

BioBites: Building a Better Immune System

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Presentation

Th1/Th2 Dominance as a Theory. Today, Th1 and Th2 dominance remain a theory, though this theory provides quite a bit of reason that explains why people become 'stuck' with chronic infections. More research is needed, but this talk explores this theory and how it can be applied to improve immune function and health.

Where we find ourselves. Many people are stuck with chronic infections and have bugs that won't go away and symptoms that won't resolve with the help of medication and supplementation. We also find ourselves loaded down with stressors: physical, mental/emotional, bacteria, toxins, etc. We want to find a way to relieve that load so we can win this battle. There are also patients who are reactive to everything: smells, EMFs, etc. And finally, we have people stuck in fight/flight, always feeling threatened, and unable to shift into rest/digest/repair.

Acute v. Chronic Illness. Acute illness relates to the sudden onset of symptoms (fever, chills, aches, etc.) and usually resolve within 1-2 weeks, with or without treatment. Chronic illness is distinguished by symptoms that last beyond 6 months and, for some, indefinitely. Many people who struggle to recover from chronic illness also have dysfunction with Th1 and a poor functioning immune system.

Defining Th1 and Th2. Initially, we have naive Th cells, or thymus helper cells; these will distinguish into Th1 or Th2 cells, which represent two different parts of the immune system. Th1 cells provide cellular-mediated immunity or innate immunity. Th1 operates within the cell to prevent viruses and bacteria from multiplying inside the cell. Th2 provides humoral, or adaptive, immunity. This involves antibodies, and this takes place outside the cell in the blood. This is where viruses and bacteria will attract the cytokines that cause symptoms. Most people will take an antibiotic or herbal that will kill the bacteria for a while, but these won't relieve symptoms. A better solution will not just address the bugs but will address the system (including the cytokine storms that develop as part of the immune response).

War analogy to understand Th1 and Th2. Dr. Frank Shallenberger developed a war analogy. If we went to war with a stockpiled neighbor, we might use our anti-missile defenses (Th2/antibodies) to defend us. If they have enough missiles where the system cannot defend, we will start to take on a lot of damage. We need to take down the factories and missile launchers. This is analogous to Th1. Success involves both, and it requires balance.

Th1/Th2 Balance. The body needs both Th1 and Th2. Once one becomes more dominant, it sends messengers out that suppress the other. In order to have success, we need to bring these back into balance.

Th1 Dominant Illnesses. These include autoimmune diseases such as MS, ALS, Hashimoto's, Rheumatoid arthritis, IBS, and Type I Diabetes.

Th2 Dominant Illnesses. These include chronic viral, bacterial, and fungal infections such as atopic dermatitis and skin conditions, allergies, and MCAS/HIT.

Factors that affect the shift to Th2 Dominance. Germ theory (it's the germs) vs. terrain theory (it's the health of the target); victims versus champions mindset; lack of antioxidants in the body (oxidation); sleep deprivation; mercury exposure (stimulates mast cell activation and impacts glutathione levels); glutathione status; and stressors, including excess exercise or calorie restriction).

Chronic Fatigue Syndrome (CFS). Studies have shown that the natural killer (NK) cells prominent in Th1 immunity are very low in individuals with CFS. They have also found that people with low NK cells shift toward Th2 dominance. It may be that people with CFS have an underlying immune problem that needs to be addressed to relieve the CFS.

What causes Th2 Dominance? Petrochemicals play a huge role. These are pervasive in our environment and there are over 80,000 chemicals in our environment. These shift us into a situation where we cannot detox these chemicals. Parasites/microbes are another significant factor, shifting us into Th2. Many do this so that they can steal our resources to ensure their own survival. Vaccinations are another source of Th2 dominance. Vaccinations enable the body to develop antibodies, or defenses, against viruses and bacteria; but too often today the sequence of vaccinations can overwhelm the body and shift it into Th2 dominance. Lastly, stressors play a big role. The larger the allostatic load that you have on your system, the more likely you'll be shifted over to Th2 dominance.

Testing for Th levels. Cytokine testing can tell you what's happening with Th2 and Th1 levels. Look at IL-2 and IL-12 levels for Th1 and IL-4, IL-5, IL-6, and IL-10 as indicators of Th2.

Strategies for balancing Th2 dominance. DHEA is an adaptive strategy for dealing with stress. When you're low on DHEA, you're going to have a problem dealing with and adapting to stress. Selenium is a great antioxidant and helps stop the replication of viruses. Astragalus and mushrooms are very beneficial in increasing Th1 and decreasing Th2. Melatonin is one of the most important antioxidants, which boosts Th1. ALA helps balance blood sugar and renew or restore glutathione levels; glutathione helps with detoxification and managing inflammation. Probiotics have been shown to be anti-cancer and effective at shifting the body back toward Th1 balance. Reducing stress and getting out of fight/flight and into the parasympathetic is important, as well.

Restoring balance between Th1 and Th2 and the immune system. This starts with improving the communication and information flow through the body - the nervous system, the endocrine system, and also electromagnetic flow (done through structural work, therapies, and nutrition). Eating well and having positive thoughts is another major factor. Eating foods that reduce inflammation is imperative; and as a rule, it's best to eat foods that nature has made. A healthy circuit system is another factor in balance. Neurofeedback balances the ANS and can help restore balance to the nervous system. Detoxification is another step in the process; ensuring pathways are open and that the body is detoxing is important. We need to evaluate the toxins we're taking in and our detoxing regimen. Healthy digestion/assimilation is another step in the process of restoring balance. It's important to leverage diet to reduce inflammation and also ensure we have the enzymes that help the body to process food. Lastly, helping to restore healthy electromagnetic flow is important.

Q&A Synopsis

How is cellular health impacted as we age? We want to make sure we have healthy levels of antioxidants, but we also need to look at telomeres and how nourished the body is through diet and methylation. Cells are fully turned over every 7 years; the changes we make can give the cells everything they need to develop optimally.

How can someone learn about their methylation status, antioxidant levels, etc? There are a couple options. A blood test can give you some important indicators. But the best test is probably the test you get through 23 and Me or Ancestry.com. You can take the information you get from these tests and run these through software that is available today that can suggest where you may have problems and how you can address those areas. It's also important to know, though, that the body often has already compensated for these issues and so it's significant to focus on the lifestyle habits discussed earlier.

Any recommendations with respect to exercise and immune health? The most important thing is walking. [Walking](#) 30-45 minutes at least 5 days per week is the best thing you can do.

I struggle with parasites that I've been told appear when the immune system is non-functioning and do not leave. Is there anything I can do? Many of us have parasites and similar issues. Parasites have been around for thousands of years, but more recently we seem to have more and more problems with them. A lot of this likely relates back to the foods we eat and our stressors. Doing things to reduce stress, exercising, and eating well are crucial. Enemas are another option for addressing parasites in the body. Water, coffee, and lemon enemas can be used for different purposes to help address the harmful parasites in the body. It's also important to be sure you're taking in the right microbes and nutrients through probiotics, B vitamins, etc.

For the microbiome, are there different tests you would recommend? There are stool tests that you can take that are conclusive. Genova offers a good option here.

Is eating raw fish/sushi a source of parasites. Yes, I'd caution eating those on a regular basis.

How are rosacea and herpes affected by the immune system? Any time those pop up, it means you're dealing with a suppressed immune system. The best strategy is to help balance the immune system before they set in - every day, walk; take Vitamin C, fish oils, Vitamin B, and adaptogens, like ashwagandha. Once they're there, there are things you can do; but the best is to keep the system in balance through everyday practices.

My toddler is getting one cold after another. What can you recommend for this young person? You can do colostrum; you want to get probiotics on-board because it's very likely that the gut is not in good shape. The gut would be impacted by what the child is fed but also stress in the child's environment. Vitamin C also plays a big role in boosting the immune system.

Are there any light therapy devices you recommend for home use? You can get colored glasses that you can use and use those while you're listening to Solfeggio or binaural beats.

There is a theory that you can eat all the right foods and do everything right and still suffer. What insight can you offer? We have a lot of patients for whom this is true; they do all the right things and yet something is not quite right. Something is missing and we haven't been able to address it just yet (this doesn't mean stop eating well or doing other things to support the body). The right doctor can help you continue searching. Additionally, most of us are stuck in fight/flight

and we don't have strategies to change that. There are strategies that can be employed to retrain the nervous system.

Can too many B vitamins be an issue? It shouldn't be because it's water soluble. I'd caution against taking anything in excess; but I acknowledge that chronic illness will cause the body to burn through certain vitamins at a high rate. Best is taking vitamins while also getting those from natural sources, too, and additionally using strategies like meditation to help keep the body in balance.

Can gut issues and poor nutrition be a root cause for young people with extreme mood swings and behaviors? For sure; check the gut. You also have to address heavy metals with people at this age because they are poor methylators and detoxers. You want to address how you can help the body process those out.

What might you offer to a young person to support their immune system, if they have COVID? You can give small doses of selenium, mushrooms, Vitamin C, zinc, and probiotics, depending on how young they are. You'll want to work with a functional doctor on this. When our body is in balance, it can take care of the virus. If you can help to support the balance, that's most important.

For someone recovering from COVID, are the recommendations the same? You want to consider adding fish oil, quercetin, and cod liver oil for brain health among other things.

When talking about these supplements, is it advised that they be taken at one time or spread out throughout the day? It depends on the person. Smaller doses taken a few times per day is generally better than a large dose, less frequently. You'll want to work with a doctor to ensure you're taking the right dosage at the right weight.

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