BIOSCULPT
FOR AN OPTIMIZED HEALTHSPAN

ADAPTOGENIC MUSHROOM BOOST

CLINICAL APPLICATIONS

- Adaptive, Intelligent Support to Modulate and Strengthen the Immune Response
- Strengthens the Body, Reduces Fatigue and Improves Stress Resilience
- Helps Maintain Normal Inflammatory Balance
- Helps Train the Immune System to Eliminate Unwanted Organisms

The use of mushrooms for enhancing physical well-being has a history of human use spanning millennia. This product features a powerful combination of six mushroom extracts with an extensive history of use in supporting human health. This targeted blend of mushrooms contains specialized adaptogenic compounds known as biological response modifiers (BRMs). These unique compounds intelligently modulate immune function and strengthen the immune response to prolonged stress, fatigue and microbial challenges. BRMs actively balance and train the immune system to maintain normal inflammatory balance, respond effectively against environmental toxins, and eliminate unwanted microbes. In addition, this formula is safe and effective for everyday use in a broad range of immune challenges.

Overview

Mushrooms are fungi with spore-producing, umbrella-shaped fruiting bodies and white thread-like structures called mycelia. Mushrooms have a number of biologically active compounds, although the most studied are the various polysaccharides found in the fruiting bodies and cultured mycelia.[1,2] These polysaccharides are mostly glucans, with glycosidic bonds in either the axial position (α-glucans) or in the equatorial position (β-glucans). In addition to polysaccharides, mushrooms also have other bioactive compounds, such as glycoproteins, terpenoids, sterols and phenolic compounds.[3-5] Mushroom compounds act as biological response modifiers that intelligently modulate immune cells like macrophages, natural killer (NK) cells and T lymphocytes. Data suggests mushroom polysaccharides and other bioactive compounds can establish Th1 to Th2 immune cell balance, strategically supporting immune function without overstimulation.

Shiitake (*Lentinula edodes*)

Shiitake is an edible mushroom native to Asia that has been cultivated as both a food and health tonic for many centuries. Both α- and β-glucans derived from shiitake are well-studied bioactive compounds. In Japan, alpha glucans isolated from shiitake are commonly used as supplements.[6] These alpha glucans have been found to modulate immune function by enhancing the immune responses of both CD4 and CD8 T cells.[7] Supplementation with shiitake alpha glucans also resulted in a 2.5-fold increase in NK cell activity.[8] Lentinan is a high molecular weight β-glucan isolated from shiitake mushroom with bioactive properties. Animal studies on the oral administration of lentinan found significantly higher circulating T cell levels in the lentinan group than the control group after four weeks.[9] Additional studies of shiitake mushroom consumption have shown decreases in C-reactive protein (CRP), a marker of normal inflammatory balance, and increases in secretory IgA (sIgA), indicating improved mucosal immunity.[10]

Reishi (*Ganoderma lucidum*)

Reishi mushroom is one of the most widely used mushrooms in the world with a 2000-year-long history of use in traditional

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Chinese medicine, and it is referred to as ling zhi, or the "mushroom of immortality."[11,12] Research on mice has found reishi extract maintains normal inflammatory balance.[13] Reishi mushroom polysaccharide extract supplementation also demonstrated enhanced immune status with increases in NK cell activity and Th1 and Th2 balancing properties.[14,15] The results of the meta-analysis of five randomized controlled trials showed that patients who had been given reishi mushroom supplements exhibited an increase in the percentage of CD4 and CD8 cells.[16] Several studies have shown that patients in the reishi group had relatively improved quality of life compared to controls. Improved quality of life relating to decreases in plasma concentrations of cytokines TNF-α and IL-1 was observed in 73.2% of the patients receiving reishi mushroom polysaccharide supplements for 12 weeks.[17] An increase in the counts of CD3, CD4, CD8 and CD56 lymphocytes and NK cell activity was also observed, suggesting a broad immune-modulatory effect of reishi-derived polysaccharides.[18]

Chaga (*Inonotus obliquus*)

Chaga has been used as a folk medicine in Russia and Western Siberia since the 16th century.[19] Chaga grows as a conk (knob-like mass) on the side of birch trees. It contains both betulin and betulinic acid that it metabolizes from the birch tree bark on which it grows. These compounds are effective free radical scavengers that can induce apoptosis in damaged cells.[20] Chaga grown on birch displayed activity against a number of human and animal intracellular microbes, which is attributed mainly to betulin, lupeol and sterol content.[21] Chaga supplementation also resulted in a 54.9% reduction of DNA damage in lymphocytes while also reducing oxidative stress in lymphocytes in vitro.[22] In a recent study, chaga extract was found to have α-amylase and α-glucosidase-inhibiting properties. The extract also demonstrated significant free radical scavenging activity and was found to decrease H_2O_2 -induced oxidative damage in hepatic L02 cells.[23]

Cordyceps militaris

Cordyceps sinensis grows as a parasitic fungus on caterpillars in the wild. The main bioactive constituent in *Cordyceps* is cordycepin, an adenosine derivative with immunoregulatory properties.[24] *Cordyceps militaris* can be more easily mass-cultivated and has higher levels of cordycepin than *Cordyceps sinensis*.[25] Over 200 clinical studies show *Cordyceps* mushrooms improve performance by increasing blood flow, boosting ATP synthesis for more natural energy, and acting as a potent antioxidant to decrease oxidative stress and fatigue.[26] A study conducted in Japan with men who were supplementing with *Cordyceps* showed significant increases in the concentrations of creatine as well as catecholamines over the course of two weeks.[27] In patients with immune challenges, supplementation with *Cordyceps* mushroom powder helped to balance the activity of the cytokine IL-10.[28]

Pearl Oyster (*Pleurotus ostreatus*)

Pearl oyster mushroom is an edible mushroom that is cultivated globally as a vegetarian protein source. Oyster mushrooms are also a source of B vitamins, vitamin C, vitamin D and several minerals.[29] They are also a source of glutathione and the fungal antioxidant ergothioneine.[30] Pleuran, an insoluble β-glucan isolated from this mushroom, has been shown in athletes to significantly reduce the incidence of respiratory challenges and increase the number of circulating NK cells.[31] Oyster mushroom has also been found to support turnover of cholesterol in the plasma and liver and help maintain normal cholesterol levels.[32] Additionally, a novel ubiquitin-like protein from oyster mushrooms was found to inhibit reverse transcriptase, which is important for immune defense.[33]

Turkey Tail (*Trametes versicolor*)

Turkey tail is one of the best documented mushrooms and the most common polypore mushroom to grow on hardwood. PSK (polysaccharide-K) and PSP (polysaccharopeptide), two protein-bound polysaccharides isolated from turkey tail mushroom mycelia, have been used in clinical trials in Japan since 1970. As a biological response modifier, PSP has been found to positively modulate the immune system and increase T cell proliferation.[34] Immune cell production and quality of life scores were also enhanced in both PSK- and PSP-supplemented groups.[35] In recent studies, PSP was found to improve pain tolerance by binding to the CB2 receptor and upregulating levels of β-endorphin while reducing levels of IL-1, NO and PGE2.[36] Clinical trial results also demonstrated that supplementation with turkey tail mushroom powder increased lymphocyte count and NK cell activity, and CD8+ T cells and CD19+ B cells increased in a dose-dependent fashion.[37]

Directions

2 capsules per day or as recommended by your health care professional.

Does Not Contain

Gluten, corn, yeast, artificial colors or flavors.

Cautions

If you are pregnant or nursing, consult your physician before taking this product.

Supplement Facts

V1

Serving Size 2 Capsules
Servings Per Container 30

	Amount Per Serving	% Daily Value
Calories	5	
Total Carbohydrate	1 g	<1%*
Proprietary Blend	1 g	
Chaga *(Inonotus obliquus)* Extract (Sterile Conk; Canker) (Organic)		**
Reishi *(Ganoderma lucidum)* Extract Powder (Fruit Body) (Organic)		**
Cordyceps *(Cordycepos militaris)* Extract (Fruit Body) (Organic)		**
Turkey Tail *(Trametes versicolor)* Powder (Mycelia, Primordia, Fruit Body, Extracellular Compounds) (Organic)		**
Pearl Oyster *(Pleurotus ostreatus)* Powder (Mycelia, Primordia, Fruit Bodies, Extracellular Compounds) (Organic)		**
Shiitake *(Lentinula edodes)* Extract Powder (Fruit Body) (Organic)		**

* Percent Daily Values are based on a 2,000 calorie diet.
** Daily Value not established.

Other Ingredients: Hypromellose (Natural Vegetable Capsules), Microcrystalline Cellulose, Silicon Dioxide and Magnesium Stearate.

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