Boost the Immune System with Resveratrol

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We are all aware that our immune system plays a crucial role in keeping us healthy. Lately, this has become a hot topic on every news channel and social media feed. The topic of viral infection and particularly the spread of coronavirus-19 (COVID-19), has gained so much attention that a person can hardly avoid being bombarded by the news of this serious situation in many countries.

One point brought to our attention is the need for maintaining a well-balanced immune system to fight viral and bacterial infections. It is no surprise that the dietary supplements market for immune boosters had a skyrocketing increase in interest and sales. Consumers around the globe are desperately seeking solutions to boost their immune system due to the current COVID-19 outbreak, as there is still no vaccine or pharmaceutical drug available.

Dietary supplements can be used to boost one's immune system but cannot, by any means, be sold with the promise to treat or cure diseases. It is categorically unethical to take advantage of the current outbreak to promise a solution without evidence, and our commitment at Evolva is to provide our customers with science-based evidence.

A healthy immune system is the best defense

Our immune system is made up of extraordinarily intricate biochemical complexes enabling efficient detection and elimination of pathogens that threaten individuals' health status. Put simply, the immune processes can be divided into two subsystems: innate and adaptive.

The innate immune system provides an immediate, robust, and nonspecific immune response. Whereas the adaptive immune system is organized around two classes of specialized lymphocytes (T and B), enabling specific identification and elimination of pathogens as well as memory against reinfection.[1] As there is a delay of 4 – 7 days before the adaptive immune response takes effect, the innate immune response has a critical role in controlling infections during this initial stage.[2]

Can bioactive supplements such as resveratrol boost the immune system?

In general, a viral invasion leads to the secretion of type I interferons (IFNs), proinflammatory cytokines, eicosanoids, and chemokines.[3] Proinflammatory cytokines and eicosanoids cause local and systemic inflammation, inducing fever, for instance. Chemokines (produced at the

site of the infection) recruit additional immune cells, including neutrophils, monocytes, and natural killer (NK) cells.

Resveratrol has been reported as affecting the regulation of innate and adaptive immunity by interacting with several molecular targets such as:

- preventing the production of interleukin-2 (IL-2 and interferon-gamma (IFN-γ) by lymphocytes
- promoting the production of tumor necrosis factor-alpha (TNF-α)
- Or the production of IL-12 by macrophages.[4]

By interacting with these targets, it seems resveratrol supports the immune system by promoting immune cell regulation, proinflammatory cytokines' synthesis, and gene expression.

What is the scientific evidence for immune support with resveratrol?

Until now, there are several *in vitro* and animal published scientific studies demonstrating the potential immunomodulatory role of resveratrol but not many human clinical studies. For instance, Gualdoni *et al.* [5] reported in a pilot clinical study that resveratrol enhanced TNF-α production and NF-κB activation following bacterial stimulation and after 24 hours of resveratrol supplementation. More recently, Espinoza *et al.* [6] reported a significant effect on circulating immune cells, particularly T-cells in humans, after 28 days of supplementation with resveratrol in healthy individuals.

Resveratrol has shown to have multiple intracellular targets and to have beneficial effects on several critical processes involved in the immune response. Additionally, it has been reported that resveratrol modulates immune function in a dose-dependent manner, meaning that low doses stimulate the immune system. Whereas high doses induce immunosuppression, an additional essential adjuvant in autoimmune diseases. [4]

Moreover, some authors have hypothesized that the presence of resveratrol in the diet might modulate cytokine-mediated leukocyte action and immune-surveillance in the gut. [4, 5] This hypothesis is plausible since the gut microbiota metabolizes resveratrol, and therefore its metabolites could potentially be an adjuvant for boosting immune and overall health.

A healthy immune system can be boosted in many ways, such as getting plenty of sleep, reducing stress, and eating healthy, well-balanced, vitamin-rich food. Dietary supplements can be only part of the answer to staying healthy. At Evolva, we continue to evaluate and contribute to the growing body of scientific evidence from human clinical studies to bring facts to our consumers around the science of resveratrol.

Please note this review is for educational purposes and intended for commercial use only.

References

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