Immunity Strength w/ NAC & Quercetin

Dr. AMFM
THE EXCLUSIVE FORMULA

Clinical Applications

- Supports Healthy Immune Function*
- Supports Antioxidant Activity*
- Supports Respiratory Health*

Immunity Strength w/ NAC & Quercetin *is a blend of nutrients vital to overall efficient immune system function that also promotes respiratory health. These gentle yet effective ingredients can be taken daily to sustain immune and antioxidant defenses without being overstimulating.**

All Optimal Heart Center & Body Lab Formulas Meet or Exceed cGMP Quality Standards

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Discussion

N-Acetyl-L-Cysteine (NAC) has direct antioxidant activities and is a precursor to glutathione biosynthesis.[1,2] Low glutathione levels are implicated in immune dysregulation—particularly T cell–mediated functions—and replenishing antioxidants may be critical in normalizing immune function.[3] Oral administration of 600 mg of NAC twice daily for 6 months to seniors (N = 262) shifted immune function from anergy to normoergy, improving cell-mediated immunity.[4] In vitro research showed that NAC inhibits NF-κB, viral replication, and the production of pro-inflammatory cytokines, which all contribute to illness severity.[3] NAC is also a mucolytic agent that decreases mucus viscosity and facilitates its clearance by hydrolyzing the disulfide bonds of mucus proteins.[2] In various animal models, NAC protected against cytokine-induced structural and functional lung changes, decreased lung cellular senescence, and restored pulmonary function.*[2]

Quercetin is a phytochemical belonging to the flavonoid class of polyphenols and is well-known for its free radical scavenging activities. In vitro and in vivo study results have demonstrated multiple activities of quercetin within the immune system, including suppressing the production of pro-inflammatory enzymes and mediators (eg, LOX, COX, TNF-α, IL-8, and NF-κB), altering Th1/Th2 differentiation, inhibiting mast cell degranulation, reducing eosinophil recruitment, and affecting the cell wall integrity and adhesion capabilities of microorganisms.[5-7] Additionally, quercetin affects microbial virulence, cell entry, and replication.[8] Regarding respiratory function, quercetin inhibits histamine and leukotriene release from mast cells and has been studied extensively concerning immune reactivity within the airways.*[7,9]

Zinc homeostasis is essential for multiple aspects of a healthy immune system, including immune cell development and differentiation and immune cell signaling within the innate and adaptive systems.[10] Cellular activities, including inhibiting NF-κB, modulating T-cell function and cytokine production, and improving mucociliary clearance and barrier function of the respiratory epithelium, make zinc a nutrient of interest for immune challenges.[11] Zinc also helps protect cells from oxidative stress by increasing glutathione biosynthesis and serving as a cofactor in antioxidant enzymes.[12] Human studies demonstrate that zinc bisglycinate increases zinc blood and plasma levels more effectively than gluconate, picolinate, or oxide forms.*[13-15]

Vitamin A plays crucial roles in the growth, maintenance, and integrity of epithelial and mucous tissues lining the respiratory and GI systems, making it an important part of the mucus layer, where it promotes mucin secretion and supports nonspecific immunity.[16] Retinoic acid, a major oxidative metabolite of vitamin A, has broad hormone-like activities and binds to nuclear receptors to exert potent and specific immunomodulatory effects.*[17]

Vitamin C is a powerful antioxidant and cofactor in gene regulatory enzymes with essential roles in immune support. Vitamin C accumulates in immune cells and contributes to cellular functions of both the innate and adaptive immune systems.[18] The use of vitamin C in the range of 100 to 200 mg/d optimizes cell and tissue levels for prophylaxis.[18] In patients with acute immune-related respiratory challenges, administration of low-dose vitamin C (200 mg/d) substantially increased plasma and white cell vitamin C concentrations, and patients made significantly better clinical progress than their placebo counterparts.[19] Coadministration of quercetin and vitamin C supports synergistic immunomodulatory effects, and vitamin C has a role in quercetin recycling.*[8]

Vitamin D modulates immune function by regulating nuclear transcription factors (eg, NF-κB) and directly binding to vitamin D–responsive sites on gene promoters that influence cytokine production and immune cell activities.[20] Vitamin D deficiency is common and widespread, and low blood levels correlate with lowered immunity, increased susceptibility to immune-related respiratory tract challenges, and increased symptom severity.[21] In a systematic review and meta-analysis of individual participant data (N = 10,933) from randomized controlled trials, vitamin D supplementation significantly reduced the risk of acute respiratory tract infection among all participants. In subgroup analysis, the protective effects were seen in those receiving daily (7.5-100 mcg) or weekly (35 mcg) vitamin D.*[22]

*Medical foods are "intended for the specific dietary management of a disease or condition for which distinctive nutritional requirements, based on recognized scientific principles, are established by medical evaluation" (section 5(b)(3) of the Orphan Drug Act (21 U.S.C. 360ee(b)(3)). Such patients may have a limited or impaired capacity to ingest, digest, absorb, or metabolize ordinary foodstuffs or certain nutrients, or have other special medically determined nutrient requirements that cannot be achieved by modification of the normal diet alone.

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Supplement Facts

Serving Size: 2 Capsules
Servings Per Container: 60

	Amount Per Serving	%Daily Value
Vitamin A (as retinyl palmitate)	1,500 mcg	167%
Vitamin C (ascorbic acid)	300 mg	333%
Vitamin D3 (cholecalciferol)	62.5 mcg (2,500 IU)	313%
Zinc (as zinc bisglycinate chelate)[S1]	20 mg	182%
N-Acetyl-L-Cysteine	600 mg	**
Quercetin (as quercetin dihydrate)(from *Sophora japonica*)(bud)	200 mg	**

** Daily Value not established.

Other Ingredients: Capsule (hypromellose and water), ascorbyl palmitate, and silica.

S1. TRAACS® is a registered trademark of Albion Laboratories, Inc.

Directions

Take two capsules daily, or use as directed by your healthcare professional.

Consult your healthcare professional prior to use. Individuals taking medication should discuss potential interactions with their healthcare professional. Not recommended for use during pregnancy, during lactation, or when trying to conceive. Do not use if tamper seal is damaged.

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Formulated To Exclude

Wheat, gluten, yeast, soy, dairy products, fish, shellfish, peanuts, tree nuts, egg, sesame, ingredients derived from genetically modified organisms (GMOs), artificial colors, artificial sweeteners, and artificial preservatives.

***These statements have not been evaluated by the Food and Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.**

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