

Today, we are finally getting the message out that the immune system plays a huge role with your vitality and how well you feel every day, and not just when you are getting sick. When your immune system gets out of balance, it can affect inflammation, mood, and your overall energy, so it truly can have a huge impact on your daily life.

Moducare® is one of the most important supplements I teach about and recommend in my practice, because it is one of the only supplements I know of that can help people restore and maintain balance in their everyday immune system functions.

Moducare is a blend of compounds extracted from pine, known as plant sterols and sterolins. These two substances are combined in a very specific 100:1 ratio and have been heavily researched. Moducare is unique to the supplement world because it acts as an immune **modulator**. In other words, it can help balance out immune system function. Studies have shown some pretty incredible results.

A surprising benefit of Moducare is its ability to help manage the effects of stress on our immune system. Virtually every patient that I see has some measure of stress pounding away at his or her immunity and vitality. Moducare helps control the production of the stress hormone, cortisol. When someone is under a lot of stress, whether physical from intense workouts, mental or emotional stress, cortisol is elevated triggering an increase production of IL-6, an inflammatory cytokine. This suppresses the part of our immune system known as the TH1 immune system. The TH1 side produces cells that can kill cells infected by viruses (so they are side of our immune system that works against colds and flu.) And at the same time, if your TH1 Immunity is too high you could begin to attack your own tissues like in the case of autoimmune thyroiditis. Moducare is my go to recommendation in that situation. Other studies have shown that it can help with allergies, so it can help balance out the TH2 side of the immune system also.

The take away is that Moducare lowers production of heightened cortisol from physical and mental stress. It doesn't mean that it automatically lowers cortisol, it just protects the immune system from the changes that occur under stress that lead you to being more prone to getting sick. A study showed that marathon runners that took Moducare did not get the same immune deficits or cortisol spikes as people who did not take it, resulting in less post event upper respiratory infections for those runners taking Moducare.

## **Moducare has Anti-inflammatory Activity**

The effects of the inflammatory cytokines are very far reaching. For example, IL6 mentioned above, can contribute to depression, pain, and leaky gut. Our immune cells produce many inflammatory cytokines, not just that one, so the production of cytokines from the immune system can be a big source of inflammation in our bodies. When IL-6 gets turned up in your body, it triggers the re-release of a compound called claudin-2 and once that happens big changes start to occur in the immune reactions that go on in the gut. When claudin-2 upregulates, the tight junctions between mucosal cells of the intestine loosen. This sets people up for food intolerances and allergies along with setting their bodies up for even bigger immune problems.

As you can see, our immune system affects many areas of health. Here are just a few of the situations where Moducare can help by providing nutritional support for the immune system:

1. Allergies – environmental or food allergies
2. Autoimmune conditions
3. Chronic high stress
4. Athletes or people who do regular intense workouts
5. High cholesterol
6. Hepatitis C
7. Leaky gut
8. Mood issues

## 9. Mycotoxins and other infections like Lyme's disease

With the emergence of CIRS (Chronic Inflammatory Response Syndrome), people are finally beginning to understand that the immune system needs to be supported every day for its best function, just as we take a nutrient for the heart or for better cognition. Daily maintenance to help keep balance in the immune system may well be the single most important thing you can do for your healthy longevity.



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