



SMALL MOLECULE TECHNOLOGIES, INC.

MOLECULES & HEALTH

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Boost Your Immune System



Stuffy, runny noses, coughing, headaches, chills, lack of sleep, sneezing, stomach problems . . . we have all been there before, and most of us would like to never be there again. Every year as cold and flu season approaches there is a flood of advertisements urging you and your family to get your annual flu vaccination sooner than later. But there's a little voice in the back of your head reminding you that you got your flu shot last year, but you still got sick! Wouldn't you be better off saving yourself the money, pain, and inconvenience and just taking your chances?

The answer is no. There is no doubt that it is important for people to get annual vaccinations against influenza, especially children, elderly, pregnant or nursing mothers, and those who are in regular con-

tact with those populations.¹ Research has routinely confirmed dramatic decreases in illness, sick days, and duration and severity of infection following vaccination. But remember, the flu vaccine is not guaranteed to keep you from getting sick and actually only protects you from 3-4 strains of influenza, selected by experts a year in advance based on best guesses of the most likely strains for the year. It will not protect you from many other wintertime illnesses including the common cold (rhinovirus).

The good news is that there are a lot of things you can do in addition to getting vaccinated to help boost your immune sys-



tem and improve your chances of staying healthy all year long. The lifestyle modifications you can make to help boost your immune system likely come as no surprise, because they are the same things we know improve every aspect of overall



health. This includes increasing or maintaining physical activity, eating plenty of fresh vegetables and fruits, consuming adequate dietary fiber, drinking lots of water, and getting adequate sleep.²⁻⁴ These are definitely the most important things you can do for improving your immune health, but you can also give your immune system an added boost by incorporating specific nutritional supplements into your routine.

How can Small Molecule Technologies Supplements help you stay healthy during this cold



and flu season?

Olivamine 10 Max is our patented formula that contains natural antioxidants, B vitamins, and select amino acids. Olivamine 10 Max has been shown to increase genetic expression of protective antioxidants and proteins within the cell that can actually increase the lifespan of cells. This is important to reduce the effects of cellular waste products that can burden the immune system and contribute to illness.⁵⁻⁸ Studies have also shown that hydroxytyrosol, one of the primary antioxidants found in olives, actually has antiviral properties against influenza.⁸

Olivamine 10 Max is found in all Small Molecule Technologies Supplements with the highest doses found in Olivamine 10



Max and ImmuneBoost™.

ImmuneBoost™ is vital to help your body rid itself of toxins that can burden and overwhelm your immune system. Nutrients included in Small Molecule Technologies ImmuneBoost like N-acetyl-l-cysteine and sulforaphane (from broccoli) help boost the immune system on a cellular level by supporting healthy liver metabolism and restoring levels of important detoxifying cellular antioxidants like glutathione.⁹⁻¹² Low levels of glutathione have been associated with viral infection and impaired immune function, while nutrients that increase glutathione levels, like

N-acetyl-l-cysteine, have been shown to protect against viral infections.¹³ ImmuneBoost also contains a potent dose of Olivamine 10 Max to provide the previously mentioned benefits from the patented formula.

Small Molecule Technologies MultiVitamin contains a full spectrum of vitamins, minerals, and antioxidants balanced together at precise ratios to promote optimal health.^{14,15} Frequently during cold and flu season people will take mega doses of single nutrients like Vitamin C and Zinc because they have been promoted as immune boosting nutrients. It is important to remember that while these nutrients are important for proper immune function, they do not function independently but instead work in concert with a full spectrum of vitamins, minerals, and antioxidants. Ideally, you should consume nutrients as part of a well-balanced diet and multivitamin, and not as single-ingredient supplements.

Sleep Support can help you to get adequate amounts of body-restoring restful sleep that is needed to keep your immune system functioning.



Melatonin, magnesium, and curcumin have been shown to help support a natural sleep cycle while exhibiting calming effects. In addition to promoting restful sleep, both curcumin and melatonin have actually been shown to have anti-viral properties that can protect you from becoming ill.^{16,17}

Vitamin D3 (cholecalciferol) is a hormone that is produced naturally in your skin by sunlight. A large percentage of Americans are becoming deficient in Vitamin D because they are spending more time indoors and also protecting their skin from sunlight using clothing and sunscreens. People also experience lower Vitamin D levels in winter months when there is less direct sunlight available.¹⁸ Vitamin D is a potent stimulator of immune cells and required for proper functioning of the immune system.¹⁹⁻²¹ Deficiency is thought to contribute to

the increased rates of illness, heart attacks, seasonal depression, and weight gain that we see in the winter months.^{18,22,23} Maintaining adequate levels of Vitamin D is considered by many healthcare professionals to be just as important, if not more important, than getting an annual flu shot.^{24,25} Sleep Support, Mood Support, Joint Health, Brain Health, and Energy Support each contain 600 IU of Vitamin D, while the MultiVitamin contains 1050 IU and the D3+ Magnesium contains 750

IU.

Don't let cold and flu season catch you off guard! Start incorporating the Small Molecule Technologies Nutritional Supplements today to help support your immune system and keep you feeling healthy and energized all year round!

For more information about the seasonal flu vaccine, visit the United States Centers for Disease Control (CDC) webpage or ask a trusted healthcare provider.



References

1. American Academy of Pediatrics Committee on Infectious Diseases. Recommendations for Prevention and Control of Influenza in Children, 2014-2015. *Pediatrics*. 2014;134(5):e1503-19.
2. Walsh NP, Gleeson M, Pyne DB, et al. Part two: Maintaining immune health. *Exerc Immunol Rev*. 2011;17:64-103.
3. Milner JJ, Beck M a. The impact of obesity on the immune response to infection. *Proc Nutr Soc*. 2012;71(2):298-306.
4. Moyad MA. Conventional and alternative medical advice for cold and flu prevention: what should be recommended and what should be avoided? *Urol Nurs*. 2009;29(6):455-8.
5. Sarsour EH, Kumar MG, Kalen AL, Goswami M, Buettner GR, Goswami PC. MnSOD activity regulates hydroxytyrosol-induced extension of chronological lifespan. *Age (Omaha)*. 2011;34:95-109.
6. Fabiani R, Rosignoli P, Bartolomeo A De, et al. Oxidative DNA Damage Is Prevented by Extracts of Olive Oil, Hydroxytyrosol, and Other Olive Phenolic Compounds in Human Blood. *J Nutr*. 2008;(April):1411-1416.
7. Yamada K, Ogawa H, Hara A, et al. Mechanism of the antiviral effect of hydroxytyrosol on influenza virus appears to involve morphological change of the virus. *Antiviral Res*. 2009;83(1):35-44.
8. Wahle KWJ, Caruso D, Ochoa JJ, Quiles JL. Olive oil and modulation of cell signaling in disease prevention. *Lipids*. 2004;39(12):1223-31.
9. Ritz S a, Wan J, Diaz-Sanchez D. Sulforaphane-stimulated phase II enzyme induction inhibits cytokine production by airway epithelial cells stimulated with diesel extract. *Am J Physiol Lung Cell Mol Physiol*. 2007;292(1):L33-9.
10. Kim H-J, Barajas B, Wang M, Nei AE. Nrf2 activation by sulforaphane restores the age-related decline of Th1 immunity: Role of dendritic cells. *J Allergy Clin Immunol*. 2008;121(5):1255-1261.
11. Shapiro TA, Fahey JW, Dinkova-Kostova AT, et al. Safety, toler-

- ance, and metabolism of broccoli sprout glucosinolates and isothiocyanates: a clinical phase I study. *Nutr Cancer*. 2006;55(1):53–62.
12. Kerkwick C, Willoughby D. The antioxidant role of glutathione and N-acetyl-cysteine supplements and exercise-induced oxidative stress. *J Int Soc Sports Nutr*. 2005;2(2):38–44.
 13. Fraternali a, Paoletti MF, Casabianca a, et al. Antiviral and immunomodulatory properties of new pro-glutathione (GSH) molecules. *Curr Med Chem*. 2006;13(15):1749–55.
 14. Stephen AI, Avenell a. A systematic review of multivitamin and multimineral supplementation for infection. *J Hum Nutr Diet*. 2006;19(3):179–90.
 15. McKay DL, Perrone G, Rasmussen H, et al. The effects of a multivitamin/mineral supplement on micronutrient status, antioxidant capacity and cytokine production in healthy older adults consuming a fortified diet. *J Am Coll Nutr*. 2000;19(5):613–21.
 16. Moghadamtousi SZ, Kadir HA, Hassandarvish P, Tajik H, Abubakar S, Zandi K. A review on antibacterial, antiviral, and antifungal activity of curcumin. *Biomed Res Int*. 2014;2014(Article ID 186864):1–12.
 17. Boga JA, Coto-montes A, Rosales-corral SA, Tan D, Reiter RJ. Beneficial actions of melatonin in the management of viral infections : a new use for this “ molecular handyman ”? *Rev Med Virol*. 2012;22:323–338.
 18. Rosecrans R, Dohnal JC. Seasonal vitamin D changes and the impact on health risk assessment. *Clin Biochem*. 2014;47(7-8):670–2.
 19. Griffin M, Xing N, Kumar R. Vitamin D and its analogs as regulators of immune activation and antigen presentation. *Annu Rev Nutr*. 2003;23:117–45.
 20. Cantorna MT. Vitamin D and its role in immunology: multiple sclerosis, and inflammatory bowel disease. *Prog Biophys Mol Biol*. 2006;92(1):60–4.
 21. Prietl B, Treiber G, Pieber TR, Amrein K. Vitamin D and immune function. *Nutrients*. 2013;5(7):2502–21.
 22. Berry DJ, Hesketh K, Power C, Hypönen E. Vitamin D status has a linear association with seasonal infections and lung function in British adults. *Br J Nutr*. 2011;106(9):1433–40.
 23. CannellJJ, Vieth R, Umhau JC, et al. Epidemic influenza and vitamin D. *Epidemiol Infect*. 2006;134(6):1129–40.
 24. Urashima M, Segawa T, Okazaki M, Kurihara M, Wada Y, Ida H. Randomized trial of vitamin D supplementation to prevent seasonal influenza A in schoolchildren. *Am J Clin Nutr*. 2010;91(5):1255–60.
 25. Lang PO, Samaras D. Aging adults and seasonal influenza: does the vitamin d status (h)arm the body? *J Aging Res*. 2012;2012(Article ID 806198):1–8.

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