

# THE WONDERFUL WORLD OF MUSHROOMS

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TYPES,  
BENEFITS AND  
HOW TO  
INCLUDE THEM  
IN YOUR DIET.

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**ingredientologist**  
INGREDIENTS FOR HEALTHIER HUMANS

No doubt you've heard of the wonderful, and colorful world of 'magic mushrooms' but what's even more fascinating is the powerful world of 'medicinal mushrooms'. Now, I am not going to be talking about the well-known compound psilocybin - that's a whole other conversation. What I will cover, however, is the main medicinal mushrooms we see in many supplements and products today, why they have these medicinal properties and how you can go about choosing the right ones for you.

It is hard to believe that a natural living organism can provide such a wide array of benefits to the human body. Perhaps because of the fact that when you look at the DNA of mushrooms, they actually have more similarity with humans than they do with plants! They take in oxygen and release carbon dioxide, and they break down organic matter to produce energy, just like humans. If you haven't heard of the Fungi Kingdom, you'll want to keep reading!

## What do they do?

Far more than a tasty pizza topping, mushrooms are real superfoods. Mushrooms do a whole lot for our health, but one thing they all do extremely well is enhance the function of the immune system. We don't just need our immune cells to ward off serious infections, we also need it every day for small toxic exposures like pesticides, food allergens, air particles and more. A real problem is that stress interferes with the immune system too, creating a vicious cycle, and we are all overly stressed while we fight the Coronavirus and need our immune systems to be functioning optimally.

They are also used to prevent and treat cancer, to help boost cognition, protect brain function, reduce anxiety and act as antioxidants and anti-inflammatories. Even more, we're discovering that they're often safer and well-tolerated with very few side-effects when compared with modern pharmaceuticals. These fascinating benefits, and the growing amounts of research to back them, have given mushrooms a lot of attention in the dietary and food supplement industry all over the world.

Their benefits include:

- Enhance the immune system
- Anti-cancer & anti-tumor properties

- Antibacterial, antiviral & antifungal properties
- Blood glucose regulation
- Improved heart health
- Improved energy levels & physical performance
- Alleviate stress & anxiety

## Food Sources

Medicinal mushrooms are the epitome of 'food as medicine'! Of course, a great way to benefit from mushrooms is to include them in your diet - cooked of course. Thanks to mushroom's texture, flavor and nutritional value, they have been a part of the human diet all over the world. Most commonly eaten mushrooms include button mushrooms, portobello, porcini and oyster mushrooms, but for those of you who love to experiment with more exotic kinds, you'll have had Lion's Mane, shiitake, maitake, chicken of the woods, and enoki, to name a few. Oh, and if you're really lucky, you'll have had some white truffle - the most expensive mushroom in the world!

We know that mushrooms have incredible nutritional value, but some of the mushrooms listed above are considered medicinal mushrooms due to their therapeutic potential.

They contain carbohydrates, proteins, amino acids, fiber, minerals, vitamins and very little fat. They all differ in their nutritional content, but they're generally good sources of selenium, copper and all of the B vitamins.

One interesting fact is that mushrooms are the only plant source of vitamin D! They actually convert a fungal sterol called ergosterol into vitamin D<sub>2</sub>. Although this is vitamin D<sub>2</sub> which is not as effective as D<sub>3</sub> in humans, it still raises levels of vitamin D in the blood.

But on top of that mushrooms have more bioactive compounds that give them their medicinal properties such as anti-tumor, antioxidant, antimicrobial, anti-inflammatory and anti-aging properties. These compounds include: polysaccharides, peptides, glycoproteins, phenolic compounds, triterpenes, and unsaturated fatty acids.

Wow! If that all sounds like gibberish to you, don't worry, we will take a look at some of the major compounds such as polysaccharides, AHCC and ergothioneine found in mushrooms that we know to give us these wonderful benefits.

## Polysaccharides

The cell walls of fungi are made up of up to 90% polysaccharides which are simply long chain carbohydrates, made up of many shorter chained carbohydrates.

Polysaccharides consist of *α-glucans* and *β-glucans*. The latter are arguably the most important compounds found in mushrooms and have been more extensively studied as they are the polysaccharides that have the medicinal effects. These *β-glucans* can differ slightly in structure, for example, we see 1,3-*β-glucans* and 1,6-*β-glucans* in fungi. The number is an indication of where they have a branch in their structure and it is the unique structure that gives them different properties.

It is these 1,3 and 1,6 branching *β-glucans* that have proven to be responsible for most of the mushroom's health benefits, with years of research backing their therapeutic potential. These particular *β-glucans* are unique to fungi (and yeast). Oats and other grains also contain some *β-glucans*, but these have different structures, and high amounts of *α-glucans*.

The other group of polysaccharides called *α-glucans* are also found in mushrooms. These are compounds like glycogen, dextran, pullulan and starch. They're the types of carbohydrates that we find in other high carbohydrate foods, and are referred to as fiber.

Although they may have some health benefits, these *α-glucans* are not responsible for the medicinal effects that we will discuss below. They're often called 'polysaccharide fillers' as some mushroom supplements will claim to have a high amount of polysaccharides, while in fact they have far more *α-glucans* than *β-glucans*. It is the *β-glucan* content that is important when looking for a medicinal mushroom supplement.

The *β-glucans* in mushrooms are responsible for their huge range of health benefits, of which impacting the immune system and inhibiting the growth of cancer cells are the most notable.

- **Immune System Effect**

Evidence has shown these  $\beta$ -glucan structures to have a potentiating effect on the immune system, meaning they strengthen our immune response. When we eat mushrooms, our immune cells recognize fungal  $\beta$ -glucans and trigger an immune response. Put simply, in the gut, certain receptors in the intestinal lining bind to these  $\beta$ -glucans stimulating our innate immune cells: macrophage, dendritic cells, granulocytes and natural killer cells. Their number and their activity is significantly increased and this response is seen as an 'immune boost' in our bodies as signals are sent out to stimulate more immune cells. These cells are responsible for fighting off any infections, and are always present as they are a part of our innate immunity.

Each of these cells mentioned above have unique functions and contribute to our immune defense. For example, macrophages are a type of white blood cell that are responsible for detecting, engulfing and destroying any foreign viruses or bacteria and any unhealthy, dying or dead cells in our bodies. Natural killer cells and T-cells are specialized and identify virus infected cells, cancer cells or other damaged cells in our body. Other molecules, called cytokines are also a part of an immune system response and are also regulated by mushrooms.

- **Anti-Cancer Effects**

Our immune system must be functioning optimally in order to effectively kill off tumor cells. Mushrooms are known to enhance our adaptive immune response which can inhibit tumor growth and metastasis (secondary cancerous growths). The anti-cancer and anti-tumor effect of mushrooms is largely attributed to the biological activity of these  $\beta$ -glucans. Various mechanisms have been reported from enhanced apoptotic activity (controlled death of cancer cells) to downregulating cancer-associated genes.

It is known that chemotherapy and radiotherapy weaken a patient's immune defense, making them more susceptible to other infections. The compounds in mushrooms do a couple of things to the immune system to combat cancer: they increase the activity of macrophages, which can go on to destroy any cancer cells, and they boost the number and activity of natural killer cells and T-cells that attack remaining cancer cells. An overall enhancement in the ability of the immune system to defend against any infection is vital for a cancer patient. The antioxidant effect of mushrooms also helps to improve the body's immune function and ability to prevent cancer progression.

## AHCC

*Active hexose correlated compound* is a nutritional product that is extracted from a variety of mushrooms, but mainly the shiitake mushroom. It is commonly used to prevent and treat cancer, but it has many more amazing benefits. It contains a mixture of the polysaccharides described above ( $\beta$ -glucans and  $\alpha$ -glucans), amino acids and minerals. It has incredible immune enhancing effects that show promise for treating those with chemotherapy-weakened immune systems and for treating the influenza virus. Lastly, it has powerful antioxidant and anti-inflammatory effects making it a powerful all-around supplement.

## Ergothioneine

Another incredible compound present in mushrooms is ergothioneine (EGT). It is a naturally occurring amino acid antioxidant that is not produced by plants and animals, so we get it from our diet; mainly from fungi (mushrooms). Studies have shown that humans have a specialized protein that is used for transporting EGT in our bodies suggesting that EGT is advantageous to our longevity. To support this, a lack of EGT is seen alongside the development of inflammatory diseases and supplementing with EGT could be a means to prevent chronic inflammatory diseases.

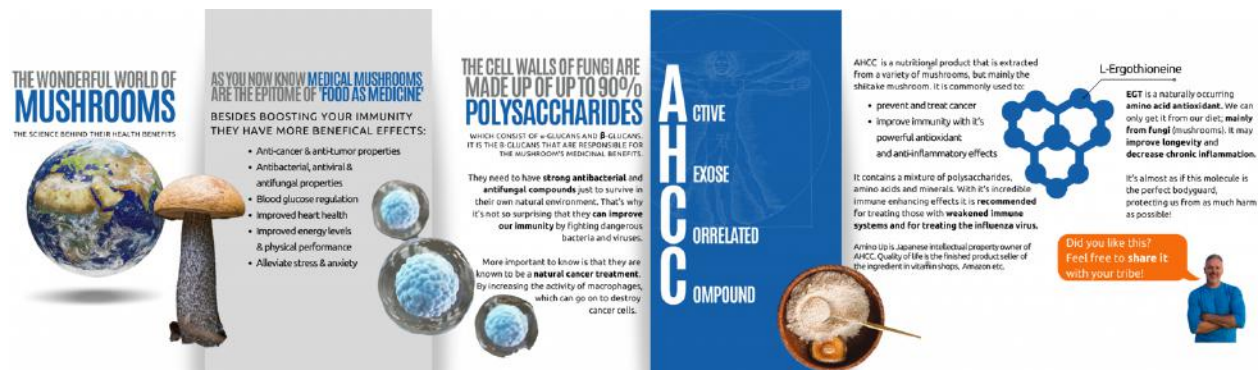
Ergothioneine can be stored in our body for about 1 month and it seems to accumulate mostly in tissues that are more susceptible to oxidation, i.e. tissues that need more antioxidants to keep them healthy. These are tissues like the liver, red blood cells, the kidneys and our eyes. It's almost as if this molecule is the perfect bodyguard, protecting us from as much harm as possible! Its ability to protect our cells is the reason it has been dubbed the 'longevity vitamin'. But remember, it's the 'L-ergothioneine' form that you want as this is the active version of the molecule.

The reason EGT is considered such a unique and potent antioxidant is because it is a very stable antioxidant, which means that once it does its job of scavenging reactive oxygen species (also called ROS; molecules that have been oxidized and cause damage to our cells), it is quickly regenerated back into its original form to act again! In contrast, when glutathione, our 'master antioxidant', fights these ROS, it is almost totally depleted in the process. EGT is 3-30x more powerful than glutathione. That is pretty incredible!

Interestingly, EGT also has the ability to bind to metals in the body. We know that the accumulation of certain metals in our tissues can cause several health issues. One being the fact that these metals bond to proteins or carbohydrates in our cells to produce ROS. EGT can bind to these metals, preventing ROS from being made and damaging our cells.

Lastly, EGT is seen in very high amounts in the mitochondria (the energy powerhouses of our cells). It protects them by fighting off ROS that are produced in the mitochondria. Briefly, when we break down food into energy in our mitochondria, we produce ROS as byproducts, which can accumulate and make our mitochondria weak and inefficient at producing energy. But, EGT sits in the mitochondria and scavenges these damaging ROS, protecting the DNA and proteins that are so vital to our cellular functions. We also know that the health of our mitochondria is tightly linked to our longevity and healthspan and so having adequate levels EGT present to protect these powerhouses is a good idea.

In addition to eating and supplementing with the mushrooms we will discuss below, there is in fact a pure ergothioneine supplement made by NNB Nutrition called [MitoPrime](#). It is made by a process called fermentation which means it is produced naturally, and it is the active form of EGT: L-Ergothioneine, and the only one on the market at that. Adding a source of EGT to your daily stack is a sure way to add a couple of years to your life!



**THE WONDERFUL WORLD OF MUSHROOMS**  
THE SCIENCE BEHIND THEIR HEALTH BENEFITS

AS YOU NOW KNOW MEDICAL MUSHROOMS ARE THE EPITOME OF FOOD AS MEDICINE. BESIDES BOOSTING YOUR IMMUNITY THEY HAVE MORE BENEFICIAL EFFECTS:

- Anti-cancer & anti-tumor properties
- Antibacterial, antiviral & antifungal properties
- Blood glucose regulation
- Improved heart health
- Improved energy levels & physical performance
- Alleviate stress & anxiety

**THE CELL WALLS OF FUNGI ARE MADE UP OF UP TO 90% POLYSACCHARIDES**  
WHICH CONSIST OF α-GLUCANS AND β-GLUCANS. IT IS THE β-GLUCANS THAT ARE RESPONSIBLE FOR THE MUSHROOMS' MEDICAL BENEFITS.

They need to have **strong antibacterial and antifungal compounds** just to survive in their own natural environment. That's why it's not so surprising that they can **improve our immunity** by fighting dangerous bacteria and viruses.

More important to know is that they are known to be a **natural cancer treatment**, by increasing the activity of macrophages, which can go on to destroy cancer cells.

**AHCC**  
ACTIVE  
HEXOSE  
CORRELATED  
COMPOUND

AHCC is a nutrigenal product that is extracted from a variety of mushrooms, but mainly the shiitake mushroom. It is commonly used to:

- prevent and treat cancer
- improve immunity with it's powerful antioxidant and anti-inflammatory effects

It contains a mixture of polysaccharides, amino acids and minerals. With it's incredible immune enhancing effects it is **recommended** for treating those with **weakened immune systems** and for **treating the influenza virus**.

Anho Up is Japanese intellectual property owner of AHCC. Quality of life is the fastest product seller of the ingredient in vitamin shops, Amazon etc.

**L-Ergothioneine**  
EGT is a naturally occurring amino acid antioxidant. We can only get it from our diet, mainly from fungi (mushrooms). It may improve longevity and decrease chronic inflammation. It's almost as if this molecule is the perfect bodyguard, protecting us from as much harm as possible!

Did you like this? Feel free to share it with your tribe!

## Top 7 Medicinal Mushrooms

Now, I know that that sounds beneficial and positive, but it might also seem a little bit overwhelming. How do you know which mushrooms to be taking, and which condition is each suited for? To help you understand the benefits of each of them, here is an overview of some of the most popular and effective mushrooms out there.

### Cordyceps

*Common names: Vegetable caterpillar, Chinese caterpillar fungus, Semitake*

This interesting mushroom is a fungus that grows on caterpillar larvae and, traditionally, a product would contain both the larvae and the mushroom, but nowadays the mushroom can be grown on its own. It is a well-known traditional Chinese medicine and is said to be the reason two world records were broken by the Chinese in the Asian Games in 1993.



#### Main benefits:

- ✓ **Increase strength & stamina:** It can improve exercise performance by increasing endurance capacity through strengthening blood vessels and actually expanding them to allow more blood flow.
- ✓ **Blood glucose control:** The polysaccharides in cordyceps can lower blood sugar levels and improve insulin sensitivity.
- ✓ **Immune system stimulant:** Cordyceps is most well-known for its immune enhancing effects by increasing survival of lymphocytes and activating natural killer cells.
- ✓ **Antioxidant:** Cordyceps naturally raise levels of antioxidants in our body such as superoxide dismutase, catalase, and glutathione.
- ✓ **Support kidney health:** Improved renal function is seen and cordyceps are used to treat kidney failure or kidney transplant patients.
- ✓ **Other benefits include:** Enhanced libido and reduced fatigue.



## Reishi

*Common Names; Ling zhi, Lin zi, Mushroom of immortality*

One of the most intriguing fungi, Reishi is best taken as an extract as it is very tough and difficult to digest. But, it is so worth it as it has over 200 active ingredients that make it a high-valued longevity herb and is actually called 'the life long herb' or 'the mushroom of immortality'! Active compounds in reishi include  $\beta$ -glucans, sterols, which act as precursors to hormones and have substances called triterpenes that have unique benefits themselves.



### Main benefits:

- ✓ **Manage stress & anxiety:** Reishi is one of many compounds known as an adaptogen; that helps to restore and maintain homeostasis in the body. Put simply, an adaptogen increases our ability to manage stress and to resist its negative consequences, from adrenal damage to other hormone imbalances, that are vital for our overall stress management. Any diseases like cancer, diabetes or heart disease are clear signs that the body is out of balance, so reishi is used to pull us back into balance. Triterpenes are thought to be responsible for this benefit.
- ✓ **Immune system stimulant:** The  $\beta$ -glucans in reishi help immune cells attack tumor cells more effectively and help to treat bacterial and viral infections.
- ✓ **Anti-cancer & anti-tumor effects:** The polysaccharides and triterpenes in reishi are likely responsible for these benefits. Studies show reishi to inhibit angiogenesis (the growth of blood vessels that supply tumors with nutrients to grow) and increase apoptosis of tumor cells.
- ✓ **Other benefits include:** Improved sleep and blood sugar control.

## Turkey Tail

*Common names: Trametes versicolor, Coriolus versicolor, and Polyporus versicolor*

Turkey tail mushrooms are also considered as an adaptogen, which means that they help to balance the body and increase its resilience against stressors. They also contain unique polysaccharides called PSK (polysaccharide-K) and Polysaccharide-Peptide (PSP) which give it potent immunomodulatory (help modulate the function of the immune system) and anticancer properties.



### Main benefits:

- ✓ **Antioxidant:** High in phenols and flavonoids, Turkey Tail helps to fight free radicals.
- ✓ **Immune system regulation:** Depending on whether the immune system is overactive or underactive, Turkey Tail can act accordingly, bringing the immune cells back into balance. This makes Turkey Tail an adaptogen. It also has high levels of selenium, vitamin D, and vitamin B3, which are crucial for boosting and maintaining immunity.
- ✓ **Anti-cancer & anti-tumor effects:** Although most of the mushrooms have anticancer properties, Turkey Tail seems to trump them all. It contains two specific polysaccharides called PSK and PSP which have been approved as a prescription drug for cancer treatment in Japan.
- ✓ **Insulin & glucose regulation:** It has the ability to regulate enzymes and genes involved in diabetes and insulin resistance.

## Lion's Mane

*Common names: monkey head mushroom, bearded tooth mushroom, satyr's beard, bearded hedgehog mushroom, pom pom mushroom*

One of the most interesting mushrooms from ancient Eastern medicine, Lion's Mane is known for its ability to improve focus and memory. It's no wonder this is an ingredient seen in almost every nootropic on the market today. According to Paul Stamets, Lion's Mane may be the first 'smart' mushroom.



### Main benefits:

- ✓ **Protect brain health:** Lion's Mane can increase levels of a protein called brain-derived neurotrophic factor or BDNF in our brains which stimulates the growth and improves the survival and function of neurons (brain cells) in the brain. It also stimulates myelination - the process of covering brain cells in a protective sheath. These effects improve the health and function of our brains significantly and could help ward off age-related neurodegeneration.
- ✓ **Improve mood & concentration:** People report having better overall mood and higher levels of concentration.
- ✓ **Treat Alzheimer's disease:** Alzheimer's is caused by a buildup of clumps of proteins called  $\beta$ -amyloid plaques. These impair our brain's ability to function and the result is Alzheimer's. Lion's Mane has been shown to reduce the size of these plaques and to improve learning of new skills.
- ✓ **High in protein:** Interestingly, Lion's Mane is 20% protein and is considered to be a gourmet food when prepared properly.

## Shiitake

*Common names: black forest mushroom, Chinese black mushroom*

Shiitake have been cultivated for thousands of years and are commonly consumed all over Asia, and the rest of the world. It contains a specific polysaccharide called lentinan which makes it stand out for it's immune system effects.



- ✓ **Promote heart health:** Shiitake mushrooms actually contain compounds that act like statins; compounds known to reduce the levels of LDL cholesterol in our blood. Its phytonutrients prevent plaques from building up in arterial walls.
- ✓ **Powerful antioxidant:** This mushroom has the highest levels of the powerful antioxidant ergothioneine.
- ✓ **Immune system stimulant:** The polysaccharides in shiitake stimulate the immune system, as they do in the other mushrooms we discuss.
- ✓ **Anti-cancer & anti-tumor effects:** A specific polysaccharide called letinan has been shown to inhibit the growth and spread of leukemia cells.

## Maitake

*Common names: King of mushrooms, dancing mushroom, cloud mushroom or hen of the woods*

Rich in minerals (such as potassium, calcium and magnesium), vitamins (B<sub>2</sub>, D<sub>2</sub> and niacin), fiber and amino acids, maitake is a nutritional powerhouse. It also has the *β-glucans* that have profound effects too.



## Main benefits:

- ✓ **Blood glucose control:** This mushroom is commonly used to treat diabetes as it can reduce blood glucose levels. This is likely due to a-glucans effect on insulin receptors increasing insulin sensitivity.
- ✓ **Anti-cancer & anti-tumor effects:** It can slow the growth of tumors and stimulate certain immune cells giving it anti-tumor effects. By stimulating macrophages, natural killer cells and T-cells, maitake may block tumor growth and improve the immune response of cancer patients.
- ✓ **Immune system stimulant:** Supplements are marketed to 'enhance immune function' as the  $\beta$ -glucans activate immune cells.
- ✓ **Other benefits include:** Lower blood pressure, aid in weight-loss (probably via improved insulin sensitivity) and lower cholesterol levels.

## Chaga

*Common names: birch mushroom, siberian chaga, clinker polypore, cinder conk, black mass*

Chaga is not the prettiest mushroom, but it sure has incredible health and healing benefits. Its main claim to fame is its high amount of antioxidants.



- **Antioxidant & anti-inflammatory properties:** Chaga can slow aging by reducing oxidative stress and inflammation - two hallmark processes contributing to aging.
- ✓ **Improves cholesterol levels:** Chaga can reduce LDL and increase HDL cholesterol levels, which is known to be beneficial for heart health.
- ✓ **Anti-cancer effect:** Due to its antioxidant properties, and the triterpenes and  $\beta$ -glucans Chaga increases the body's ability to fight cancer.
- ✓ **Other effects:** Like many of the other mushrooms, Chaga improves blood glucose levels and boosts the immune system thanks to its high amount of  $\beta$ -glucans.

**TOP 6 MEDICAL MUSHROOMS TO BOOST YOUR IMMUNITY**

**FAR MORE THAN A TASTY PIZZA TOPPING**  
Mushrooms are real superfoods. Mushrooms do a whole lot for our health, but one thing they all do extremely well, however, is enhance the function of the immune system.

Even more, we're discovering that they're often safer and well-tolerated with very few side-effects when compared with modern pharmaceuticals.

**AND WHAT ARE THEIR BENEFITS?**

- Cordyceps**
  - ✓ Increase strength & stamina
  - ✓ Blood glucose control
  - ✓ Immune system stimulant
  - ✓ Antioxidant
  - ✓ Support kidney health
  - ✓ Other benefits include: Enhanced libido and reduced fatigue.
- Turkey Tail**
  - ✓ Antioxidant
  - ✓ Immune system regulation
  - ✓ Anticancer & antitumor effects
  - ✓ Insulin & glucose regulation
- Reishi**
  - ✓ Manage stress & anxiety
  - ✓ Immune system stimulant
  - ✓ Anticancer & antitumor effects
  - ✓ Other benefits include: Improved sleep and blood sugar control.
- Maitake**
  - ✓ Blood glucose control
  - ✓ Immune system stimulant
  - ✓ Anticancer & antitumor effects
  - ✓ Other benefits include: Lower blood pressure, aid in weight-loss (probably via improved insulin sensitivity) and lower cholesterol levels.
- Chaga**
  - ✓ Antioxidant & anti-inflammatory properties
  - ✓ Improves cholesterol levels
  - ✓ Anticancer effect.
  - ✓ Other benefits include: Like many of the other mushrooms, Chaga improves blood glucose levels and boosts the immune system thanks to its high amount of β-glucans.
- Shiitake**
  - ✓ Promote heart health
  - ✓ Powerful antioxidant
  - ✓ Immune system stimulant
  - ✓ Anticancer & antitumor effects

## Supplements

Mushrooms have been recognized for their rich nutritional value for many years, and because they also exhibit medicinal properties, they are considered *nutraceuticals* - a term coined by Stephen De Felice combining the terms *nutrition* and *pharmaceutical*.

You can get fresh mushrooms and dried mushrooms. No mushrooms are grown and sold as supplements in the United States, because they're 90% water and when you dry a mushroom out, selling it becomes economically impossible. Because of this, preparation of mushroom extracts has become increasingly popular to make supplements, but this needs to be done properly to reveal their benefits.

Mushroom extracts can either be made from the **fruiting bodies** (what we know as the mushroom) or the **mycelia** (also known as spores) of the mushrooms. The fruiting body is the reproductive part of the mushroom while the mycelium is the vegetative part of the mushroom - this is the dominant phase of the mushroom life cycle. There is debate about which part has more beneficial nutrients in them.

Today, the mycelia are grown on grains such as rice or leftover beer grains, because this requires far less effort and cost than collecting or cultivating fruiting bodies in the wild. This process is known as solid state fermentation (SSF) and is widely used for the production of many nutrients or biological compounds at scale. It is relatively cheap and is similar to the natural state.

That said, the one concern of supplements is the amount of mycelium (the parts that contain all the active compounds) versus the amount of substrate (the grain it feeds on) you're getting.

This is because the mycelium and the substrate on which it is grown is all harvested, heated, dried, ground and encapsulated together. There may be some grain that is undigested by the mushroom or that has not yet been converted into active compounds.

And, as mentioned above, grain contains  $\alpha$ -glucans, and not the  $\beta$ -glucans we want from the mushrooms. Companies that run tests on polysaccharide content can claim high 'polysaccharide content, but this is likely to be majority  $\alpha$ -glucans that come from the grain.

The biological activity of the mushroom extract depends on how the extract was prepared. When the fungal material is heated, it has a greater immune-enhancing potential in contrast to raw, ground fungal material. Look for 'hot-water extracts' or 'steam-heated mushroom powders' on the product label.

Another important thing to note is that mushrooms can absorb contaminants, such as heavy metals, from the substrate that it is grown on. You want to make sure that you're getting a supplement that is made from high quality, organically grown mushrooms by reputable companies. A good idea would be to contact the brand you are using and ask them questions about their cultivation and extraction processes. Good companies will be transparent about their process and will often have tests that show the exact amount of each compound in the final extract.

When buying mushroom extracts, look for brands that:

- Provide sufficient information about the product.
- Are 100% pure extract and have no fillers or unnecessary additives.
- List the  *$\beta$ -glucan* content on the label (not total polysaccharide content)

## Which mushrooms to use for different illnesses

The best mushrooms for cancer:

- Reishi, Shiitake, Maitake and Turkey Tail

The best mushrooms for boosting the immune system:

- Cordyceps, Reishi, Shiitake, Maitake, Chaga and Turkey Tail

The best mushrooms for anxiety:

- Reishi

The best mushrooms for physical performance:

- Reishi, Cordyceps, Lion's Mane

The best mushrooms for brain function:

- Lion's Mane, Cordyceps, Reishi, Chaga

## How To Consume Mushrooms

Some medicinal mushrooms can be harvested, cooked and eaten as whole foods. These include shiitake, maitake, oyster and Lion's Mane, while reishi and Turkey Tail are too fibrous and tough to digest.

You can also make mushroom elixirs or tonics by letting them 'brew' in warm water for an hour or more. This was a common way the Chinese would prepare mushrooms to use in traditional Chinese medicine therapies.

To get the most potent dose of the bioactive compounds found in the mushrooms, concentrated extracts (as discussed above) are the most common way to supplement with mushrooms. They can be in a liquid or powder form, and sometimes may be in capsules. The powders are most common and they're very versatile as you can add them into soup, smoothies, coffee or tea.

I enjoy the convenience of having mushrooms in powder form, as opposed to having to prepare them for every meal. Four Sigmatic has a range of extracts, from coffee and hot chocolate mixes to matcha lattes and adaptogenic elixirs. Real Mushrooms is a great company that makes high quality, organic mushroom extracts, that are perfect for a more savory use. For a good blend of mushroom extracts and particularly for performance and enhanced focus, Genius Brand is my go to!

It is common to find AHCC, the compound we discussed earlier, as a supplement on its own and I am using a brand called Quality of Life.

A great way to get these powders into your daily diet is to add some to your coffee in the morning, or to make a powerful immune boosting hot chocolate with cacao powder, mushroom powder, your favorite milk and some stevia. Check out this recipe I posted on Instagram.



A final interesting point with supplementing with mushrooms is that the bioavailability of the polysaccharides in their cell walls is improved by vitamin C. Head over to the [guide on vitamin C](#) to find out what type and doses you should be taking.



If I had to summarize mushrooms, I would simply call them the ultimate superfood. I mean, take a moment to digest just how many beneficial effects these wonderful fungi provide. It is quite something, and for that reason, I am definitely an advocate for incorporating any sort of mushroom supplement into my diet.

Even if you are supplementing with a mushroom extract, it is still a good idea (and a delicious one!) to include mushrooms into your meals as often as possible. They're a great ketogenic food and they're absolutely delicious when fried in some butter. On that note, follow my Instagram page @ingredientologist to see one of my favorite mushroom recipes!

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