Omega-3's lesser known benefit: Boosting your immunity

My audience knows that I'm a big believer in fish oil. I recommend it on a regular basis as a part of a healthy lifestyle. Most of you know about how important fish oil can be as a hedge against inflammation, but did you also know that it can boost your immune system? Jolie Root, a longtime colleague in the integrated health field and an expert for our sponsor, Carlson Laboratories, has written an important article about this that I wanted to share.

–Dr. Ronald Hoffman

It is well known that the long chain omega-3's support inflammation balance; what is less well known is that they enhance immune response.

Omega-3s appear to do this by supporting immune cell function.

The immune system is sometimes called the lymph system. It is a complex system of lymph nodes and cells called lymphocytes. The lymph system acts to seek and destroy invaders (pathogens) that cause infections. The lymphocytes patrol the body looking for viruses and bacteria. These lymphocytes are called T-cells and B cells. This is where the omega-3s come in. They enhance the function of T cells and B cells making for a more robust immune response.

The immune cells use bursts of inflammatory chemicals to neutralize invaders. Early theories suggested that omega-3s might suppress immunity by reducing inflammation. Instead we find that EPA and DHA boost immune strength by increasing the actions of the major immune cells. These findings may be of special interest to immune-compromised individuals.

A recent study used two groups of mice, one of which was fed a control diet while the other was fed a diet enriched with DHA. After five weeks B cells were harvested from the mice and stimulated in culture. The team was looking for markers of B cell activity on the cell surface, alterations in membranes and the production of cytokines. Specifically DHA increased LPS induced B cell production of IL6, and TNF-alpha. The supplement also led to increases in lymphoid B cell populations and surface markers of activation. Another benefit that was seen was select antibody production, which suggests improved pathogen response.

Recently, another group of researchers looked at the specific effects of EPA and DHA on the immune system of healthy older women, average 65 years of age, who were part

of a strength training program. The women either did strength training three times per week for 12 weeks, or did the strength training and took fish oil, or took fish oil for two months and then did strength training combined with fish oil supplementation. The supplements provided a dose of 400 mg EPA and 300 mg DHA per day.

There were no changes found in the participants in terms of body composition from either the strength training or supplements. As one might expect, the DHA and EPA concentration of plasma increased in the supplemented groups. There were some changes in the fish oil supplemented group that were not seen in the control group. There was an increase in cells' ability to remove zymosan, a molecule found on the surface of fungal cells, an increase in the volume of lysosomes, associated with improved cellular defenses, and increases in hydrogen peroxide, used for immune cell signaling, and superoxide anion production, which deactivates invading microbes. There was an improvement in cell-mediated immunity without over-stimulation of the immune system. The authors also found a general reduction in the inflammatory biomarker TNF-alpha with increases in IL-2 and IFN-gamma. This suggests that fish oil could exert a moderating effect on the immune system: inflammatory cells and molecules were reduced, with a resulting increase in immune system components that fight disease.

Any supplement that can improve one's ability to fight infection while mitigating chronic inflammation could make a considerable impact on the health and quality of life of aging adults. It certainly seems prudent to consume enough omega-3 fatty acids.

Jolie Root, Senior Nutritionist and Educator, Carlson Laboratories.

Sources:

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