

## **BioBites: Immune Boosting**

November 10, 2020

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### **The Immune System: Overview**

**Goal.** Our goal is to balance the immune system (this is the preferable way to speak about strengthening the immune system, versus “boost”). We are susceptible when our immune system is imbalanced.

**Function.** The function of the immune system is to defend the body against disease-causing organisms, malfunctioning cells, and foreign particles. The immune system differentiates self from non-self and activates to eliminate non-self from the body.

**The components.** The immune system consists of an array of organs, cells, and molecules that defend the body. These work together to provide three lines of defense. The 1st line provides a protective barrier that prevents microbes from entering the body and includes skin, mucus (flushes unwanted elements out of the body), saliva (breaks down bacteria), stomach acid, pH in our tissues, and chemicals in the body. The 2nd line is a non-specific response by white blood cells, which attack foreign matter in the body. The 3rd line is our adaptive immune response, which only develops after initial exposure to microbes (i.e. COVID).

**A system in balance.** Balance comes from having an efficient system (organs, cells, molecules) and an adequate number of WBCs.

**Before we TAKE, what can we DO?** Before we turn to supplements, there are a number of other things we can do to improve the function of the immune system. We can start by having fun - fun is a powerful agent for good health. We can get the lymph system moving by getting outside and walking a minimum of 20 minutes/day [watch video: [23 ½ Hours](#) (8 mins. in length) for research on the health benefits of walking]. We can ground ourselves by walking or moving on the earth, not pavement. We can care for our skin and lymphatic system through hydrotherapy, dry-brushing, and by drinking the right amount of water. We can take care of our gut microbiome (70% of our immune system resides here). We preserve gut health through proper diet, probiotics, etc. We can drink apple cider vinegar and consume adequate amounts of essential fatty acids (nuts, seeds, avocado, fish, etc.). We can optimize our lung function with slow, deliberate, deep breaths. We can care for the liver through diet and castor oil packs. We must get adequate sleep and take time to enter a rest or relaxed state (perhaps through prayer/meditation) to care for our parasympathetic system. We can attend to our thoughts and emotions. We can take nutraceuticals and herbal remedies that care for our organs, cells, and molecules (multivitamins usually include a good range of vitamins; taking individually, however, does allow for more completeness with dosage). *At the end of the day, a healthy mind, daily movement, and diet = a healthy body. A healthy body is better able to deal with things as they get thrown at it.*

## **Q&A Synopsis**

**Ideal water intake.** It is possible to drink too much water. Too much water can flood the body's systems, flushing out minerals, etc. Ideally, women should be about 55% hydrated; men should be at about 60%. For most people the recommended number of *ounces* of water daily is calculated by dividing your body weight (lbs) by 2. (Patients with chronic kidney disease or congestive heart failure do not use this formula).

**The long-term effects of COVID.** COVID has been shown to be having negative long-term effects on people who contract the virus. Patients have been known to develop diabetes, brain fog, diarrhea, worsened dementia, etc. The best thing to do now is to protect yourself by wearing a mask, remaining socially distant, and employing proper hygiene habits.

**K2 and D3 and bone health.** These will prevent calcium-leaching. Caution when you buy - most research shows benefits with a recommended dose of 45 milligrams of K2. Most K2 on the shelf is listed as 45 micrograms per dose. Making sure you are receiving the right dosage of K2 is important, if the desire is to see these health benefits.

**Skin microbiome.** Anything on the skin affects the biome. Only real skin disease is contact dermatitis. Everything else is a manifestation of an internal imbalance. Skin is porous; everything you put on it will end up on the inside. Natural oils (versus moisturizers), including castor oil, are recommended. Dry skin brushing provides care for the lymph system and is best done before bed. You should begin at the feet and brush gently upward; then brush from the top of the head down. The goal is to move the contents of the lymph system to a drainage point located just below the collar bone on the left-hand side.

**Supplements.** Never take a supplement with water; they are "food supplements", which is intended to suggest they should be taken with food. In general, it is not recommended that we drink with our meals, as this dilutes the enzymes that break down food/supplements and allow the body to absorb the nutrients. Ideally, we generate enough saliva to help break down food. When supplements are broken down with food, we get maximum absorption.

**Apple cider vinegar.** It's recommended you take ½ to 1 teaspoon in 4 ounces of water, 15-20 minutes before mealtime. Apple cider vinegar is almost neutral in pH. Apple cider vinegar triggers a hormone that starts the digestive process, much like priming an engine before driving in the winter months.

**Bone development.** There are about 70 minerals in bones; building bone requires a multi-mineral supplement, which is different from a multivitamin. It is more difficult for the body to absorb minerals than vitamins. The minerals we need can be found in salts, such as Himalayan sea salt. CalMag, Cal A, K2 and Vitamin D are all important to rebuilding bone.