



Fungal Friends & Fungal Foes

*Build Your Health with
Medicinal Fungi
and Keep Harmful Fungi
from Damaging It*

Among the kingdoms of living things, the plant and animal kingdoms are by far the best known, and few people think much about the fungal kingdom. This important kingdom contains about 80,000 species. Fungi are necessary for life on earth as they are essential to soil and plant health. When it comes to human life and health, however, some species are very beneficial and others are downright harmful. Beneficial fungi include edible and medicinal mushrooms and the yeast used to make bread and alcoholic beverages. Modern antibiotics also come from fungi and mold.

On the other hand, many species of molds and yeast can be agents of infection. Many women suffer from vaginal yeast infections and millions of people of both sexes experience unsightly toenail fungus. Children sometimes get a yeast infection called thrush and living in a moldy environment can cause severe respiratory and general health problems. Some fungi, like the yeast known as *Candida albicans*, are harmless when they are part of a healthy intestinal microflora, but become problematic when there are too many of them.

The Good Side of Yeast

If you've ever made bread from scratch, you probably know a little about yeast. When added to bread dough, yeast start feeding off of the sugars and multiplying rapidly. In the process, they give off lots of carbon dioxide (CO₂) gas and a small amount of alcohol. The CO₂ makes tiny air bubbles which help the bread dough to rise. This important process is called fermentation.

Yeast are also used to make alcoholic beverages. If you add yeast to a sugary or starchy liquid (such as grape juice or barley malt water) they'll start converting the sugars to alcohol. And the CO₂ they produce is what makes the foam in beer and the fizz in other beverages like champagne.

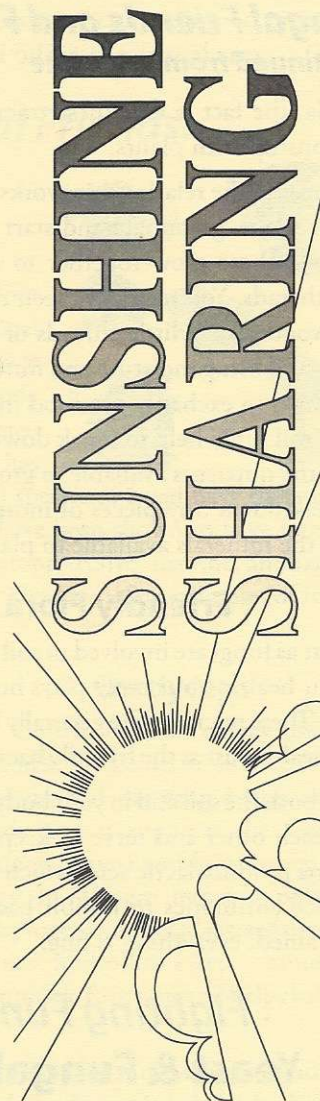
The yeast used to make bread rise and create alcohol belong to the genus *Saccharomyces*. These yeast are very high in nutritional value, especially B vitamins, which is why brewer's yeast has been used as a nutritional supplement. It is made by heating the yeast used to make beer or alcohol to kill it.



Fungi and Soil Fertility

Both fungus and bacteria live in soil and are vital to the health of plants. In fact, there are about one billion bacteria and one million fungi in the average teaspoonful of good topsoil. And while that may be enough to incite panic in anyone who suffers from a germ

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Important Notice

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phobia, the fact is that these microbes have a vital symbiotic relationship with plants.

The way the relationship works is fascinating. It starts when fungal spores germinate and start forming tiny threads called hyphae. These grow together to form mycelium, a mesh of little threads. You may have seen these on moldy bread or rotting wood. These little threads of fungi attach to the roots of plants and bring moisture and nutrients, primarily minerals, to the plants in exchange for food in the form of carbohydrates. These soil fungi help to break down dead, decaying material to make the nutrients available to growing plants. They even help to break down tiny pieces of inorganic rock, sand and clay to make the minerals available to plants.

Friendly Flora and Yeast

Just as fungi are involved in soil health they are also involved in your health. Your body plays host to about 5,000 species of fungi. These microbes are generally benign and even beneficial to your health, just as the friendly bacteria known as probiotics are.

In both the soil and in your body, fungi and bacteria compete with each other and serve to keep each other in check. Lacto bacteria produce lactic acid, which inhibits fungi. Certain fungi produce antibiotics to inhibit bacteria. As long as balance is maintained, everything is fine.

Fighting Fungal Foes: Yeast & Fungal Infections

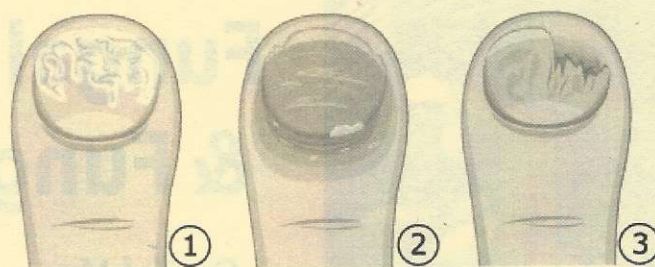


But when the immune system becomes compromised, the pH becomes imbalanced or the friendly bacteria are destroyed, fungi can multiply out of control.

This results in various yeast or fungal infections. The most common one is *Candida albicans*. When it gets out of balance, it can cause infections in the mouth and throat (thrush), the vaginal area and systemically via the bloodstream.

However, candida isn't the only species that can be a problem. According to the CDC there are about 300 species of fungus that can cause infection in the human body. Here are some of the species that can cause fungal infections.

Aspergillus can cause infection in people with lung diseases or weakened immune systems. *Cryptococcus neoformans* can infect the brain in people with AIDS and cause meningitis. A fungus in the southwestern United States called *Coccidioides* causes an infection called valley fever. Several kinds of fungus can cause toenail infections (see illustration). And finally, a fungal infection called ringworm causes a circular rash on the skin.



① Mold fungal infection

② Yeast fungal infection

③ Tinea unguium

Diet and Fungal Infections

As anyone who has used yeast for baking or brewing understands, yeast feed on sugar. So, excessive sugar and refined carbohydrates in the diet will feed yeast overgrowth. So, if you have a yeast or fungal infection, you need to eliminate all refined carbohydrates from your diet, and may need to eliminate sugary and starchy foods like fruit juices, sweet fruits, grains and potatoes. Alcohol may also contribute to yeast overgrowth because alcohol is converted to sugar (glucose) in the body and should be thought of nutritionally as a simple sugar.

Refined carbohydrates and foods high in fermentable carbohydrates (also known as FODMAPs) contribute to small intestinal bacterial overgrowth (SIBO). SIBO tends to cause yeast overgrowth in the large intestine. Both SIBO and yeast infections are forms of dysbiosis, an imbalance in the friendly flora of the intestinal tract.

Do You Have Intestinal Dysbiosis?

If you have used a lot of antibiotics, birth control pills, steroids, or other drugs which disrupt friendly flora and you have signs of compromised immune function, such as frequent colds, chronic sinus problems or autoimmune conditions, then you probably have an imbalance in the friendly flora of your intestinal tract. Brain fog, fatigue, gas and bloating, frequent belching, acid indigestion and depression may also be related to intestinal dysbiosis. If there is a vaginal yeast infection, jock itch, itchy skin/ears or toenail fungus then there is definitely an imbalance in gut bacteria favoring yeast overgrowth.

If you suspect you have yeast overgrowth or SIBO, start by adopting a generally healthy diet comprised mainly of high quality protein and non-starchy vegetables. Then use supplements that help to correct the intestinal dysbiosis. Fortunately, these supplements will work on both SIBO and yeast overgrowth.

Herbs and Supplements to the Rescue

The following are some of the many botanical allies and nutrients that can be helpful in correcting fungal infections and yeast overgrowth.

Pau d'arco bark is very helpful for yeast overgrowth. It also tones intestinal membranes and acts as a blood purifier to clear skin conditions. It works very well as a tea, and is fairly pleasant

tasting, so try drinking about one quart of the tea daily. You can also take about 8-9 capsules per day with plenty of water.



Oregano is another helpful herb for combating fungal and bacterial infections. When diluted in a carrier oil, oregano essential oil can be used topically for nail fungus and other skin infections. The essential oil can be irritating to mucus membranes when ingested, so it is better to only use the whole herb internally.

Caprylic acid is also helpful for combating fungal infections. It is a medium chain saturated fatty acid found in coconut oil. You can take it by itself or just take a couple of spoonfuls of coconut oil daily.

For tough problems try taking a **Fungal Cleanse Formula** containing these ingredients and others like garlic, echinacea and black walnut. It's also helpful to take enzymes between meals as this helps to break down intestinal biofilm containing yeast or harmful bacteria so the herbs and nutrients you take can work better.

Berberine, Liquid Silver and Essential Oils

Berberine is an alkaloid found in herbs like barberry, **goldenseal** and **Oregon grape**. It is helpful for correcting intestinal dysbiosis, reducing bacterial overgrowth and providing moderate assistance for fungal infections. It works synergistically with a Fungal Cleanse Formula, so it's a good idea to take them together. After about 6-8 weeks of taking these remedies together, follow up by taking a good **Probiotic Supplement** to restore healthy gut microflora.

An **Ionic/Colloidal Liquid Silver** product made with aquasol silver is a good alternative to antibiotics because it doesn't destroy friendly bacteria and can also help to clear yeast and fungal infections. It can be taken internally or applied topically in a gel form for jock itch, toenail fungus and athlete's foot. The liquid can also be used as a douche for vaginal yeast infections.

Essential oils can also be helpful. You can make a simple blend for combating fungal infections by combining:

- 2 drops **tea tree** essential oil
- 2 drops **lavender** essential oil
- 1 drop **thyme** essential oil
- 1 drop **lemon** essential oil
- 1 tablespoon of olive oil

The dose for this blend is one drop twice daily for children over the age of two or two drops twice daily for adults. This only needs to be taken for one week. If you experience any irritation or gastrointestinal upset taking this blend, discontinue immediately.

You can also blend these same essential oils into a tablespoon of the silver gel to apply them topically for toenail or fingernail fungus. It can also help to mix in the powder from one capsule



of a standardized **paw paw** extract, containing acetogenins. However, do not use essential oils in the genital area.

Recruiting Fungal Friends: Medicinal Mushrooms

Members of the fungal kingdom can actually help to fight fungal and bacterial infections, balance the immune system, help the body adapt to stress and otherwise produce better health. Research has confirmed that more than 270 species of fungi have therapeutic value. Medicinal mushrooms have been shown to have immune modulating, adaptogenic, hepatoprotective, nervine, antioxidant and anti-inflammatory effects. Here are a few examples of fungal friends.



Cordyceps

Cordyceps is an energy tonic in Chinese medicine. It enhances both the yin and the yang energy in the body and it supports the Chinese kidney (water) and lung (metal) energy. In Western terms, it possesses adaptogenic, antioxidant, sedative and immune balancing characteristics. It also has a hepatoprotective effect, enhances kidney and lymphatic function and helps balance blood sugar levels.

The Chinese kidney system includes some aspects of adrenal and reproductive functions and Cordyceps is helpful for both. It increases energy, improves stamina and can overcome sexual dysfunction. Researchers have shown that cordyceps increases ATP production, which enhances cellular energy.

Cordyceps can be helpful for inflammation associated with asthma and rheumatoid arthritis. It also has a protective effect on the liver and kidneys and is a tonic for the heart, cardiovascular system and lungs. It can help to improve blood flow, normalize cholesterol levels and may help reduce blood pressure.

The lung or metal energy in the Chinese system relates to the immune function in Western medicine and cordyceps definitely aids the immune system. It enhances the ability of the body to prevent and fight infection and is very helpful for people who have weak lungs and are constantly getting sick.

It is also helpful in asthma and COPD (chronic obstructive pulmonary disease). Improvements in symptoms such as shortness of breath, cough, appetite and energy have been reported.

Cordyceps is a good remedy for the elderly. Doses of just 3 grams per day (about 6 capsules) have resulted in improvements in energy, libido, memory as well as reductions in dizziness, cold intolerance, tinnitus and frequent nighttime urination. A typical dose for enhancing respiratory or immune function would be 2-3 capsules three times daily. There are no known side-effects or drug interactions.

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Continued from page 3 Reishi or Ganoderma

Clinical studies show that reishi has a wide range of actions. For starters, it boosts the immune function (via natural killer cells, macrophages and interferon) to fight both viral and bacterial infections. It also balances or modulates the immune system in autoimmune disorders. Because of this, reishi is widely used for conditions of immune deficiency such as cancer, AIDS and chronic fatigue syndrome, as well as autoimmune conditions such as lupus, rheumatoid arthritis, Crohn's disease and Ankylosing spondylitis. It may also be helpful in treating allergies, bronchitis, inflammation and HIV.

Reishi's anticancer activity is unique in that its triterpenes and polysaccharides limit tumor growth by blocking the abnormal reproductive cycles of cancer cells. Some of its compounds induce apoptosis (programmed cell death) in cancer cells, while sparing healthy tissue. Other compounds in reishi inhibit metastatic processes and decrease the expression of genes involved in cancer cell survival, proliferation, invasion and metastasis.

Reishi also supports the cardiovascular system. It helps lower blood pressure and serum cholesterol, and it helps protect the heart. It has been used in the treatment of heart deficiency, angina pectoris, heart palpitations and arrhythmia.

It is also hepatoprotective, protecting the liver against radiation and damage by toxins. It has an ORAC value of 4,000. Reishi also has neuroprotective properties and has an ability to stimulate



brain neurons. Ganoderma is a key ingredient in a *Chinese Wood Increasing Formula* for supporting liver and blood health.

Maitake

Maitake is a soft polypore mushroom typically found growing at the base of aging oaks, elms and maple trees. It has been used in traditional Japanese medicine for centuries. After arousing the curiosity of Western medical researchers, extracts of maitake were studied for their effects on the immune system and various cancers. The research suggests that maitake induces apoptosis of cancer cells and has anti-angiogenic properties that reduce the proliferation of the blood vessels that feed tumors. Other studies show that maitake can shorten the course of cancer chemotherapy, prevent chemotherapy side effects and prevent destruction of T cells by HIV.



The fruiting body of maitake is rich in complex polysaccharides, especially the beta-D-glucans. The mycelium contains low molecular weight sugars and exopolysaccharides, known to activate immune responses and enhance the ability of immune cells to kill and consume lung and breast cancer cells.

Besides enhancing immunity, maitake may also help control both high blood pressure and blood sugar levels. The α -glucosidase inhibitors it contains are believed to be responsible for these benefits.

Medicinal fungi can be found in *Immune Stimulating Formulas* along with ingredients like beta glucans, arabinogalactan, echinacea and colostrum. By boosting white blood cell count, and enhancing antibody and white blood cell activity, these formulas can enhance the body's natural ability to destroy viruses, bacteria, fungus and even cancer cells. It can be helpful for problems as simple as warding off a cold in the early stages or as difficult as dealing with serious infections such as pneumonia. Immune Stimulating Formulas may even be helpful when dealing with AIDS and cancer.

So whether you're fighting foes or finding fungal friends, make sure to remember this important living kingdom when you're working to optimize your health.

Additional Help and Information

For more information about fighting yeast or fungal infections or about using medicinal mushrooms contact the person who gave you this newsletter. You can also consult the following resources:

Mycelium Running: How Mushrooms Can Help Save the World by Paul Stamets

The Fungal Pharmacy by Robert Rogers

The Yeast Connection by William G. Crook