

Mushrooms & Covid-19, by Martin Powell

Unlike the 1918 flu epidemic when the majority of the fatalities were young men and women who succumbed due to the strength of their own immune response, with Covid-19 the majority of fatalities are among the elderly or those whose immune systems are weakened due to underlying health issues with very few among younger men and women and almost none among children.

This strong inverse correlation between age / overall health and risk of developing severe symptoms from Covid-19 infection is the clearest indication we could have of the importance of supporting our immune health at this time.

While there is a lot we can do to support our immunity with good food, adequate exercise and sufficient sleep, supplements known to have a positive effect on our immune system also have a role to play, particularly if the immune system is already compromised by age or pre-existing health conditions.

When considering the different categories of immunologically active supplements, mushrooms have a particularly strong case for a place on our shelves at this time due to their well-documented ability to modulate our immune response, both increasing levels of immune activity where these are suppressed and decreasing levels of immune activation and cytokine production where these are elevated ¹.

A number of epidemiological and clinical studies have confirmed the ability of mushrooms and mushroom-derived supplements to increase the effectiveness of both our innate and adaptive immune responses to a range of pathogens including viruses ².

Polysaccharide extracts from different mushrooms, including Cordyceps (*Ophiocordyceps sinensis* / *Cordyceps militaris*), Coriolus (*Trametes versicolor*), Shiitake (*Lentinula edodes*) and Maitake (*Grifola frondosa*) have all been shown to exert an inhibitory effect on influenza virus *in vivo*.

Clinical studies have also shown benefit for extracts from: Zhu Ling (*Polyporus umbellatus*), Sun Agaric (*Agaricus subrufescens*), Reishi (*Ganoderma lucidum*) and Cordyceps in the treatment of Hepatitis B ³⁻⁶.

In patients with recurrent genital herpes supplementation with Coriolus extract resulted in increased immunity and fewer sick days and in clinical trials Coriolus, Reishi and combined mushroom polysaccharide extracts have all shown benefit in increasing clearance of high-risk HPV strains ⁷⁻⁹.

In addition enhanced protective immune response was seen from giving mushroom extracts alongside influenza vaccine in one *in vivo* study and FVE, a protein from Enokitake (*Flammulina velutipes*) was seen to significantly increase the anti-tumour protection given by vaccination against HPV-16 in another ^{10,11}.

As well as supporting an effective immune response to viral infection several mushrooms

contain compounds with direct anti-viral activity and two in particular stand out for their benefits in relation to the current pandemic.

Cordycepin (3'-deoxyadenosine) from Cordyceps species has been shown to inhibit viral replication in a number of studies¹². It also shows strong anti-inflammatory activity and has been shown to actively protect the lungs from acute injury due to the type of inflammatory immune response seen in more serious Covid-19 infections¹³.

Triterpenes from Reishi also have strong anti-inflammatory activity and have been shown to inhibit viral replication and viral binding¹⁴. Both triterpenes and proteins from Reishi have also been shown to inhibit angiotensin-converting enzyme activity, blocking conversion of ACE-1 to ACE-2 the form of the enzyme through which Covid-19 enters cells^{15,16}.

Both Cordyceps and Reishi are major components of MycoNutri IS Complex and Reishi-Cordyceps Complex making these particularly useful supplements at this time.

Of course, although mushrooms undoubtedly have an important role to play in supporting our immune system and helping protect us in case of infection, they are not a panacea. In case of active infection, it would be appropriate to follow traditional treatment strategies for infectious diseases and shift the emphasis from 'Supporting the Upright' to 'Clearing the Pathogen' with anti-viral herbs.

References

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