 meters. Moreover, in all three distances other Chinese athletes beat the previous world records (Steinkraus and Whitfield, 1994).

This mushroom also activates mental energy, which helps to manage the anxiety that arises before and during a race. It also eliminates ROS free radicals, that are produced in large quantities during exercise and which damage the body if not eliminated. That is why *Cordyceps* is widely used in sports especially by Asian athletes. It is not a doping substance and is accepted by the IOC (International Olympic Committee) and all sports federations worldwide.

For all these reasons, the mushroom is also useful during convalescence, as restorative care, to recover quickly. But it is also extremely useful for those who need energy for work or everyday life. It allows people to lead fully active and intense days and to still have some energy by the evening, allowing them to make the most of their time before going to bed. When it is time to go to sleep, it makes sleep deeper and more restful.

Cordyceps provides all this energy thanks to the fact that it increases oxygen, which, in turn, increases the production of ATP, the energy molecule that allows us to live (Manabe et al., 1996). So, the blood carries more oxygen and ATP to the heart, brain, liver, muscles and every cell in the body, which in turn has significantly more energy and feels much less fatigue (Dai et al., 2001; Zhu et al., 1998a and 1998b). This is clean energy, which has nothing to do with central nervous system stimulants, such as caffeine, which provide a nervous stimulus but generate tension and insomnia. It improves energy during physical exertion, increases stamina and promotes recovery after exercise, as many researchers have demonstrated (Holliday and Cleaver, 2008).

Psycho-emotional disorders

Cordyceps can also be used in the presence of mood disorders, such as depression and anxiety: it increases mental and physical energy, improves mood and, thanks to adenosine, eliminates anxiety, insomnia and psychosomatic symptoms.

Neurological diseases

Cordyceps has a positive effect on the nervous system, through various mechanisms of action that improve its functionality and health. The two main mechanisms useful in nerve centres are, on the one hand, the increase in blood circulation and, on the other, the increase in brain mediators (norepinephrine, acetylcholine and adenosine sertraline). Another important contribution of *Cordyceps* in neurological disease is the increase in muscle strength, often reduced by many such diseases. This muscular compensation is extremely important in many diseases in which movement is

impaired, such as in Parkinson's disease, multiple sclerosis and so on.

Cardiovascular disease

Adenosine makes *Cordyceps* an ally for the health of the heart. In fact, it increases vasodilation and, therefore, the blood flow to this and to other organs. Thus, not only is the heart muscle oxygenated better, but it must also work less to guarantee circulation. As a result it becomes stronger and better toned, as demonstrated by an electrocardiogram. Furthermore, adenosine eliminates most oxidative stress, another factor responsible for damage to the heart during a heart attack. That is why *Cordyceps* can be used for the prevention and treatment of heart attack.

In studies on humans, *Cordyceps* has been shown to possess interesting cardiogenic properties. A clinical study showed that in chronic heart failure, *Cordyceps* associated with conventional medicines improves both heart conditions and the quality of life, with fewer side effects, greater energy, vitality and well-being in general (Chen, 1995). In China, *Cordyceps* is an officially recognized treatment for cardiac arrhythmias (Yan et al., 2013) because it regulates the heart rate. Its cardiogenic action produces interesting benefits in other heart problems such as extrasystoles, tachycardia and atrial fibrillation. Moreover, its anxiolytic effect improves the quality of life for heart patients who often live with the fear of experiencing further problems, because they are aware that even strong emotions, stress or fatigue could cause another heart attack.

Finally, with its vasodilatory and antioxidant effects, it protects the circulation of the brain, kidneys and eyes, thus preventing cerebral ischemia and stroke (Liu et al., 2010 and 2011).

Respiratory disease

In emphysema *Cordyceps* compensates for the oxygenation lost due to the reduced exchange surface.

Blood disease

Cordyceps is a great ally in anemia, a disease characterized by a decrease in hemoglobin (Hb), the protein responsible for transporting oxygen. In fact, thanks to the greater oxygenation of the blood, it

compensates for the deficiency of oxygen transported by hemoglobin.

Menstrual irregularities, fertility and female libido.

Cordyceps promotes the functions of the female reproductive system, stimulating the production of both oestrogen and progesterone depending on what is required at any stage of the menstrual cycle. *Cordyceps* benefits these functions thanks to a substance, unique in nature, called cordycepin (Huang et al., 2004). Whilst women are fertile, it improves libido, fertility and is useful in menstrual irregularities. In menopause, instead, it eliminates hot flushes and decreases the risk of osteoporosis. It provides effects similar to those of hormone replacement therapy, but without side effects.

Declining virility, erectile dysfunction, impotence and male infertility.

It improves sex life also in men. Firstly, it increases the level of testosterone, the important hormone that regulates desire, erection and sexual satisfaction, in the cells of the testicles (Leydig cells) (Huang et al., 2001; Pan et al., 2011; Zhu et al., 1998a and 1998b). In addition, it counteracts sterility, promoting an increase in the number and mobility of sperm. A study of 189 patients showed an improvement in sexuality, both regarding erection and impotence (Wan et al., 1988). Other studies have demonstrated greater sexual desire and a significant improvement in impotence in 36% of cases.

* In brief, it is useful in:

Energy, sports and fatigue

(Yi et al., 2004)

- sports
- intense pace of life
- convalescence

Psycho-emotional disorders

- anxiety and insomnia
- depression

Neurological diseases

- Parkinson's disease

- multiple sclerosis

Cardiovascular disease (Chen, 1995)

- heart disease, such as arrhythmia and heart attack
- stroke

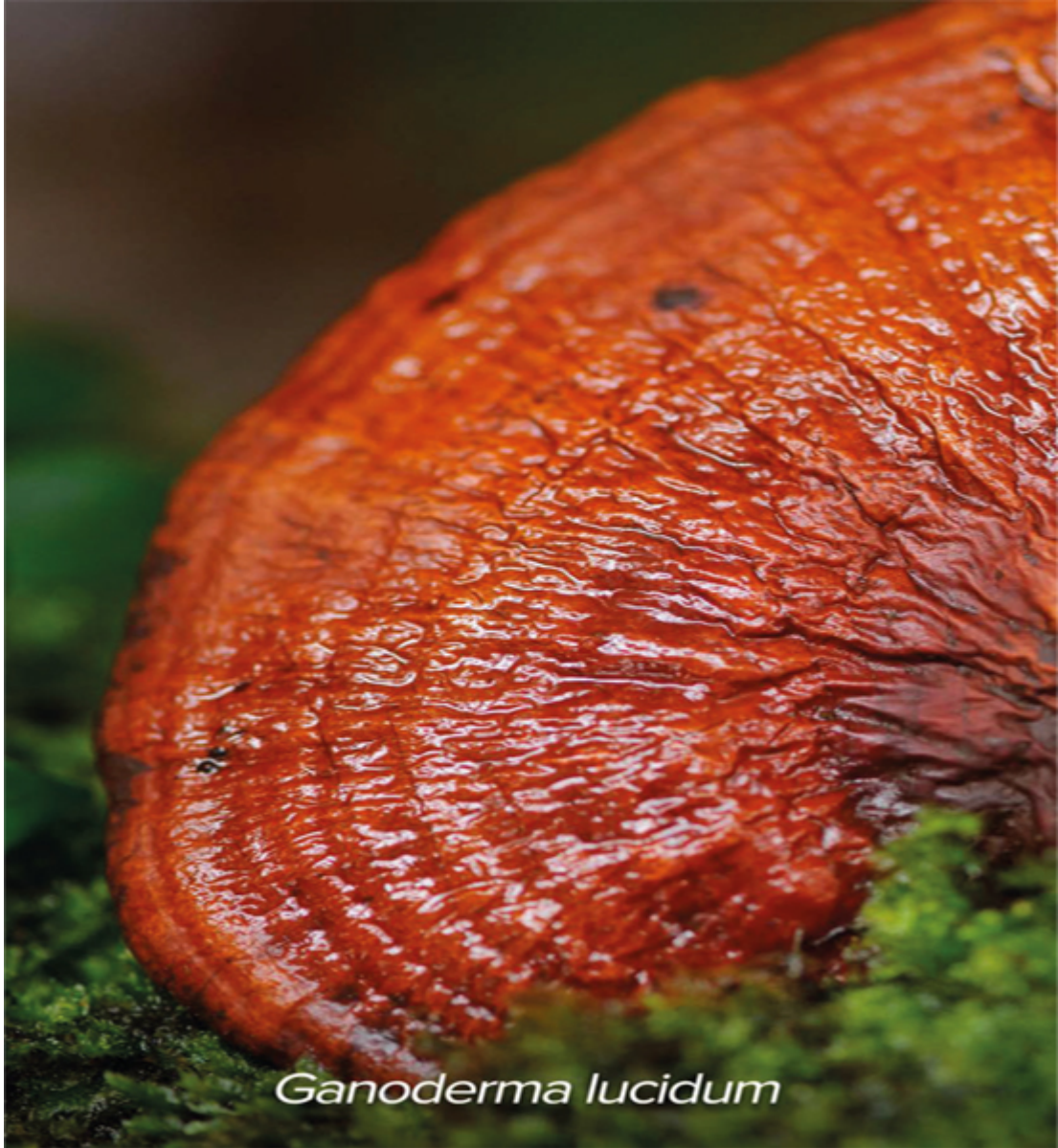
Blood disease

- anemia

Sex life

- decreased libido (Huang et al., 2001 and 2004)
- menstrual irregularities (Huang et al., 2004)
- female infertility (*ibid.*)
- pre-menopause and menopause (*ibid.*)
- decline in virility (Huang et al., 2001; Pan et al., 2011)
- erectile dysfunction and impotence (*ibid.*)
- male infertility (*ibid.*)

Other mushrooms which can be added to improve results: *Agaricus* and *Ganoderma*.



Ganoderma lucidum

GANODERMA (*Ganoderma lucidum*)

For allergy and menopause, to have beautiful skin and a healthy heart

Known since ancient times, *Ganoderma* contains over 400 biological substances beneficial to the body, valued for their ability to improve physical and mental health. It is no coincidence that the term *Ganoderma* means "mushroom for longevity" or "for immortality" and that in the East it is a symbol of luck, just like the fourleafed clover for western cultures. Thanks to modern technology, hundreds of scientists have revealed the secrets of this remedy, which ancient peoples had already treasured for its invaluable health-giving properties. This is the reason why it is renowned worldwide.

Historical information

Ganoderma is a mushroom that grows wild in the woods, attached to tree trunks. It is widespread in many parts of the world, and well-known by mycologists. It was used before the time of Christ, and already appeared in the first book of Chinese medicine in 2800 BC, where it was described as a remedy of "superior quality" and without side effects. Throughout the Chinese Pharmacopoeia, *Ganoderma* is especially valued because it increases psychophysical energy, invigorates the blood and the heart, nurtures and supports all the body's organs, eliminates the build-up of toxins, reduces mucus, combats cough due to cold weather conditions.

Moreover, *Ganoderma* has also been used at a mental and psychological level, to reduce lapses in concentration, to sharpen intelligence, to improve memory, to strengthen will-power, to relax a distressed and restless mind. *Ganoderma*, in fact, is known more or less everywhere, not only in Asian countries. For example, research shows that the indigenous peoples of Mexico used it in a number of diseases and in particular for heart disease, both for prevention and treatment.

Nowadays, more than four thousand years later, *Ganoderma* continues to enjoy the same fame as it did in the early days of human history. Moreover, in the last 50 years, research conducted with increasingly sophisticated techniques has confirmed its considerable benefits. There are more than 1,000 scientific studies published in prestigious international scientific journals and collected on PubMed, the world data bank, about this mushroom. For example, it has been shown that *Ganoderma* provides adenosine, a molecule that acts by increasing the amount of blood that reaches the heart, calming and at the same time enhancing the heartbeat; that it contains an anti-inflammatory agent as good as cortisone and five antihistaminic substances.

Strong points

Its abundance of active ingredients makes *Ganoderma* a complete mushroom, which can be used both in prevention and therapy. It is beneficial for women because it stimulates the ovaries to produce lacking female hormones and improves many female disorders such as irregular menstruation and endometriosis; it impedes the development of fibroids and effectively combats the symptoms of pre-menopause and menopause. In men, instead, it stimulates the testicles to produce the male hormone when it is insufficient.

In addition, it strengthens bones and prevents osteoporosis, increases immunity against allergies, asthma and inflammatory bone diseases and improves the efficiency of the heart, increasing its performance in sport, after illness and during a particularly intense time. It also protects against cardiovascular disease. It reduces high levels of transaminases, cleanses the liver, helps digestion and controls appetite. Lastly, it helps to improve concentration, memory, energy, muscle strength, mood, the oxygenation of organs and tissues and so on (Wasser, 2005; Sanodiya et al., 2009).

Active ingredients

This mushroom contains very high amounts of biological substances beneficial to health (Baby et al., 2015; Sanodiya et al., 2009). First of all, beta-glucans, which stimulate the immune system because, in practice, they optimize the efficiency of white blood cells, creating

powerful antiviral and antibacterial defences. Moreover, some beta-glucans reduce high levels of cholesterol and triglycerides, others work as hepatic protectors and others still prevent the formation of fibrosis. A subset of beta-glucans - polysaccharides - such as ganoderan B and D, are hypoglycemic, so they lower the level of blood sugar, and improve glucose utilization in the tissues. *Ganoderma* also contains more than 130 triterpenes (almost all ganoderic acids), which have many interesting properties. The most important include:

- a cortisone-like anti-inflammatory whose efficacy is equal to that of diclofenac (Voltaren) (Joseph et al., 2009). In particular, it has an anti-inflammatory effect on the vascular walls and is a tonic for the adrenal gland;
- hormone-like substances synthesized by the pituitary, which in women stimulate the ovaries to produce lacking female hormones and in men the testicles to produce the male hormone when it is lacking;
- five antihistamines (ganoderic acid C1, C2 and D) (Kohoda et al., 1985), such as cyclooctasulfur and oleic acid;
- four anti-HIV antiviral substances: ganoderiol F and ganodermanontriol, (El-Mekkawy et al., 1998), lucidumol-B and ganodermanontriol (Min et al., 1998)
- various molecules which act as painkillers, such as ganoderic acid A, B, G and the compound C6 (Koyama et al., 1997);
- anti-inflammatory substances, such as ganoderiol F, ganodermanondiol and ganodermanontriol (Min et al., 2001);
- ganoderic acid B and C, which reduce high cholesterol levels (Sonoda et al., 1988; Komoda et al., 1997).

The mushroom is also rich in:

- adenosine, which is an excellent vasodilator which acts on the blood vessels of the cardiovascular system, brain, retina, kidneys, muscles, skin and on the peripheral blood vessels of the whole body. It is also an antiplatelet agent, which thins the blood, and has excellent anxiolytic and anti-stress properties, with a relaxing effect on the muscles, as well having powerful anti-inflammatory properties;

- antioxidants, that counteract the action of free radicals, harmful molecules responsible for the premature aging of cells and tissues;
- liver enzymes, some with detoxification properties (cytochrome P-450) and others with antioxidant properties (SOD, peroxidase, catalase), which neutralize free radicals accumulated in the liver;
- tyrosinase, which keeps the skin nice and smooth and modulates the production of melanin (the pigment that gives color to the skin), eliminating blemishes (Chien et al., 2008);
- some proteins with biological activity. In particular, LZ- 8, a protein that is very effective against anaphylaxis (a severe allergic reaction).
- prebiotics, which nurture only healthy intestinal flora, reducing pathogenic intestinal bacteria (in synergy with beta-glucans and terpenoids);
- glucomannan, a vegetable fiber which tends to promote a feeling of satiety;
- B group vitamins and vitamin D2, which mineralizes bones and teeth;
- cytochrome P-450 (CYP450), a group of liver enzymes, which make up the body's main detoxification mechanism regarding both toxins from the environment (pharmaceuticals and toxins of external origin) and endogenous toxins (waste substances produced by the body). It is most probably the most sophisticated detoxification system in nature and is present in humans, mammals and fungi.
- antioxidant enzymes, such as SOD (superoxide dismutase) and others (peroxidase, catalase, laccase), which eliminate free radicals responsible for aging and chronic and degenerative diseases;
- macro-minerals, such as magnesium, potassium, calcium, phosphorus, iron;
- trace minerals, in particular germanium (that invigorates and provides energy), zinc and selenium (antioxidant).

1st power: diseases related to the immune system and to inflammation

Diseases caused by pathogens

Ganoderma is a powerful antibacterial and antiviral agent, which boosts immunity in diseases caused by viruses and bacteria, as

shown by hundreds of research studies (Wasser, 2005). It also has anti-inflammatory properties, ensuring results similar to those of cortisone, but without the typical side effects of this drug, because its action is totally different. According to research by Professor Stavinoha, pharmacologist at the University of Texas in San Antonio in the USA (Stavinoha et al., 1991 and 1995), *Ganoderma* is an extremely useful alternative to cortisone therapy. Another confirmation of its anti-inflammatory effectiveness is provided by research that showed that *Ganoderma* has an anti-inflammatory effect equal to that of diclofenac (Voltaren), a powerful anti-inflammatory drug NSAID (Joseph et al., 2009). The double action against pathogenic microorganisms and against inflammation is useful in the prevention and treatment of respiratory tract infections such as pharyngitis, tonsillitis, bronchitis, flu, and infections of the urinary tract, such as cystitis. The mushroom is also useful for the Herpes virus, hepatitis and *Candida*.

Viral diseases: HIV

Ganoderma boosts the immune system in viral diseases, through two mechanisms of action: firstly, it boosts antiviral immunity and secondly, it prevents the virus from reproducing. It is, therefore, very effective in viral diseases, such as cold sores, shingles (viral disease caused by childhood chickenpox, affecting the skin and nerve endings), viral hepatitis A, B and C and HIV. In the case of HIV, triterpenes have been shown to inhibit HIV-1 protease (Min et al., 1998) as well as HIV-2 protease and retroviral enzymes (El-Mekkawy et al., 1998; Wasser, 2005). Proteases are HIV enzymes which allow viruses to enter cells, while retroviral enzymes are those needed to enter the cell nucleus. The terpenes in *Ganoderma* prevent the HIV virus from reproducing (Wasser, 2005; Gao et al., 2003a). HIV-1 is the predominant strain in Europe and America, HIV-2 is the predominant strain in Asia.

Allergic disease: asthma and allergies

This mushroom effectively strengthens the immune system in the different forms of allergy and asthma because it

- is anti-inflammatory

- has five antihistamine molecules - three studied by Professor Tasaka, Pharmacologist at Okayama University (Japan): 1. three ganoderic acids C1, C2 and D (Tasaka et al., 1988a and 1988b) 2. - cyclooctasulfur - 3. oleic acid (Sanodiya et al., 2009).
- eliminates the production of pathogenic antibodies. In fact, it restores Th1 cellular immunity response, the first line of defence (see [Chapter 13](#)) (Powell, 2006).

Autoimmune disease

It also restores Th1 cellular immunity response in the case of autoimmune diseases, illnesses in which the immune system produces auto-antibodies that attack certain parts of the body, the unknowing victims. Moreover, in rheumatoid arthritis *Ganoderma* also acts as a pain reliever (Ye et al., 2001; Xi et al., 2005). In one study, the mushroom reduced one of the mechanisms responsible for disease progression - an increase in the proinflammatory cytokine IL-18.

* In detail it is effective against:

Flu and similar diseases caused by virus and bacteria and other pathogens

- influenza
- sore throat
- bronchitis
- tonsillitis
- cystitis
- urinary tract infections
- *Candida*
- herpes
- hepatitis
- HIV

Allergic diseases

(Powell, 2006; Tasaka et al., 1988a and 1988b)

- allergies to pollen, dust, dust mites, animal dander or other
- allergies to chemicals
- allergies to nickel
- asthma

Autoimmune diseases

- Hashimoto's autoimmune thyroiditis
- Graves' disease
- Lupus erythematosus
- Sjögren's syndrome
- rheumatoid arthritis (Ye et al., 2001)
- other autoimmune diseases

Inflammatory diseases of all kinds

(Stavinoha et al., 1991 and 1995; Joseph et al., 2009)

- arthritis
- polymyalgia rheumatica

Other mushrooms which can be added to improve results:
Cordyceps and *Lentinus*.

2nd power: diseases related to digestion, weight and metabolism

Diseases of the mouth

Ganoderma, thanks to its beta-glucans, is very suitable for increasing the concentration of salivary IgA antibodies that protect the mouth from microorganisms, preventing stomatitis (Lehne et al., 2006). The anti-inflammatory effect contributes to the health of the mouth.

Stomach and intestinal disease

This mushroom keeps the stomach and intestines in good health, intervening at the first difficulty, for example, in digestion, and improves actual diseases such as gastritis and constipation. *Ganoderma* has been shown to be an excellent gastric protector: thanks to the presence of numerous beneficial substances, it promotes stomach function (Gao et al., 2002a and 2004c). In one research study it was found to heal lesions in the gastric mucosa induced by an irritant nonsteroidal anti-inflammatory drug (NSAID) (indomethacin) and it regenerated the gastric mucus which protectively covers the stomach mucosa. *Ganoderma* was also found to be effective in treating gastritis with *Helicobacter pylori* (Kim et al., 1996). In the intestine it is useful in constipation, food intolerances and hemorrhoids.

Metabolic disease

Ganoderma helps to lose weight, especially in the case of diseases of the metabolism, because it helps to dispose of excess fat and cholesterol, making the body slim, light and agile. Lastly, it combats high blood sugar, making it beneficial for diabetes (Gao et al., 2004b).

* In brief, it is useful for:

Diseases of the mouth, stomach and intestines

- stomatitis (Lehne et al., 2006)
- gastritis (Gao et al., 2002a and 2004c)
- difficulty in digestion (*ibid.*)
- food intolerance
- hemorrhoids
- constipation

Metabolic disease

- overweight
- high blood sugar
- diabetes

Other mushrooms which can be added to improve results: *Grifola* and *Coprinus*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Rich in antioxidant and detoxifying enzymes important to cleanse the liver, skin and body from toxins and free radicals.

Skin

Ganoderma makes the skin more beautiful, so that it is the number one cosmetic for Asian women. Among its many useful effects, it eliminates acne, build-up of impurities, small scars left by cystic acne especially, age spots and other signs of aging. *Ganoderma* also facilitates the flow of nutrients and oxygen to the skin. It also acts against disease: it eliminates eczema and the inflammation caused, for example, by allergy to nickel or by contact allergies to hair dye or substances for occupational use on construction sites or in factories. In the case of allergic diseases, it eliminates the antibodies. Lastly, it enhances the proliferation and migration of fibroblasts around

wounds and the formation of granulation tissue, which is necessary for regenerating new tissue. Mushrooms are, in fact, an important source of chitin, which has been shown to improve and accelerate the wound healing process (Chien et al., 2008).

Defence against free radicals

Thanks to its high antioxidant content, it combats free radicals, which prematurely age the skin or are produced as a result of smoking, medication or carcinogenic and other chemicals. *Ganoderma* alleviates and substantially reduces side effects due to chemotherapy, improving the quality of life for patients by increasing energy and overall well-being. For example Adriamycin (Doxorubicin) increases transaminases and damages the heart, due to free radicals. *Ganoderma*, by reducing free radicals, reduces damage to the heart (Rajasekaran and Kalaimagal, 2012).

Liver disease, high transaminase levels, hepatic steatosis

Ganoderma is a hepatoprotector that takes care of the liver, supporting its complex cleansing and production functions and freeing it from the symptoms of malfunction. In fact it is rich in cleansing and antioxidant enzymes and fights viruses that attack the liver. In addition, it reduces elevated transaminase levels, a group of enzymes that are the main marker in most liver diseases, both when they are high due to toxicity and when they are high due to build-up of fat (hepatic steatosis). In one study, *Ganoderma* was shown to possess at least four substances (triterpenoids) which protected the liver from the necrosis that is normally produced by a deadly poison which is toxic for the liver: carbon tetrachloride (Lin et al., 2002). Ganoderic acids R and S and ganosporeric acid A, have been shown to protect liver cells in mice from liver necrosis, increasing the activity of antioxidant liver enzymes (Chen and Yu, 1993; Wang et al., 2002) in laboratory studies.

Hepatitis A and C

Hepatitis C is feared nowadays because, alone, it accounts for 60% of all diseases of the liver, and especially because it leads to liver cirrhosis and liver cancer. Instead, hepatitis A is very rare. *Ganoderma* has four useful actions in all viral forms of hepatitis:

- it prevents the reproduction of the virus by blocking its enzymes (proteases, retroviral, etc.);
- it boosts antiviral immunity consisting in CD4 and CD8 lymphocytes;
- it protects and promotes the regeneration of liver cells, reducing high transaminase levels;
- it is a powerful anti-inflammatory agent similar to cortisone.

Hepatitis B

Ganoderma can heal hepatitis B totally eliminating the HVB virus from the blood. In clinical studies, ganopoly, a polysaccharide found in *Ganoderma*, protected the liver of patients with chronic hepatitis B: in six months, 33% of patients treated (17/52) once again had normal transaminase levels and 13% (7/52) achieved serum negativity for HVB virus (Gao et al., 2002b). In another study, ganoderic acid prevented the replication of hepatitis B virus (HBV) in liver cells (Li and Wang, 2006).

Damage from smoking

Ganoderma has been shown to counteract the liver damage caused by benzopyrene produced by smoking (Lakshmi et al., 2006). *Ganoderma* and in particular ganoderic acid, also defend the liver from damage from other toxic chemicals, such as carbon tetrachloride.

Gall bladder disease

Ganoderma facilitates the production and secretion of bile, which assists and facilitates digestion in the small intestine. It is also useful when the gall bladder begins to malfunction and produces biliary sand and gallstones.

Cirrhosis

Ganoderma first slows down and then reduces (or even prevents) the deposition of fibrin in the liver, the process that leads to liver cirrhosis.

Kidney disease

This mushroom protects the kidneys, which have the task of filtering the blood and removing waste. It is especially useful in the presence of kidney inflammation, nephritis, nephrosis, focal segmental

glomerulosclerosis (FSGS) and kidney failure because it has an anti-inflammatory cortisone-like effect and increases blood flow, which can often be reduced in kidney disease and lead to illness (Futrakul et al., 2003 and 2004).

Prostate problems: Benign hyperplasia

Benign prostatic hyperplasia also benefits greatly from the use of *Ganoderma*. This is a disease characterized by an enlargement of the prostate which obstructs the flow of urine. *Ganoderma* can both improve urinary flow and reduce the increase in volume of the prostate because it inhibits the 5 alpha-reductase that converts testosterone into DH-testosterone, responsible for prostate enlargement. Moreover, it blocks other biochemical pathways that lead to an enlargement of the prostate (Noguchi et al., 2008; Zaidman et al., 2008).

* In detail, it can be used for:

Skin

- gives a more homogeneous tan (Chien et al., 2008)
- inflammatory dermatitis (Stavinoha et al., 1991 and 1996)
- allergic dermatitis (Powell, 2006)
- nickel allergy (*ibid.*)
- allergy to hair dyes or other chemicals (*ibid.*)
- eczema
- acne
- cystic acne and scars
- wrinkles
- sunburn
- age spots

Defence against free radicals

- skin aging
- chemotherapy (Rajasekaran and Kalaimagal, 2012)

Diseases of the liver and gall bladder

- high transaminase (Gao et al., 2003b)
- fatty liver (*ibid.*)
- hepatitis (*ibid.*)
- cirrhosis (*ibid.*)

- gallstones (*ibid.*)
- biliary sand (*ibid.*)

Kidney disease

- chronic nephritis (or glomerulonephritis) (Futrakul et al., 2003 and 2004)
- nephrosis (Futrakul et al., 2003)
- focal segmental glomerulosclerosis (FSGS) (Futrakul et al., 2003 and 2004)
- chronic renal failure (*ibid.*)

Prostate problems

- benign prostatic hyperplasia (Noguchi et al., 2008)

Other mushrooms which can be added to improve results: *Agaricus* and *Lentinus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Tiredness and sports

Ganoderma is also beneficial because it increases blood oxygenation, blood flow to organs and cardiac efficiency. Hence, the muscles, heart and brain work better as a result of getting more oxygen and nutrition. In addition, this mushroom increases the energy produced by each cell, substantially enhancing physical vitality which leads to improved results in sports and in everyday life.

Anxiety and lack of desire to do things

This remedy allows stress to be dealt with better, alleviates anxiety and improves sleep (Wang et al., 2001), it also reduces slight depression due to everyday matters, improving mood, enthusiasm, motivation and the desire to do things (Tang et al., 2005). Lastly, it helps the neurological structure of the brain's memory centers (Zhou et al., 2012).

Cardiovascular disease

Ganoderma is an ally for the heart, because it is an excellent cardiogenic: it increases the energy yield of the heart, which obtains better results with less effort: firstly, it promotes vasodilation of the arteries; this increases blood flow throughout the body, especially in the most important vital organs like the heart and brain, but also the

kidneys, eyes and legs (Berne, 1980; Toda et al., 1982). In addition, it lowers blood pressure if it is high (Lee and Rhee, 1990), has a blood thinning effect, which facilitates blood flow, and an antioxidant effect, which protects the heart and blood vessels from damage caused by the free radicals responsible for heart disease and which increase when less oxygen reaches the heart. Lastly, a derivative of adenosine (5'-deoxy-5'-(methylsulfonyl)adenosine) and ganodermic S acid inhibit platelet aggregation (*in vivo* and in humans).

Coronary heart disease

Ganoderma reduces damage to the heart caused by an increase in free radicals in the case of alcohol abuse (Wong et al., 2004), use of Adriamycin (doxorubicin) - a chemotherapy drug, (Von Hoff et al., 1979; Rajasekaran and Kalaimagal, 2012) and old age (Sudheesh et al., 2009).

Neurological diseases

Ganoderma can have the following beneficial effects for neurological diseases (Liu, 1999):

- it protects the circulation in the brain, decreasing the risk of vascular disease;
- it helps the regeneration of nerve cells and nerves, promoting the repair of damaged parts;
- it slows down the build-up of harmful substances in the nerve cells, such as free radicals, which promote the degeneration of the cells themselves.

Parkinson's disease

In Parkinson's disease, *Ganoderma* protects the dopaminergic neurons in the midbrain (substantia nigra), which control movement, from degeneration (Zhu et al., 2005). It has been shown to be useful in prevention and in treatment (Zhang et al., 2011). The administration of *Ganoderma* in laboratory animals with Parkinson's disease increased the level of dopamine and hence reduced symptoms (Phan et al., 2015).

Tremor

This mushroom is very effective in reducing tremor.

Multiple sclerosis

In multiple sclerosis *Ganoderma* helps to repair damaged nerves, stimulating the synthesis of some proteins of the nerves (Zhang et al., 2006).

Sexual problems

(Shimizu et al., 2009)

Ganoderma promotes the production of oestrogen and progesterone, supporting female sexual functions.

Menstrual irregularities, loss of libido, reduced fertility

This mushroom combats menstrual irregularities, decreased libido, reduced fertility.

Endometriosis

It is excellent for endometriosis.

Premenopause and menopause

It is useful in premenopause, when it tends to maintain menstrual periods up to the age when they stop. In menopause it eliminates symptoms such as hot flushes, which are the most frequent.

In men

It is useful also for men: it promotes the production of testosterone, helping the male sexual functions, and combats reduced fertility.

Joint and muscle problems

Ganoderma protects the bones and muscles because:

- it strengthens the bones, articular cartilage and connective tissue that support the skin and organs;
- it protects joints subject to wear and tear and inflammation;
- it has a relaxing, analgesic and antispasmodic effect.

Osteoporosis

This mushroom strengthens the bones and connective tissue. Thanks to ganoderic acid DM, it slows the action of osteoclasts, cells that destroy bone (Miyamoto et al., 2009). This process is worsened by acidosis caused by a diet high in animal protein and cereals, stress and a sedentary lifestyle.

* In brief, it is useful in the following cases.

Anxiety and lack of desire to do things

- anxiety (Tang et al., 2005)
- mild anxious-depressive symptoms (*ibid.*)

- insomnia and disturbed sleep (*ibid.*)
- psychosomatic illnesses (*ibid.*)

Tiredness and sport

- sport
- intense pace of life
- convalescence

Cardiovascular disease

- heart disease
- extrasystoles
- tachycardia
- cardiac rhythm abnormalities (Rajasekaran and Kalaimagal, 2012)
- heart attack (*ibid.*)

Joint and muscle problems

- osteoporosis (Miyamoto et al., 2009; Shimizu et al., 2009)
- muscle contractures
- cervical pain

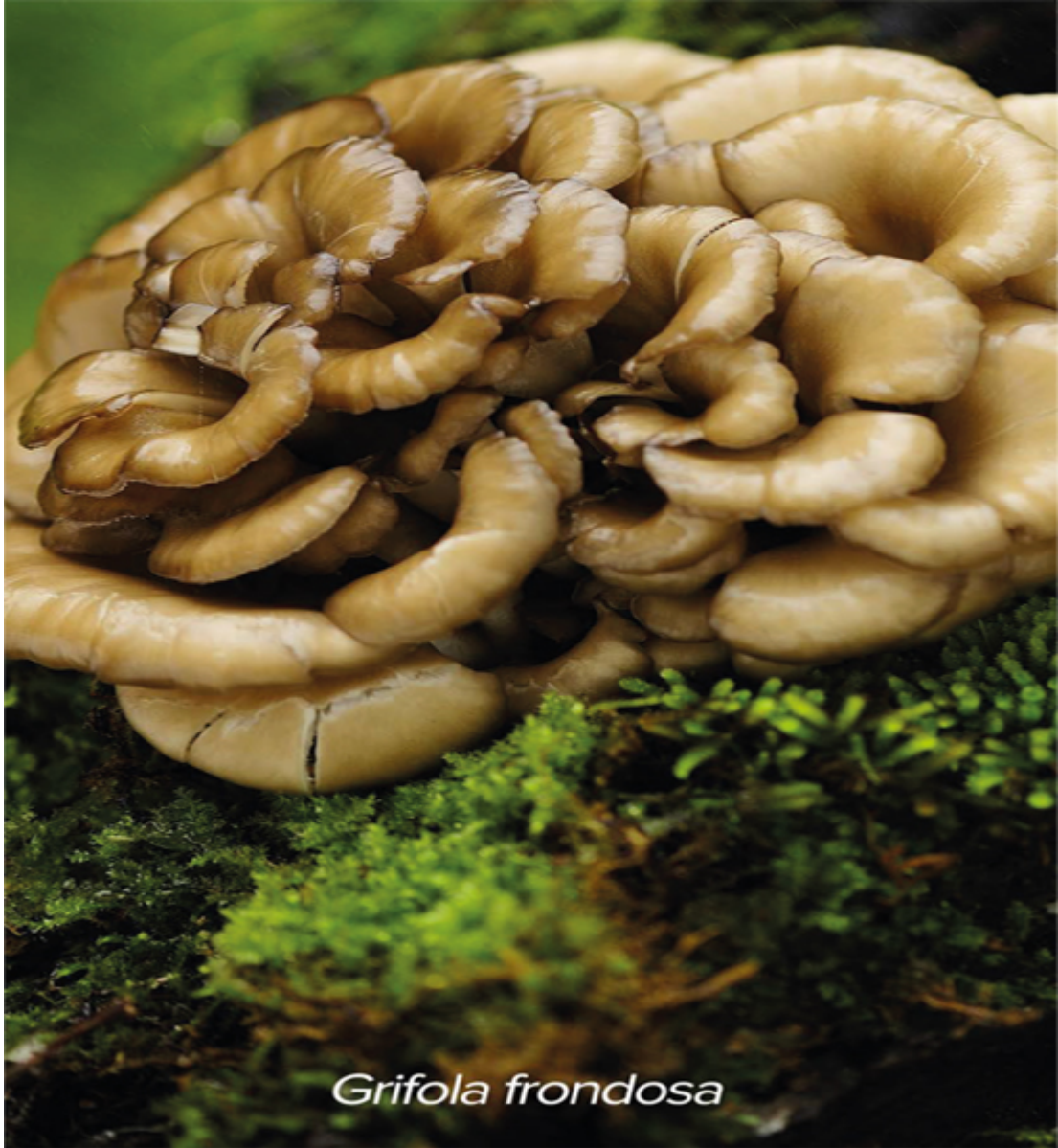
Neurological diseases

- multiple sclerosis (Zhang et al., 2006)
- Parkinson's disease (Zhang et al., 2011; Zhang et al., 2006)
- tremors (Zhang et al., 2011)

Sexual problems

- menstrual irregularities (Shimizu et al., 2009)
- decreased libido (*ibid.*)
- reduced female fertility (*ibid.*)
- endometriosis (*ibid.*)
- premenopause (*ibid.*)
- menopause (*ibid.*)
- reduced male fertility

Other mushrooms which can be added to improve results:
Cordyceps, Auricularia, Lentinus, Hericium and *Agararicus*.



Grifola frondosa

GRIFOLA (*Grifola frondosa*)

Lowers blood sugar, burns fat and combats intestinal intolerance

This mushroom is especially valued because it is a fat burner which can reduce fat tissue, and a hypoglycemic agent, useful in the prevention and treatment of diabetes. Furthermore, it possesses the rare ability to stimulate the production of blood cells and is capable of freeing the intestine from food intolerances that impose dietary restrictions.

Historical information

In Ancient China and Ancient Japan, *Grifola* had a strong reputation and was even sold for its weight in silver. Its Japanese name gives a precise idea of how it was considered in the past: it means "the dancing mushroom", indicating the joy of those who found it. Over the last fifteen years, *Grifola* has become internationally renowned, due to its effectiveness as an immunostimulant and antidiabetic agent and the fact it can reduce fat tissue. The work of the Japanese professor Nakai (Nakai et al., 1999) gave further stimulus to research, as demonstrated by the interesting work of the Japanese professor Minamino (Minamino et al., 2004 and 2008) and of the Korean group headed by Professor Jung. Nowadays, scientific interest in this mushroom has boomed, making it very popular throughout East Asia, in the US, Canada and Northern Europe.

Strong points

Grifola slims the body because it helps to dispose of accumulated fat with two mechanisms: on the one hand, fat is used more (fat burning effect), (Jung et al., 2004) and on the other, it does not build up. These two mechanisms also help to reduce the appetite, which is the reason why the remedy is such an invaluable support in dieting.

It also reduces hyperglycemia (high blood sugar) and insulin resistance, a pre-diabetic condition in which insulin receptors located in different parts of the body (liver, muscles, brain) are less sensitive.

Grifola is useful both in prevention and in the treatment of full-blown diabetes. Diabetes is a disease characterized by hyperglycemia, lack of energy and poor regulation of insulin, the hormone that allows the sugar in the blood to enter cells.

This mushroom also stimulates the bone marrow to produce red blood cells when they are lacking (in anemia) and white blood cells when they are lacking (in leukopenia). It has two remarkable effects in the intestine: the first is the digestive impulse, which enhances the work of the digestive enzymes, and the second is an anti-inflammatory effect. For this reason it is useful in food intolerance, which often gives pain and diarrhea, and in Crohn's disease. Lastly, like most of the other mushrooms, it has important immunostimulating properties, together with excellent antiinflammatory and analgesic effects, useful in all kinds of pain, from migraine to osteoarticular pain.

Active ingredients

Like all healing mushrooms, *Grifola* is also rich in beta-glucans and in particular contains the fractions:

- MD, able to stimulate the production of pluripotent stem cells, which give rise to red blood cells or white blood cells depending on the needs of the body;
- SX (β -glucan), a useful hypoglycemic agent: it enhances the production of insulin by the pancreas, lowers blood sugar directly and increases the use of blood sugar by the cells;
- factor X (β -glucan) and MT-alpha-glucan, which are useful in diabetes for the glucose lowering effect and the normalization of insulin function;
- HPLC fraction (water-soluble) that inhibits the formation of fatty tissue.

Moreover, this mushroom contains a hepatoprotective molecule extremely helpful for the health of the liver and possesses an anti COX 1 (COX 1 is an enzyme involved in inflammatory and painful processes) that has an analgesic and inflammatory effect.

1st power: diseases related to the immune system and to inflammation

Inflammatory diseases and pathogenic microbes (or germs)

It is one of the mushrooms with the greatest immunostimulating properties: its beta-glucans and terpenes strengthen the weakened immune system against viruses, bacteria and other infectious agents. It has excellent efficacy both in prevention and healing. Not only is it effective against less aggressive viruses, such as the flu, but also against the most aggressive viruses, such as HIV and the micro-organism causing viral hepatitis B. Thanks to its antiinflammatory and analgesic effect, it is also used for illnesses characterized by pain and/or inflammation, for example in headache (Zhang et al., 2002).

* In detail it is effective against:

Inflammatory diseases and pathogenic microbes (or germs)

- influenza
- other diseases caused by viruses and bacteria
- any type of headache, including migraine (Zhang et al., 2002)
- HIV (Nanba et al., 2000; Zhuang and Wasser, 2004)
- hepatitis B (Lee et al., 2000)

Other mushrooms which can be added to improve results:
Ganoderma, *Lentinus* and *Auricularia*.

2nd power: diseases related to digestion, weight and metabolism

Digestive system disease

Grifola is a very good regulator of the intestine and has excellent anti-inflammatory properties, with an effect similar to that of the most widely used anti-inflammatory drug, Asacol (mesalamine). For this reason it is helpful in many different gastrointestinal problems, from food intolerance to loose stools, from alternating bowel habits to Crohn's disease, from colitis to irritable bowel, from gastroenteritis to ulcerative colitis. Moreover, by stimulating enzymes in the pancreas, in particular trypsin, amylase and lipase, it enhances digestion and the absorption of nutrients in the small intestine.

Overweight

This mushroom is a fat burner, that is, it helps to reduce the buildup of adipose tissue, especially if associated with physical exercise, due

to the fact that it promotes the use of fat to produce energy, thus keeping the craving for sweets and carbohydrates under control. In fact, the use of fat contrasts hypoglycemia, which is the condition that triggers appetite. It is therefore very useful when trying to lose weight (Minamino et al., 2008). In addition, it inhibits the production of adipose tissue, because it blocks some biochemical steps necessary for the formation of fat cells. This inhibition occurs in the presence of cortisone (Minamino et al., 2004 and 2008).

Diabetes

Lastly, we must not forget its positive effect on type 2 diabetes. Some diabetes studies have demonstrated its ability to reduce blood sugar especially due to its SX-fraction (Zhuang and Wasser, 2004). This disease, that typically affects adults, stems from insulin resistance – when insulin is no longer effective. In practice, insulin continues to be present in the blood, but is no longer able to supply sugar to the cells. To use a metaphor: insulin rings the doorbell of the cell - the insulin receptor, but the receptor is oxidized and therefore makes little noise, so the cell does not hear and does not open the door to the sugar. The sugar, unable to get in, accumulates in the blood and the blood sugar level rises. And the cells that need sugar continuously, like muscles, brain and liver, are left without. In diabetes *Grifola* is useful in reducing high levels of blood sugar, through these actions:

1. it promotes glucose utilization, helping it to pass from the blood to the cell, where it can generate vital energy and physical and mental stamina;
2. it is an antioxidant and slowly re-activates oxidized insulin receptors;
3. it strengthens the cells of the pancreas that produce insulin (Manohar et al., 2002).

* In brief, it is useful for:

Digestive system disease

- food intolerances (Lee et al., 2010)
- loose stools (*ibid.*)
- irritable bowel (*ibid.*)

- alternating bowel habits (*ibid.*)
- colitis (*ibid.*)
- gastroenteritis (*ibid.*)
- Crohn's disease (*ibid.*)

Metabolic diseases

- overweight (Minamino et al., 2004; 2008)
- high blood sugar (Manohar et al., 2002)
- type 1 diabetes and type 2 (*ibid.*)

Other mushrooms which can be added to improve results: *Lentinus*, *Auricularia*, *Ganoderma*, *Agaricus*, *Coprinus* and *Cordyceps*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Liver disease

This mushroom is a powerful hepatoprotector, which lowers the high levels of transaminases (ALT and ASP) present in dysfunctions caused by chemical and biological toxins such as Dgalactosamine, a carcinogen that is formed by pathogenic bacteria in the intestine in the presence of meat. Moreover, it is one of the most effective mushrooms in viral hepatitis A, B and C, also for its immunostimulant properties (Lee et al., 2000).

Skin

It has positive effects on the skin: it makes ruined skin more beautiful again and is useful in dermatitis because it strengthens the antioxidant defences against free radicals, counteracts inflammatory factors and combats the signs of aging (Hyde et al., 2010).

Prostate

The use of *Grifola* is beneficial for prostate health. It contrasts prostate enlargement and improves urinary flow which is no longer obstructed by the increase in volume of the prostate (Boh and Berovic, 2007).

* In detail it is effective against:

Liver disease

- high transaminase levels (Lee et al., 2000)
- liver poisoning due to chemical and biological toxins (Lee et al., 2000)

- hepatitis A, B and C (Lee EW et al. 2000)

Skin

- acne (Hyde et al., 2010)
- dermatitis (Park et al., 2014)

Prostate problems

- benign prostatic hyperplasia

Other mushrooms which can be added to improve results: *Pleurotus* and *Ganoderma*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Energy

Grifola increases results in sport and fights fatigue (Jung et al., 2004).

Blood diseases

Many blood diseases, including those resulting from radiation or chemotherapy, can benefit from the use of *Grifola*. In fact, this mushroom, thanks to its beta-glucan MD-fraction, stimulates the production of pluripotent stem cells, which give rise to red blood cells, white blood cells or platelets depending on the body's needs (Lin et al., 2007).

* In brief, it is useful for:

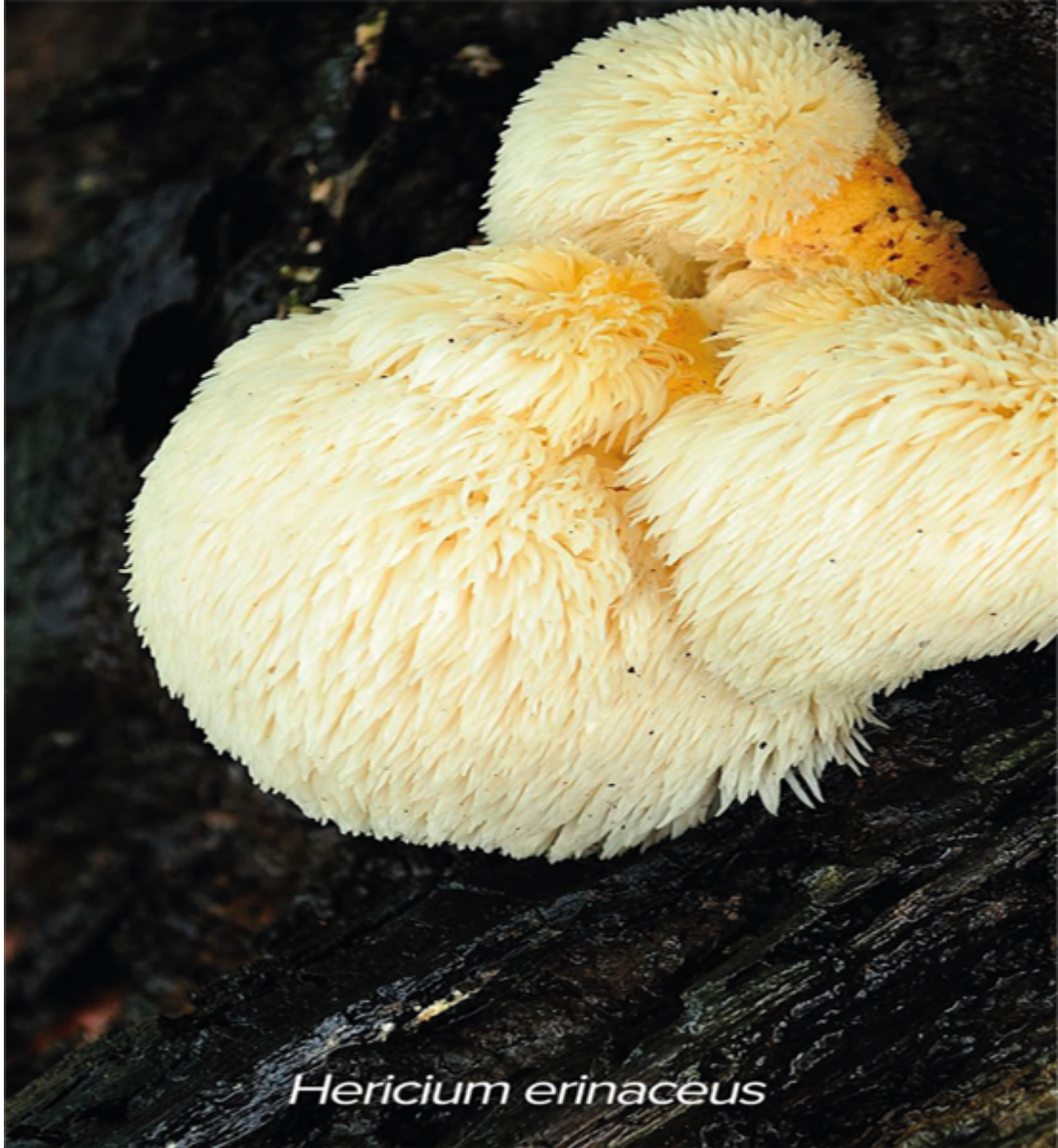
Energy

- sport (Jung et al., 2004)
- tiredness (*ibid.*)

Blood diseases

- anemia (Lin et al., 2007)
- leukopenia (*ibid.*)

Other mushrooms which can be added to improve results: *Cordyceps* and *Agaricus*.



Hericium erinaceus

HERICIUM (*Hericum erinaceus*)

Strengthens the stomach, mind and nervous system

It is one of the few mushrooms used in cooking because it tastes excellent. But *Hericum* is best known for its protective effect for the stomach, nervous system and mind.

Historical information

Hericum is an edible mushroom that grows in China and Japan, but also in Europe. Thanks to its excellent taste, it is much appreciated in cooking. Moreover, in traditional Chinese medicine it has long been used to treat diseases of the stomach, nervous system and nerves, to improve the immune system and to restore the natural strength of the body, because it has an important action in improving energy and cognitive functions. To highlight its many benefits for physical and cognitive activities, the ancient sages have even coined the saying "*Hericum* nerves of steel and the memory of a lion". Its fame has certainly not waned over the years: its healing properties are so strong as to have aroused the interest of modern scientists.

Strong points

This mushroom has a very special power: it deals with repairing the cells of the nervous system, both central (brain) and peripheral (nerves), that are damaged due to everyday wear and tear, old age and disease. It works, as shown by numerous studies, by stimulating the synthesis of NGF (Nerve Growth Factor), the main protein that can regenerate the damaged parts of neurons. That is why this mushroom plays an important role in diseases in which the nervous system is altered or degenerates. The discovery of this protein, the NGF, is the result of research by Professor Rita Levi Montalcini, who received the Nobel Prize in Medicine in 1986 for her research on this subject.

Hericum is also particularly effective in the stomach, where it is beneficial both for prevention and therapy. It regenerates the

stomach lining, even in atrophic gastritis when it is severely damaged. Moreover, it can reconstitute all digestive functions, restoring the stomach to full health and, thanks to its germicidal activity, it can effectively get rid of *Helicobacter pylori*. It also increases the protective mucus of the gastric wall. So, acidity is once again of an appropriate amount to ensure good digestion, food does not stagnate, bloating is reduced and then disappears. Finally, *Hericium* is a potent immunostimulant, anti-inflammatory and anti-bacterial agent, all thanks to its beta-glucans, terpenes and polypeptides.

Active ingredients

Hericium is a real concentration of substances useful to health. Specifically, it contains:

- beta-glucans, which have immunostimulant and antibacterial effects;
- triterpenes, essential oils with different effects: anti-inflammatory, antimicrobial, antibacterial, antiviral and anti-*Candida*;
- polysaccharides and polypeptides, powerful anti-inflammatory and antibacterial agents that can also reduce fat and cholesterol;
- erinacines, which are a group of molecules with properties useful to health, aid digestion, have a germicidal effect, are extremely useful in gastritis; and are excellent neuroprotectors;
- phenols, in particular hericenone and hericenone, that stimulate the nerve growth factor NGF;
- diterpenoids of the mycelium, which together with the erinacines H and I, fight high cholesterol;
- selenium, an important antioxidant, which protects cells from free radicals (harmful molecules) from within the body or from outside, from environmental pollutants and UV radiation;
- various nutrients, such as vitamin D, lectins, particular anti-toxic fatty acids, minerals (it is worth highlighting, in particular, the high content of potassium and phosphorus and the low sodium content) and trace elements.

1st power: diseases related to the immune system and to inflammation

Inflammatory diseases and pathogenic microbes (or germs)

Hericium, thanks to its beta-glucans, terpenes and polypeptides, stimulates and strengthens a weak immune system, combating various types of microorganisms. It is therefore very useful in a large number of diseases caused by pathogens. The germicidal effect guaranteed by the erinacines and beta-glucans makes this mushroom extremely helpful against *Helicobacter pylori*.

* In detail it is effective against:

Inflammatory diseases and pathogenic microbes (or germs)

- influenza
- pharyngitis
- bronchitis
- cystitis
- *Helicobacter pylori* with or without gastritis

Other mushrooms which can be added to improve results: *Ganoderma* and *Lentinus*.

2nd power: diseases related to digestion, weight and metabolism

Digestive system disease

All diseases and symptoms affecting the stomach can benefit from the use of *Herichium*, from bloating due to slow or bad digestion, from pain to acidity, from food stagnation to gastritis. This mushroom, in fact, regenerates the mucosa (the surface layer of cells) of the stomach, which regains its normal functionality, allowing digestion to proceed normally. The two types of glands present in the mucosa begin to produce, respectively, protective mucus to cover the walls and normal acidity. In a study of mice, healing from gastric ulcer was 91% (Yu et al., 1999). It also stimulates the immune system and has an anti-microbial action, effectively eliminating the presence of *Helicobacter pylori* (Shang et al., 2013).

It is also helpful in the presence of gastroesophageal reflux, i.e. the ascent of acid gastric contents into the oesophagus, where it causes burning and inflammation. In fact, by improving digestion, it prevents food stagnating and fermenting, producing gas and bloating, and returning upwards or leading to the formation of hiatal hernia.

* In brief, it is useful for:

Digestive system disease

- stomach bloating (Yu et al., 1999)
- gastritis (Shang et al., 2013)
- gastritis with *Helicobacter pylori* (Shang et al., 2013)
- gastroduodenitis with or without *Helicobacter pylori* (Shang et al., 2013; Yu et al., 1999)
- atrophic gastritis (Hua, 2009)
- gastroesophageal reflux (Shang et al., 2013; Yu et al., 1999)
- hiatal hernia

Other mushrooms which can be added to improve results: *Ganoderma*, *Auricularia* and *Cordyceps*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Skin wounds and mucous membranes

Hericium improves the healing of skin wounds, both superficial and deep. In fact, it regenerates the skin, mucous membranes and connective tissues, as emerges from an interesting study carried out in Malaysia, where *Hericium* is widely used (Abdulla et al., 2011).

* In brief, it is useful in the following cases.

Skin and mucous membrane wounds

- skin wounds (Abdulla et al., 2011)
- diabetic ulcers (*ibid.*)

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Psychological and Neurological Diseases

The mind and nervous system benefit greatly from the use of *Hericium*. This mushroom improves psychological serenity, because it exerts an anxiolytic and antidepressant action. It is therefore useful in treating anxiety and depression, but also for combating fatigue, memory loss, difficulty concentrating, stress, tension, mental and physical exhaustion. It improves mental energy and stamina, reduced by psycho-emotional problems, daily life and sport. Moreover, it has beneficial effects in neurological disease: for example, it has been used successfully in cases of memory loss in

the elderly, for cognitive decline and in the early stages of dementia (Phan et al., 2015). Neurological symptoms were reduced, and higher cognitive functions, such as thinking and memory, improved (Kim et al., 2014). The mechanism of action highlighted by researchers included interesting reparative effects on neurons.

But even more impressive are studies carried out over the years by Dr. Wong and other researchers at the University of Kuala Lumpur (Malaysia), which have demonstrated the regeneration of nerve tissue. If *Hericium* is administered in the first few days after a trauma, it can repair even serious lesions to peripheral nerves. This is due to the action of *Hericium* on the Nerve Growth Factor, which is present in each neuron. *Hericium*, by stimulating this protein, greatly facilitates the physiological process which repairs damaged nerve tissue parts (Wong et al., 2012 and 2014; Thongbai et al., 2015). Moreover, some researchers have documented its ability to repair damage to the myelin sheath. This disease process is responsible for multiple sclerosis (Kolotushkina et al., 2003; Moldavan et al., 2007).

Anxiety-depressive disorder

Taking *Hericium* has been shown to reduce the symptoms of mixed anxiety-depressive disorder and also those of menopausal depression. It reduced anxiety and melancholy and increased mental concentration. Its anxiolytic and antidepressant effect is believed to be mediated by an increase in NGF (Nagano et al., 2010).

Multiple sclerosis

The *Hericium* mushroom is able to stimulate repair of nervous tissues, as has been documented by several research groups. It regenerates damaged parts both of the neuron and of the myelin sheath (Kolotushkina et al., 2003). These properties are useful in countering the progression of the disease since they protect the nerve tissue.

Memory difficulties and dementia

Hericium maintains the health of nerve cells and also improves memory and concentration, making this remedy an excellent choice also for slowing down brain function aging, which can lead to

impairment of memory and mental energy or to the onset of more serious disorders, such as difficulty in calculating and thinking, dementia and Alzheimer's disease. In a double-blind study in Japan on 30 elderly patients with mild dementia, taking *Hericium* 3g per day for 4 months improved cognitive function throughout the entire period (Kawagishi and Zhuang, 2008). It also protects the functions and strengthens the health of the cholinergic neurons responsible for higher cognitive functions (encephalon, frontal lobe and diencephalon) that, degenerating, lead to the cognitive decline typical of Alzheimer's disease (Friedman, 2015).

Parkinson's disease

Hericium is also useful in the prevention and treatment of serious neurodegenerative diseases such as Parkinson's disease thanks to its ability to stimulate the functions with which neurons repair the damage caused by the disease process. Also in this case its use has been shown to alleviate neurological symptoms (Kim et al., 2014). In general, it is important for the health of the brain and the nerves.

* In brief, it is useful for:

- tiredness

Mind

- stress
- anxiety (Nagano et al., 2010)
- depression (*ibid.*)

Neurological disease

- Multiple sclerosis (Kolotushkina et al., 2003)
- memory difficulties (Mori et al., 2009);
- aging of brain function (*ibid.*)
- Parkinson's disease (Kim et al., 2014)
- vascular dementia (Mori et al., 2009)
- Alzheimer's disease (*ibid.*)

Other mushrooms which can be added to improve results: *Auricularia*, *Ganoderma* and *Cordyceps*.



Lentinus edodes

LENTINUS

(*Lentinus edodes*)

For intestinal bloating, allergies and tooth decay

The species was named *Lentinus* in 1878 by the English botanist Berkeley, because of the similarity of its cap to the shape of a lens. Its traditional Japanese name, "Shiitake" is derived from the words "shii" - oak and "take" - mushroom and means: mushroom that grows naturally on oaks. It grows, in fact, in oak forests at low temperatures. Nowadays it is used primarily for strengthening the intestines, the immune system and the bones.

Historical information

In China in 1500, during the Ming dynasty (1368-1644), the *Lentinus* mushroom was already well known, not only in cooking, but especially in medicine. It was considered an invaluable remedy for diseases of the intestine, respiratory tract, liver and bones, for the weakening resulting from old age and to increase energy. Over the centuries it has been used for flu, fever, bronchitis, coughs, allergies, intestinal diseases, diseases of the bones and the teeth.

Lentinus was the first mushroom studied by scientists in modern times and for this reason is still one of the best known and appreciated healing mushrooms. It became renowned in 1964, after the Japanese health authorities decided to promote a series of epidemiological studies on the prevalence and distribution of the main chronic diseases throughout the country. The results revealed a very peculiar situation: in two areas of the country, disease was almost entirely absent, and the population was very long-lived. The institutions then financed other studies to discover the secrets of the exceptional health and longevity of the population in those two areas. It turned out that they are areas in which *Lentinus* grows and is widely used in diet. It was the use of *Lentinus*, therefore, to make health "special" in those areas. Following these findings, the remedy spread like wildfire throughout Japan and beyond, winning international acclaim.

Strong points

Although very popular, *Lentinus* does not possess all the powers of more complete mushrooms. However, it is unsurpassed in some areas: for the intestine, the immune system and the oral cavity. Firstly, it is excellent at protecting the intestines. In fact, it nourishes the intestinal lactic acid bacteria that combat hostile bacteria - bacteria which ferment, causing bloating, and putrefactive bacteria, which produce toxins and carcinogenic substances. As a result it strengthens the immune defences located in the intestine and restores health to this organ. Hence, since the intestinal defences are the basis for strengthening the immune system in the whole body, it is useful in the prevention and treatment of diseases caused by viruses and bacteria, such as influenza, bronchitis, cystitis, herpes, hepatitis, HIV and hepatitis. Lastly, it combats tooth cavities and tartar, and promotes bone health.

Active ingredients

This mushroom contains more than one hundred active ingredients useful to the body. The main ones are:

- eta-glucans, potent immunostimulators and antiviral and antibacterial agents. The most useful is lentinan, a drug approved by the Japanese Ministry of Health in 1976, and used regularly in hospitals throughout the country. It has proven to be effective against influenza, polio and HIV viruses (Wasser, 2005; Yamamoto et al., 1997). It is also effective against bacteria and parasites;
- oxalic acid that, like beta-glucans, possesses an anti-bacterial effect;
- Ac2P, a polysaccharide similar to beta-glucans, which inhibits the replication of some viruses (Poucheret et al., 2006);
- terpenoids, essential oils that enhance immunity;
- trehalose, a sugar that nourishes intestinal lactic acid bacteria. It plays an important role in improving the equilibrium of the intestinal bacterial flora;
- vitamin D2 and ergosterol, which promote the mineralization of bones and teeth;
- antioxidants, including superoxide dismutase (SOD), useful against free radicals, the harmful molecules that lead to various diseases;

- enzymes which aid digestion and many vital cell processes;
- eritadenine, a substance which lowers lipids a little, which slightly reduces total cholesterol.

1st power: diseases related to the immune system and to inflammation

Diseases caused by pathogenic germs

When the intestine is healthy, the whole body is healthy. This is the reason why *Lentinus* is so useful: by maintaining a healthy intestine it promotes health in the whole of the body. *Lentinus* repopulates the intestine with healthy lactic acid bacteria. Thanks to its high trehalose content it nourishes intestinal lactic acid bacteria which increase and reduce the amount of hostile bacteria: fermenting bacteria, which cause bloating, and putrefactive bacteria, which produce toxins and carcinogens. Moreover these hostile bacteria are also controlled by beta-glucans and terpenes, a second weapon for the elimination of pathogenic microorganisms. It creates a solid immune barrier to protect the intestine from viruses, bacteria (*Staphylococcus aureus* and others) and *Candida albicans* (fungus), as well as toxins and chemical additives which are therefore not able to reach the blood and the body organs. Moreover, the intestine, once again inhabited by healthy intestinal flora, strengthens the intestinal immune defences that are the basis of the defence system of the whole body. It also contains eritadenine, centinamycin A and B and other compounds endowed with antibacterial and antiviral properties.

Allergic and autoimmune disease

This mushroom protects (both as prevention and treatment) the intestines and the body from diseases caused by pathogenic microbes, but also from allergic and autoimmune diseases. In fact, antibodies and autoantibodies are formed when intestinal immunity is impaired (Yamada et al., 2007). Lastly, it is unique in that it protects against mold, even toxic mould, such as aflatoxin mycotoxins.

Inflammatory disease

In chronic inflammatory diseases treated with cortisone, such as chronic arthritis, and chronic polymyalgia rheumatica, *Lentinus* has the ability to counteract a part of the triggering mechanisms.

* In detail it is effective against:

Flu and similar diseases caused by viruses and bacteria

(Wasser, 2005)

- flu (caused by viruses and bacteria) (Wasser, 2005)
- *Streptococcus influenza* (*ibid.*)
- sore throat, pharyngitis (*ibid.*)
- bronchitis (*ibid.*)
- otitis (*ibid.*)
- cystitis (*ibid.*)
- antibiotics (side effects)

Diseases caused by viruses and other germs

- cold sores
- genital herpes
- papilloma virus (Hobbs, 2000)
- protozoal diseases (Badalyan, 2004)

Allergies of all types

- allergies to nickel, dust, mites, dander etc. (Yamada et al., 2007)
- asthma (*ibid.*)

Autoimmune diseases of all types

- Hashimoto's thyroiditis
- Graves' disease
- rheumatoid arthritis
- SLE (systemic lupus erythematosus)
- scleroderma
- Sjögren's syndrome
- autoimmune diseases of all types

Inflammatory diseases of all types

- chronic arthritis (Wasser, 2005)
- multiple sclerosis
- polymyalgia rheumatica
- diseases treated with cortisone

Other mushrooms which can be added to improve results: *Ganoderma* and *Agaricus* (*Cordyceps* for asthma).

2nd power: diseases related to digestion, weight, metabolism

Digestive system disease

This mushroom is the intestine's best ally and is useful in many different situations. It is excellent against intestinal bloating and disorders caused by a diet rich in animal protein: inflammation, abdominal colic, intolerances and sometimes loose stools or diarrhea. This is because firstly, thanks to its trehalose content, it nourishes the most important lactic acid bacteria (*Lactobacillus brevis* and *Bifidobacterium breve*) and, secondly, thanks to its glucans and terpenes, it eliminates pathogens (*Escherichia coli*, *Staphylococcus aureus*, *Enterococcus faecalis* and *Candida albicans*) as shown in an interesting research study (Kuznetsov et al., 2004). Moreover, it gently massages the bowel with its fibres, facilitating intestinal function. It also enhances local immunity: in this way toxins and impurities decrease and do not cross through the intestinal walls or get into the circulation. *Lentinus* is also useful because it inhibits the harmful enzymes produced by pathogenic bacteria (Mizuno et al., 2009).

* In brief, it is useful for:

Digestive system disease

- bloating (Bae et al., 1997; Kuznetsov et al., 2004; Mizuno et al., 2009)
- diet rich in animal protein (*ibid.*)
- inflamed intestine (*ibid.*)
- intestinal intolerance
- loose stools or diarrhea (Bae et al., 1997)
- abdominal colic (*ibid.*)
- colitis (*ibid.*)
- irritable bowel syndrome (*ibid.*)
- *Candida*, yeasts and intestinal parasites
- Crohn's disease
- anemia due to decreased absorption of iron
- celiac disease in adults

Other mushrooms which can be added to improve results: *Grifola*, *Ganoderma* and *Auricularia*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Skin

Skin diseases benefit greatly from the use of *Lentinus*. This mushroom, in fact, eliminates the toxins and impurities that come from the intestine and accumulate in the skin.

* In detail, it can be used for:

Skin

- acne
- dermatitis
- skin diseases

Other mushrooms which can be added to improve results: *Ganoderma* and *Agaricus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Mouth problems

Lentinus reduces and eliminates dental plaque, because it prevents the bacteria responsible for its formation from colonizing the mouth (Shouji, 2000; Zaura et al., 2011; Signoretto et al., 2011). As a result, it is useful to combat tartar, but also tooth decay, gingivitis and abscesses, which are caused by a build-up of plaque (Ciric, 2010 and 2011). It strengthens the immunity of the oral cavity and rebalances the bacterial flora, both of which, when altered, can cause inflammation, gingivitis, abscesses, periodontal disease, tooth decay and tartar (Shouji, 2000; Zaura et al., 2011).

Bone Disease

Lentinus is beneficial for bones. According to Professor Halpern (USA) the great effectiveness of *Lentinus* in bone mineralization is linked to the fact that it is rich in vitamin D2, a substance necessary for depositing minerals in the bones. It promotes bone remineralization and increases the absorption of calcium, because it helps the intestine to digest and absorb minerals better.

* In brief, it is useful in the treatment of the following cases.

Mouth problems

- tartar (Shouji, 2000; Zaura et al., 2011; Signoretto et al., 2011)
- tooth decay (Shouji, 2000; Zaura et al., 2011)
- gingivitis (Ciric et al., 2010, 2011)
- pyorrhea (*ibid.*)
- abscesses (*ibid.*)
- osteoporosis of the jaws (which precludes dental implants)

Bone diseases (Halpern, 2007)

- osteoporosis (Halpern, 2007; Lee et al., 2009)
- bone fractures (Halpern, 2007)

Other mushrooms which can be added to improve results:

Ganoderma and *Cordyceps*.



Pleurotus ostreatus

PLEUROTUS “oyster mushroom” (*Pleurotus ostreatus*)

Eliminates cholesterol from the arteries

The oyster mushroom is one of the most effective natural remedies for reducing cholesterol and keeping arteries open, avoiding the formation of dangerous atherosclerotic plaques that cause heart disease.

Historical information

Pleurotus, also called the “oyster mushroom”, is sometimes available also in supermarkets. In fact, it is edible. In traditional Chinese medicine it is not used much. It grows all over the world and has been extensively studied in the Czech Republic by Dr. Bobek. In recent decades it has attracted the interest of scientists in Korea, the USA and India.

Strong points

This mushroom is prized primarily for its ability to reduce high cholesterol. It hampers both the synthesis of cholesterol by the liver (which produces two-thirds of total cholesterol) and the excessive absorption of cholesterol of dietary origin. In this way, it contributes significantly to the prevention and treatment of cardiovascular disease: in fact, it protects the blood vessels from the formation of atherosclerotic plaques (mainly formed of cholesterol). Consequently, the blood vessels maintain their amplitude and elasticity, increasing the amount of blood circulating in the body, an effect which is particularly important in the organs most at risk. Finally, *Pleurotus* thins the blood and reduces the workload of the heart.

Active ingredients

Among the various useful substances contained in *Pleurotus*, probably the place of honor goes to lovastatin, which counteracts the production of cholesterol by the liver. It is the basis of statins, pharmaceuticals used for hypercholesterolemia (high level of cholesterol in the blood). As a phytocomplex it does not have the same side effects as the corresponding chemical lovastatin, because

it contains other substances which act on all the other stages which lead to the reduction of excess cholesterol. However, this mushroom also contains other important active ingredients, in particular:

- beta-glucans (β -1,3/1,6-D-glucans), powerful anti-inflammatory agents, broad spectrum antibiotics (Iwalokun et al., 2007) and painkillers. Pleuran is the best known beta-glucan and is an antiinflammatory agent useful in colitis (Nosal'ova et al., 2001) and in arthritis (Bergendiova et al., 2011);

- alpha-glucans (1,3/1,4) which, along with beta-glucans, nourish lactic acid bacteria, in particular lactobacilli and bifidobacteria (Synytsya et al., 2009);

- antioxidant enzymes, such as superoxide dismutase (SOD): it is the mushroom with the greatest antioxidant power, useful for eliminating free radicals, the molecules that when synthesized excessively accelerate the aging of cells and tissues;

- liver enzymes such as cytochrome P450, with which the liver digests and transforms all substances that need to be processed;

- adenosine which, with its vasodilator effect, increases the blood flow throughout the body. This action is especially important at the level of the vital organs such as the heart, brain, kidneys and eyes, but also throughout the rest of the body. Moreover, It is a great anxiolytic;

- γ -aminobutyric acid (GABA), which has soothing and anti-stress effects at a psychophysical level (on the mind and muscles), (Chirinang and Intarapichet, 2009);

- chitosan which reduces the absorption of cholesterol and fats in the intestine (Synytsya et al., 2009).

1st power: diseases related to the immune system and to inflammation

Inflammatory diseases and pathogenic microbes (or germs)

Pleurotus has excellent anti-inflammatory properties: its activity reduces the proinflammatory cytokines TNF- α , IL-1 and IL-6, which produce inflammation. Its excellent anti-inflammatory properties, with effects similar to those of Voltaren (diclofenac), a very powerful anti-inflammatory medication, have been demonstrated in the laboratory

and in arthritis (Rovenský et al., 2011). Its effectiveness is similar to that of *Ganoderma*, which also has efficacy similar to that of Voltaren. Thanks to these excellent anti-inflammatory properties it is useful in many inflammatory diseases, both in prevention and treatment. Indeed, people taking this mushroom are well protected from inflammatory symptoms such as sore throat, bronchitis, back pain, arthritis (Rovenský et al., 2011). It is especially helpful in prostatitis. It also has a broad antibacterial spectrum, which is useful in eliminating pathogenic bacteria, as demonstrated by interesting research conducted in Nigeria at the University of Lagos (Iwalokun et al., 2007).

* In detail it is effective against:

Flu and similar diseases caused by virus and bacteria

- fever (Bergendiova et al., 2011)
- influenza (*ibid.*)
- sore throat (pharyngitis) (*ibid.*)
- bronchitis (*ibid.*)
- bronchitis due to smoking (Bezalel et al., 1996)
- cystitis
- prostatitis

Inflammatory diseases

- arthritis (Rovenský et al., 2011)
- inflammatory diseases (Nosal'ova et al., 2001)

Other mushrooms which can be added to improve results: *Lentinus* and *Ganoderma*.

2nd power: diseases related to digestion, weight and metabolism

Intestinal diseases

Pleurotus, thanks to its anti-inflammatory effect, is helpful in colitis, both in treatment and in prevention (Jedinak et al., 2011; Nosal'ova et al., 2000). It also contains a useful prebiotic, which nourishes lactic acid bacteria necessary for intestinal health: lactobacilli for the small intestine and bifidobacteria for the colon (Synytsya et al., 2009). Bifidobacteria are the most important to nourish, because they easily decrease with age and with the use of certain

medications (antibiotics, anti-inflammatory drugs). Bifidobacteria and lactobacilli are also useful because they degrade some carcinogenic N-nitrosamines, produced by pathogenic intestinal flora.

Metabolic diseases

This mushroom reduces both total cholesterol and LDL, the so-called "bad cholesterol", acting at several levels: it hampers production by the liver, reduces intestinal absorption and increases its elimination through the bile. This results in a reduction of cholesterol in the blood, liver, heart, carotid arteries and aorta. This also reduces cardiovascular risk since if cholesterol is not too high it is not deposited in the arteries. Hence atherosclerotic plaques, which obstruct circulation, do not form and those already existing reduce in size. In addition, when necessary, it lowers the level of triglycerides, another type of equally harmful fat which originates mainly from dietary excesses, and increases the good cholesterol "HDL", which protects against damage caused by bad cholesterol (Bobek et al. 1995; Bobek and Galbavý, 1999).

* In brief, it is useful for:

Intestinal diseases

- Colitis (Nosal'ova et al., 2000; Synytsya et al., 2009)

Metabolic diseases

- high cholesterol (Bobek et al., 1995)
- high triglycerides (*ibid.*)
- arteriosclerosis (obstruction) of the arteries (*ibid.*)
- diabetes

Other mushrooms which can be added to improve results:
Auricularia, Grifola.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Liver disease

The liver, especially in the presence of hepatic steatosis (or enlarged liver) and hepatitis, benefits greatly from the use of this mushroom. Firstly, the oyster mushroom counteracts the build-up of cholesterol in the liver, responsible for steatosis. It is useful both in prevention and treatment, disposing of existing fat. Moreover, thanks to

lovastatin and to the enzymes that combat fats, it helps to detoxify the liver cells and, thanks to its high content in the most important liver enzymes (such as cytochrome P- 450), it reduces high levels of transaminases (it increases the quantity of enzymes in the liver) (Bobek and Galbavý, 1999). Finally, this remedy protects the liver by increasing the antioxidant defences, which are composed mainly of SOD (superoxide dismutase) and glutathione (GSH). In a study on mice it protected the animals from carbon tetrachloride, which is extremely toxic for the liver (Jayakumar et al., 2006).

Kidney disease

This remedy is so useful for the kidneys that in some studies its administration improved levels of creatinine and urea, facilitating the flow of blood in the arteries of the glomerulus (Sirag, 2009).

This is the reason why *Pleurotus* is extremely helpful both in the prevention and in the treatment of kidney diseases even when chronic, such as focal segmental glomerulosclerosis (FSGS), nephritis and nephrosis. Moreover, it increases glutathione (GSH), an important component of antioxidant defences, which decreases with age in vital organs such as the kidneys, brain, heart and liver (Jayakumar et al., 2010).

Diseases caused by free radicals

Pleurotus increases antioxidant enzymes, protecting against diseases caused by free radicals, such as cataract (Isai et al., 2009), which is linked to oxidative damage, and heart and brain diseases in old age (Jayakumar et al., 2007). Its antioxidant activity makes *Pleurotus* a powerful ally against damage caused by smoking, which dramatically increases the production of free radicals. Finally, it reduces and eliminates the side effects of chemotherapy and radiation therapy.

* In detail, it can be used for:

Liver disease

- liver steatosis (enlarged liver) (Bobek et al., 1995)
- hepatitis

Kidney disease

- focal segmental glomerulosclerosis (FSGS) (Sirag, 2009)

- nephrosis
- nephritis
- stenosis of the renal arterioles (Bobek and Galbavý, 1999)
- chronic renal insufficiency (glomerular vascular disease)

Diseases caused by free radicals

- cataract prevention (Isai et al., 2009)
- damage due to smoking (Bezalel et al., 1996)
- chemotherapy and radiotherapy (*ibid.*)

Other mushrooms which can be added to improve results: *Ganoderma*, *Polyporus* and *Cordyceps*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Cardiovascular diseases

Pleurotus protects against cardiovascular diseases, because it reduces and stops the degenerative process caused by arteriosclerosis, which is the formation of the arteriosclerotic plaques that cause progressive obstruction of the arteries. Dr. Bobek, researcher of the Research Institute of Nutrition in Bratislava (Slovakia), is perhaps one of the world's leading experts on the beneficial relationship between oyster mushroom and the formation of cholesterol plaques. One of his research projects showed that *Pleurotus* reduced:

- total blood cholesterol by 65%,
- cholesterol deposited in the form of plaques in the heart by 47%,
- cholesterol deposited in the form of plaques in the aorta by 79%,
- the cholesterol accumulated in the liver by 60% (as steatosis).

The result was a substantial reduction in coronary damage and myocardial fibrosis.

Pleurotus works by eliminating the free radicals that activate cholesterol and combats inflammation of the artery wall, which is the initial cause of the atherosclerotic process. It reduces the absorption of fat and cholesterol in the intestine, thanks to chitosan, while in the liver it reduces the production of cholesterol to be released into the blood vessels thanks to lovastatin.

Psychological disorders

Finally, thanks to its GABA (γ -aminobutyric acid) content, the brain mediator that counteracts anxiety, this mushroom produces relaxing and anti-stress effects at a psychophysical level, improving both the mind and the body (Chirinang and Intarapichet, 2009).

* In brief, it is useful in the following cases.

Cardiovascular diseases

- cardiovascular disease (Bobek and Galbavý, 1999)
- atherosclerotic plaques (*ibid.*)
- stenosis due to carotid plaques (*ibid.*)
- stenosis due to coronary plaques (*ibid.*)

Psychological disorders

- stress and anxiety (Chirinang and Intarapichet, 2009)

Other mushrooms which can be added to improve results:

Ganoderma, Auricularia



Polyporus umbellatus

POLYPORUS

(*Polyporus umbellatus*)

Excellent for hair loss, high blood pressure, fluid retention and kidney disease

This mushroom also grows in our forests and is particularly valued for its diuretic effect, which facilitates the work of the kidneys, counteracts kidney disease, eliminates excess sodium, slims swollen legs, promotes lymphatic drainage, reduces hypertension. *Polyporus* is also able to halt hair loss and promote regrowth.

Historical information

In traditional Chinese medicine *Polyporus* has been used for 4000 years and is appreciated, in particular, for its powerful natural diuretic activity. In fact, in the oldest Chinese manual on agriculture and medicinal plants, dating back to 2800 BC and entitled "*The Divine Farmer's Materia Medica Classic*" (Shen Nong Ben Cao Jing), its diuretic effect and its ability to eliminate edema and fluid retention were already highlighted. Over the last 20 years its renown has been corroborated, thanks to research that has shown how *Polyporus* completes and integrates substances that are missing or in short supply not only in the world of medicinal plants, but also in conventional medicine. A 1995 study, for example, confirmed that this mushroom is useful in kidney diseases, including kidney stones, while research carried out in 1994, which examined the effect of 80 different Chinese medicinal plants on hair growth, revealed that *Polyporus* is the most effective remedy.

Strong points

Polyporus has very effective diuretic properties, with an effect similar to that of a chemical diuretic but with the difference that the latter has the side effect of reducing potassium. *Polyporus* works in synergy with the kidneys, because it eliminates excess water and sodium, as do the kidneys. Moreover, it maintains the body's reserves of potassium, a mineral essential for the life of cells and, in particular, for the heart and muscles, especially in summer, when a shortage of

potassium due to sweating causes pain and muscle tension especially in the legs, and sometimes cramps. *Polyporus*, thanks to these features, it is very useful in renal disease.

Its diuretic effect is also very useful in hypertension, in fact, it reduces high blood pressure, facilitating blood circulation and also unburdens the heart, helping it to make less effort. Furthermore, it resolves fluid retention by eliminating excess fluids without lowering blood pressure when it is low or normal. Another strong point of *Polyporus* is that it protects hair: it contains substances that prevent hair from weakening and falling out. Lastly, this remedy is a natural immune stimulator, useful in cystitis, infections of the urinary tract and prostate, as well as in flu viruses and in diseases of the respiratory tract.

Active ingredients

Some compounds that have many important biological effects are present in *Polyporus umbellatus*, such as:

- aquaporins (AQP1, AQP2 and AQP3) three proteins that help to eliminate excess water and sodium (Na). They manage to eliminate a quantity of fluid similar to that removed by furosemide, a commonly used diuretic (Zhang et al., 2010);
- beta glucans 1-3 and 1-6, very rare in nature, and terpenoids (essential oils): both possess excellent natural immunostimulant properties, particularly useful in cystitis, infections of the urinary tract, prostate and respiratory tract;
- steroids, such as polyporusterone A, B and acetosyringone, three molecules that stimulate hair regrowth. They are also endowed with potent antioxidant properties (in particular, polyporusterone B).
- mannitol, a powerful antibacterial agent active in the urinary tract;
- ergone (a derivative of vitamin D2), which is responsible for the diuretic effect;
- ergosterol, provitamin D2, which promotes mineralization in the hair and bone;
- minerals such as potassium, calcium and iron. It contains an ideal proportion of potassium and sodium (5 to 1);
- trace elements, such as manganese, copper and zinc.

1st power: diseases related to the immune system and to inflammation

Urinary tract diseases

It is particularly effective in cystitis and urinary tract infections, as both prevention (it protects the bladder and urinary tract) and as treatment. In men it is extremely useful in prostate infections, while in women in vaginal inflammation (in particular due to *Chlamydia* bacteria).

Inflammatory diseases and pathogenic microbes (or germs)

This mushroom boosts the immune system in diseases caused by viruses and bacteria, and also acts as an antimicrobial agent. For this reason it also protects from flu, fever and bronchitis. It also exerts an anti-inflammatory action: thanks to its antioxidant properties, it fights free radicals (harmful molecules) that form during inflammation, creating a vicious circle that leads to chronic inflammatory disease (Zhang et al., 1991).

* In detail it is effective against:

Urinary and respiratory tract diseases caused by viruses and bacteria

- cystitis
- urinary tract infections
- vaginitis, cervicitis (chlamydia and other pathogens) (Li et al., 2000)
- prostatitis (*ibid.*)
- diseases due to a weak immune system
- fever to treat chronic hepatitis
- influenza
- bronchitis
- sore throat
- bacterial diseases

Other mushrooms which can be added to improve results: *Lentinus*.

3rd power: diseases related to the liver, skin, kidneys and defences against free radicals

Kidney disease

Polyporus is probably the greatest ally of kidney health to be found in nature. In fact, it facilitates the production of urine and the elimination

of waste substances. It is therefore useful in all kidney diseases, even in the most serious, such as kidney failure, glomerulonephrosis (FSGS), nephritis and nephrosis with protein loss (proteinuria). It is excellent in resolving kidney stones: thanks to the elimination of a greater amount of citrate, it reduces the formation of calcium stones and the acidity of the urine, protecting the urinary tract.

Renal colic

Also in this case muscle pain is very violent due to spasm of the ureter, the duct that goes from the kidney to the bladder. The ureter can be blocked due to a kidney stone. *Polyporus* has an alkalizing action on urine, it tends to prevent the formation of stones which are stimulated by the acidity of urine (Wang et al., 2004). Moreover it has a diuretic effect that, by promoting the elimination of fluids with urine, sometimes allows the stone to pass into the bladder and be expelled, resolving the problem.

Fluid retention

This mushroom is a great help for treating water retention, because due to its potent diuretic activity it promotes kidney function and helps the kidneys to remove excess fluid and sodium, without causing any side effects (Zhang et al., 2010). Consequently, it slims swollen legs and ankles, eliminates pain and makes them more beautiful. It can be used in early spring, to get rid of fluids and toxins accumulated during the winter and during the summer, to reduce water retention due to the heat.

Venous insufficiency

Polyporus provides valid support in the case of venous insufficiency and, therefore, for the circulatory and lymphatic stasis that gets worse when standing and sitting still for long periods.

Liver disease

Chronic hepatitis B is still a serious health problem worldwide. *Polyporus* has been used to treat chronic hepatitis B in some clinical trials and has achieved positive results on HBV replication markers and abnormality of ALT (Shi et al., 1998; Liu et al., 2001; Xiong, 1993). *Polyporus* can even be used for treating cirrhosis with ascites

- an abnormal build-up of fluid in the abdomen: on the one hand it helps to detoxify the liver cells, while on the other it eliminates fluid.

Hair and nail problems

Lastly, the "cosmetic" use of *Polyporus*. It prevents hair falling out, protects it from aging and promotes regrowth, thanks to two substances: polyporosterones A and B, which have a chemical structure similar to that of cortisone, estrogens, androgens. These are the hormones that fix minerals, the substances that strengthen and encourage the growth of the hair, but also make the bones and fingernails stronger. That is why this mushroom is very useful for brittle hair, alopecia areata (common hair loss that occurs with age), weak nails and also for osteoporosis.

Diseases caused by free radicals

Thanks to polyporosterones A, B and acetosyringone, endowed with potent antioxidant activity (in particular, polyporosterone B), it combats diseases caused by free radicals, especially cardiovascular disorders (also thanks to its diuretic effect).

* In detail, it can be used for:

Kidney disease

- renal failure (Yuan et al., 2004)
- focal segmental glomerulosclerosis (*ibid.*)
- nephritis (*ibid.*)
- nephrosis (*ibid.*)
- kidney stones (Wang et al., 2004; Koide et al., 1995)

Fluid retention disease

- swollen legs and ankles (Yuan et al., 2004; Zhang et al., 2010)
- venous insufficiency

Liver disease

- hepatitis B (Shi et al., 1998; Xiong, 1993; Liu et al., 2001)
- cirrhosis with ascites (*ibid.*)

Hair and nail problems

- hair loss (Inaoka et al., 1994; Ishida et al., 1999)
- alopecia (*ibid.*)
- weak nails

Diseases caused by free radicals

- diseases caused by free radicals: atherosclerosis, cholesterol plaques, vascular disease (Sekiya et al., 2005).

Other mushrooms which can be added to improve results: *Auricularia*, *Ganoderma*, *Cordyceps*, *Grifola* and *Lentinus*.

4th power: diseases related to energy (muscle, brain, heart, sexual organs, bones and joints)

Hypertension

Since it is a diuretic, *Polyporus* reduces blood volume and, therefore, high blood pressure (Zhang et al., 2010). The reduction occurs gradually. In mild cases, it is able to restore normal blood pressure, while in more severe cases it nevertheless contributes to reducing the dosage of conventional medicines. As a result, the heart is facilitated in its work and better protected.

Blood disorders

This mushroom also has an antioxidant effect that protects the red blood cell membrane from free radicals, which is extremely beneficial in the various forms of hemolytic anemia and thalassemia.

Pain and muscle cramps

In summer, the fact that it helps to recover the potassium lost in sweat makes it an excellent remedy for muscle pain and cramps. In practice, this mushroom is able to restore, at a renal level, the amount of potassium needed by body cells in general and in particular by the muscles. Moreover, *Polyporus* also contributes with its own abundant potassium content. In *Polyporus*, in fact, the ratio between potassium and sodium is 5: 1, just as it should be in our diet, whereas the average ratio in the food we eat is 1: 2, also due to industrial additives.

Bone problems

Polyporosterones A and B are similar to estrogen and androgens, hormones that fix minerals in the bones and make them, and nails, stronger. That is why this mushroom is very useful also for osteoporosis.

* In brief, it is useful in the following cases:

Cardiocirculatory disease

- high blood pressure (Yuan et al., 2004)

Blood disease

- hemolytic anemia
- thalassemia (Sekiya et al., 2005)

Muscle problems

- muscle cramps and pain

Bone problems

- osteoporosis

Other mushrooms which can be added to improve results:

Auricularia, Ganoderma, Cordyceps and Grifola.

PART F

APPENDICES

Short Dictionary

Bibliography

Index of diseases and problems

Protocols for treatment and health

Index of pictures of mushrooms

SHORT DICTIONARY

Active ingredient: a substance with biological activity, for example medicines (pharmaceuticals) or supplements (vitamins, probiotics).

Adipose tissue: the connective tissue where fat accumulates.

Alkaline foods: many vegetables, fruits, legumes, and shoots are alkaline.

ALT (alanine aminotransferase): a marker to assess liver health and monitor the hepatotoxic effects of pharmaceuticals; this enzyme synthesizes amino acids in the liver.

Amenorrhea: absence of menstruation.

Anaphylaxis: serious allergic reaction, which can cause blood pressure to drop suddenly and even death. Common causes include insect stings and pharmaceuticals.

Androgens: male hormones.

Antibody: a defensive protein which targets the enemy "antigen", i.e. the substance which triggered its production.

Antigen: a substance that when introduced into the body stimulates the production of an antibody

Antioxidants: substances that eliminate free radicals.

Anxiolytic: medication which reduces anxiety.

AST (aspartate transaminase) transaminase: transforms amino acids into molecules which can provide energy to cells. This reaction is very useful in cells that require large amounts of energy such as those in the muscles, heart and liver.

Autoantibodies: antibodies that an organism produces against any of its own tissues. The target is any of the organism's own components which is mistaken for an enemy to be eliminated. They are typical of autoimmune diseases.

Autoimmune disease: disease in which the body attacks and damages its own tissues.

Blood-brain barrier: filter present in the walls of central nervous system vessels which protects neurons from harmful substances in the blood, allowing the passage only of useful substances.

Blood glucose level: indicating the amount of sugar in the blood.

Brain mediator: brain substance with which neurons, the brain cells, communicate with each other.

Chelating: substance that binds to metals and hence can remove heavy metals such as lead, arsenic and mercury.

Chyme: partly digested food that comes out of the stomach and enters the intestine for final digestion.

Cognitive: related to thinking, judgment, calculation and other higher brain functions.

Complement system: blood proteins with anti-bacterial effects.

Coronary arteries: the arteries that distribute blood to the heart.

Cortisol: hormone produced by the body, which has various effects in addition to its anti-inflammatory activity.

Cortisone: synthetic molecule, parent to a series of drugs. It is equivalent to cortisol, the hormone produced by the body. This molecule and its derivatives are used for their anti-inflammatory effects.

CRP: C-reactive protein produced by the liver during inflammatory diseases. It is a parameter that indicates the presence of significant inflammatory disease.

Cytokines: substances which act as messengers between white blood cells. They are substances that are produced in tissues and blood by all cells and with which all cells exchange signals.

Cytokines, pro-inflammatory: pro-inflammatory cytokines are substances produced by white blood cells to exchange information and to activate inflammation.

Dermis: vascularized layer below the epidermis.

Disaccharide: simple sugar consisting of two molecules of sugar joined together: for example, sucrose consists of one molecule of glucose and one of fructose.

Double-blind study: in two groups; it is the most rigorous and impartial scientific method. One group takes the substance to be studied and the other group takes the placebo. Those examining the patients do not know to which group each patient belongs, in order to avoid bias, and the patients do not know if they are taking the placebo or the active substance either.

DNA viruses: Herpes viruses are viruses with their genetic material in the form of DNA.

Dysbiosis: alteration of intestinal flora, which in turn leads to a worsening of intestinal function.

ECG: waveform that indicates that the heart's electrical activity.

Endometrium: mucous membrane that lines the uterus, subject to hormonal stimulation that makes it thicker; part of the endometrium is then shed when there is menstrual bleeding.

Endothelium: inner wall of the capillaries.

Enzyme: specific substance necessary or useful to facilitate a biochemical reaction.

Epidermis: non-vascular outer layer of the skin.

ESR: (erythrocyte sedimentation rate): the blood test that indicates the presence of inflammation.

Ex adjuvantibus: (Latin: with the help) is a criterion that confirms the accuracy of a diagnostic hypothesis, derived from the beneficial effect of therapy.

Excipients: inert substances that are used for the preparation of a tablet or a capsule.

Extrasystole: premature heartbeat, which occurs earlier than expected, altering the regular succession of beats in sinus rhythm. Typically, an extrasystole is followed by a pause slightly longer than normal.

Fibrosis: replacement of functional tissue with inert scar tissue.

γ-GT (gamma-glutamyl transferase) liver enzyme, a marker for: hepatitis C, cirrhosis, fatty liver, alcoholism, liver toxicity from pharmaceuticals (normal levels 10-49 IU/L).

Gastro-intestinal peristalsis: rhythmic contraction along the wall of the digestive tract from the stomach to the colon, re-mixes the contents of the intestine to aid digestion and helps to move along what remains for expulsion, insufficient when there is constipation.

Glycated hemoglobin: reliable indicator of blood sugar that replaced traditional but less reliable blood glucose tests used until recently.

Hepatocyte: liver cell.

Herpes virus: Herpes Labialis (cold sore) virus (HSV-1) and Genital herpes virus (HSV-2) are DNA viruses that can replicate directly without converting their genetic material in RNA.

HIV and hepatitis C, B, A (HVC, HVB, HVA) are RNA viruses that have their genetic material in the form of RNA. They retain their genetic material in the form of RNA in the blood, but when they penetrate into the cell they infect, they use special enzymes to transform their genetic material into DNA in order to replicate and then they transform it back from DNA into RNA.

Homeopathy: approach to health problems with the use of solutions of the substance that causes the disease diluted up to 10 or 100 times.

IgA (immunoglobulin A): located in the oral, digestive and respiratory mucosa for protection. A deficiency can lead to inflammation of these mucous membranes. They are very important in the first six months of life during which babies are unable to produce antibodies and are therefore defenceless. They find the necessary antibodies to protect themselves from germs in breast milk (IgA and IgG).

IgG (immunoglobulin G): circulating antibodies, which make up the main antibody defence of the human body and account for 70-75% of all immunoglobulin.

Lactic acid is formed when the metabolism switches from aerobic to anaerobic mode.

Leg muscle pump: leg muscles which, with normal movement, push blood up towards the heart.

Leukocytes and lymphocytes: also called white blood cells, they are blood cells belonging to the immune defence system which combat pathogenic microorganisms of various kinds (viruses, bacteria, fungi, parasites) and foreign bodies.

Lymphocytes, CD4: CD4 lymphocytes are measured in HIV; they are the most important antiviral lymphocytes, fundamental in triggering antiviral immune response.

Macrophages: cells which engulf and digest toxins or bacteria.

MALT (mucosa-associated lymphoid tissue): defends the skin and the mucous membranes in the gastro-intestinal tract, urogenital

system, thyroid, lungs and eyes.

Metabolism: processes necessary for the transformation of dietary food or medicines into energy and substances which can be more easily absorbed if useful to the organism, or eliminated.

Metabolism, aerobic: aerobic metabolism is a biochemical process that takes place in the presence of oxygen.

Metabolism, anaerobic: anaerobic metabolism is a biochemical process that takes place without oxygen.

Metabolite: substance assimilated by the body, undergoes a process of transformation.

Metabolize: to transform a substance.

Molecule: substance, the smallest part of a substance that retains its chemical characteristics.

Monosaccharide: simple sugar composed of a single molecule: for example, glucose, fructose.

Mucosa: surface layer lining cavities and viscera.

Mucosa, gastric: the gastric mucosa is the layer of surface cells in the stomach.

Myometrium: muscle of the uterus, lies under the endometrium.

NASH (Non-alcoholic steatohepatitis): means non-alcoholic fatty liver disease.

NSAIDs: non-steroid anti-inflammatory drugs.

Nucleoside: one of four elements with which DNA is constructed: adenine, thymine, cytosine and guanine.

Periodontal: space of connective tissue between the tooth and alveolar bone, where there is the alveolar-dental ligament fixing the teeth to the jaw.

Physiopathological process: mechanism by which disease develops.

Phytochemical: active substance and all other substances of plant or mushroom.

Phytotherapy: health care with natural substances from the plant kingdom.

Placebo: substance without biological activity, identical in appearance and taste to real medicine.

Polysaccharides: sugar molecules arranged in long chains composed of many thousands of units. Two basic types: alpha-glucans are mainly starches, useful in diet; beta-glucans are harder and make up the coating of bacteria, but especially wood and tree bark.

Qi: (Chinese term) energy.

Receptor: special structures on the cell surface of muscles, nerves or any other cells that perceive stimulus coming from a hormone, neuromediator or another active substance.

Retina: innermost membrane of the eye, essential for sight.

Rheumatoid factor: IgM autoantibody (Immunoglobulin M).

RNA viruses: HIV virus, hepatitis C, B, A viruses and most viruses that attack humans have RNA (ribonucleic acid) as their genetic material.

Sclerosis: replacement of functional tissue with inert scar tissue.

Self-healing: automatic healing processes such as regeneration of skin, cleansing, reduction of high temperature, immunity.

Skin: made up of two layers - the epidermis and the dermis.

Steroid: synonym of cortisone, group of chemical compounds that have a specific chemical structure.

Subcutaneous tissue: underlying tissue where impurities and fat tissue accumulate, composed of connective tissue with structural purposes and loose filler tissue.

Sugar, simple: Simple sugars are sweet substances like glucose and fructose (monosaccharides) and sucrose (disaccharide).

Synapses: point of contact between one neuron and the next usually in the same nerve, along which there are intermediate stations; point of contact between a piece of nerve ending and another piece of nerve that begins.

Tachycardia: acceleration of the heart rate above 100 beats/min.

TCM: Traditional Chinese Medicine; methods include Acupuncture and Herbal medicine consisting of at least a thousand balanced and well defined herbal recipes.

TNF-a: the main protagonist of inflammation, which supports the inflammatory mechanism. Inflammation can be prevented by inhibiting it. Produced mainly by monocytes (which control

inflammation), but also by other white blood cells (lymphocytes) or tissue cells.

Triglycerides: very common type of fat in the body, related to food.

Venous return: return of venous blood from the legs to the heart.

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About individual medicinal mushrooms

AGARICUS

(Agaricus brasiliensis)

To get rid of allergies, have beautiful skin, a slim body and more energy

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AURICULARIA

(Auricularia auriculae-judae)

To protect the mind, heart, intestines and joints

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COPRINUS

(Coprinus comatus)

Effective for diabetes, hemorrhoids and liver toxicity

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CORDYCEPS

(Cordyceps sinensis)

Increases energy, helps in sports, enhances sexuality, protects the heart and lungs

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GANODERMA **(*Ganoderma lucidum*)**

For allergy and menopause, to have beautiful skin and a healthy heart

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GRIFOLA

(Grifola frondosa)

Lowers blood sugar, burns fat and combats intestinal intolerance

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HERICIUM

(*Hericum erinaceus*)

Strengthens the stomach, mind and nervous system

Abdulla MA, Fard AA, Sabaratnam V, Wong KH, Kuppusamy UR, Abdullah N, Ismail S. (2011): "Potential Activity of Aqueous Extract of Culinary-Medicinal Lion's Mane Mushroom, *Hericum erinaceus* (Bull.: Fr.) Pers. (Aphyllphoromycetidae) in Accelerating Wound Healing in Rats." *International journal of medicinal mushrooms*, 13(1): 33-39.

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LENTINUS

(Lentinus edodes)

For intestinal bloating, allergies and tooth decay

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PLEUROTUS

(Pleurotus ostreatus)

Eliminates cholesterol from the arteries

Bergendiova K, Tibenska E, Majtan J. (2011): "Pleuran (β -glucan from *Pleurotus ostreatus*) supplementation, cellular immune response and respiratory tract infections in athletes." *European journal of applied physiology*, 111(9): 2033.

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POLYPORUS

(Polyporus umbellatus)

Excellent for hair loss, high blood pressure, fluid retention and kidney disease

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Best wishes

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