

# Nutrition Therapies for Autoimmune Conditions



While it is believed that many nutrition therapies will be helpful for those afflicted with autoimmune disease, separating the wheat from the chaff will help patients to understand what clinically is and isn't proven to work.

“Leave your drugs in the chemist’s pot if you can heal the patient with food.”

— Hippocrates

By Jessica Schulman, PhD, MPH, RD, CLE

Inflammation is a normal part of a healthy immune system. When the body identifies an injury or foreign material (such as a “bad” bug), it naturally releases messengers such as cytokines and eicosanoids that start a campaign to fight and conquer. The result is swelling or fever caused by microscopic soldiers (e.g., phagocytes, mast cells, eosinophils, basophils, antibodies and T-cells) engulfing, neutralizing or killing the foreign invader. While the inflammation can be a nuisance, it usually means the body is successfully solving a problem, and in a few days, it feels better.

For individuals with autoimmune diseases, this normal response is out of balance. The immune system misreads the situation, attacking invaders that are not there, or continuing to attack long after the invader has been defeated. In these cases, the body keeps releasing its weaponry, essentially attacking itself. The irony is a bitter one: The same processes that heal most people damage the bodies of those living with autoimmune and inflammatory diseases. For some individuals, this scenario is temporary but, for others, this dysregulation of immune responses may flare up regularly or continue over a period of time.

It is estimated that about 8 percent of the population (14.7 million to 23.5 million) is affected with autoimmune conditions, but they are especially prevalent among those living with immune irregularities.<sup>1</sup> For example, according to scientists at the Stanford University School of Medicine's Immunology Program, "Approximately 25 percent of subjects with CVID [common variable immune deficiency] suffer from autoimmune disease which could be the result of immune dysregulation."<sup>2</sup> These persistent and often debilitating conditions — including arthritis, celiac disease, ulcerative colitis, Crohn's disease, spondylarthropathy, thyroiditis and others — have profound effects on individuals, families and society: Children miss school and social activities, adults miss work and are less productive, medical costs skyrocket and lives are lost.

Although there are treatments for many of these diseases, there are few cures, so individuals and their caregivers often look to complementary therapies such as nutrition for relief. The Internet is full of self-appointed nutritionists describing specific foods that they promise will soften pain and improve clinical symptoms. For those suffering from autoimmune conditions, this advice offers hope, but, as is so often the case with promises that sound too good to be true, many of these effects have not been supported by research. In fact, few human studies demonstrate that autoimmune conditions can be effectively treated through

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the consumption of specific foods or their concentrated extracts (also known as nutraceuticals). At the same time, those suffering from these conditions can improve their quality of life through optimal nutrition. Following is information that reviews and discriminates between nutrition therapies that are grounded in science and those that are still under investigation.

### **Eating a Balanced Diet to Reduce Inflammation**

There is no single anti-inflammatory diet for everyone; a specialized diet that helps one person may be like poison for the next. Those who are hypersensitive to certain foods, such as peanuts, gluten, cow milk protein, etc., know to avoid them. In the absence of a known food allergy, or a specialized diet prescribed by a doctor, the best advice is to eat a varied diet of nutrient-dense foods, as described in the USDA dietary guidelines ([mypyramid.gov/](http://mypyramid.gov/)). This may sound obvious, but in fact, a varied and balanced diet may have specific benefits for individuals with autoimmune disorders. We are still learning about food components that modulate immune function. For example, only recently did we learn that fiber is a source of prebiotics, which feed "friendly" bacteria in the gut.<sup>3</sup> Similarly, it is only in the last few years that research has proven that fats from meat sources and certain oils contribute to inflammation, whereas fats from foods such as fish reduce the signals in our body to attack. Eating a balanced diet ensures that we reap the benefits of what is known about healthy nutrition, as well as what we have yet to discover.

What does a balanced diet look like? It consists of brightly colored fruits, vegetables, legumes and potatoes. It also includes whole, fortified and fiber-rich grains such as brown rice, flaxseed and lentils, as tolerated, as well as lean meats, fish and low-fat dairy. It is important that foods are consumed only to meet the energy needs of an individual and that a healthful weight is maintained.

Overweight places extra stress on the body. Excess fat tissue, in particular, can generate certain compounds like hormones that may exacerbate autoimmune conditions. On the other hand, underweight can leave an individual more vulnerable to infections and slow recovery time. Questions regarding weight and individualized diet therapies can be directed to the American Dietetic Association at [www.eatright.org](http://www.eatright.org) or (800) 877-1600 and [www.rdlink.com](http://www.rdlink.com).

### Antioxidants

There are hundreds of antioxidants that might affect inflammation or pain in joint disease, but as yet, little research justifies consuming therapeutic doses of any particular one.<sup>4</sup> For example, although researchers have described the protective effects of green tea and red wine (polyphenol oxidants) in association with cancer and heart disease, limited information about the effects of these compounds on arthritis, inflammatory bowel disease (IBD) and other autoimmune conditions exists. A recent review of the literature concluded: "Until we have a better understanding of which — if any — dietary antioxidants are responsible for antiarthritic effects ... a daily intake of a variety of fresh vegetables and fruits, with their naturally occurring antioxidants, is a more rational approach to maintaining a healthy immune system than supplementation with nutraceuticals."<sup>4</sup>

### Omega-3 Fish Oil

Over the last several decades, one of the biggest dietary changes in Western countries has been the increased consumption of linoleic acid (omega-6) through margarines and cooking oils.<sup>5</sup> Omega-6 fatty acids are known to play a role in sensitization and the allergic response, and they contribute to inflammation and immunity. Researchers have suggested that the increased consumption of omega-6 fatty acids may account for the rise in autoimmune disease as well.<sup>6</sup> To the extent that this is true, then consuming acids that work against the action of omega-6 fatty acids would have the potential to reduce inflammation. Nonsteroidal anti-inflammatory drugs like aspirin, ibuprofen and naproxen work in a similar way. Omega-3 fatty acids, like those found in fish oils, have received particular attention for their role in counteracting the effects of omega-6 fatty acids.<sup>6</sup>

Dr. Philip Calder, professor of nutritional immunology at the University of Southampton in the United Kingdom, and world renowned for his work on how fatty acids



(alpha-linolenic acid that is rich in EPA and DHA) or omega-3s from marine animals impact inflammation and immunity, says he was cautious about the use of foods or nutraceuticals for treating autoimmune conditions like arthritis and IBD. He warns that there is "real difficulty in translating studies and experimental models into clinical efficacy." With respect to omega-3s in particular, however, he says he was encouraged by research on healthy volunteers showing "that it is possible to influence aspects of inflammatory arthritis by administering fish-derived omega-3s orally."

Most of the clinical trials that Calder describes show benefits for people living with rheumatoid arthritis (RA).<sup>7</sup> According to Calder, "The evidence is robust if you use a high enough dose ... from 2 to 4 grams." Evidence for IBD is much weaker than for RA, and Calder points out that, "If you look at other autoimmune conditions, like lupus or psoriasis, there probably aren't enough studies to come to a good enough conclusion about omega-3."

How does any of this information apply to those living with a suppressed immune system? Calder explains that, "This has been a big question which is not fully resolved ... and there is not really strong science in humans to give us a pointer." However, he suggests that those with immune dysfunction have little to lose from taking omega-3 supplements because, "Unless there is a nutrient deficiency, the effect of anything nutritional is not likely to be profound, unlike other pharmaceuticals that can wipe out a functioning system."

For individuals who think they might benefit from more omega-3s in their diet, it is first important to note that

fatty acids from fish are significantly more effective than those from plants. This is why the most common way of boosting omega-3 fatty acid consumption is through fish oil capsules. How do consumers know about the safety, purity and quality of fish oil supplements? They don't, says Calder, because there are so many brands available. Unfortunately, over-the-counter supplements are not adequately tested, and their safety may not be proven. Moreover, there are a number of reasons for some people to avoid fish oil, such as bleeding disorders or fish allergies. Therefore, safety issues should be reviewed before considering any supplements ([www.nlm.nih.gov/medlineplus/druginfo/natural/patient-fishoil.html](http://www.nlm.nih.gov/medlineplus/druginfo/natural/patient-fishoil.html)). In the U.S., the best that consumers can do is consult with their physicians, find out which brands were used in human clinical trials, and register with companies that conduct independent supplement testing ([www.consumerlab.com](http://www.consumerlab.com)). In addition, individuals should always talk with a qualified healthcare provider before starting any complementary therapy.

A balanced diet will further improve outcomes. Says Calder: "If you lower arachidonic acid by, let's say, eating a diet that is lower in omega-6s, and at the same time increasing the amount of omega-3s from fish oil, you can probably get a better effect than just using omega-3 supplements by themselves."<sup>8</sup> (For more information on arthritis, Calder suggests the book *Nutrition and Arthritis* by Margaret Rayman.)

### Probiotics

For people whose bodies have trouble regulating responses to invaders, it may sound strange to recommend consuming microbes. Yet, in recent years, a number of researchers have suggested that more "good" bacteria is exactly what is needed. Researchers have proposed that, as the urban environment has become altered (i.e., through the routine use of antibiotics, institutionalized healthcare, separation of people from farming, etc.), people are less likely to develop the healthy flora that help them

fend off harmful bugs. This leaves the gut vulnerable to acquiring pathogenic organisms and "superbugs." Or, as Calder puts it, "The immune system doesn't have friendly bacteria to play with ... so it starts playing with things that it shouldn't play with." The answer to this problem is not to be less clean, but to make sure that people have the opportunity to develop healthy flora and intestinal mucosa.

Probiotics are exactly that: therapeutic doses of "friendly" microbes such as *Lactobacillus rhamnosus* GG, *L. reuteri*, bifidobacteria, *Saccharomyces boulardii*, etc. These bacteria colonize the gut and modify the gut flora, offering a potential therapy in conditions associated with infections, gut-barrier dysfunction and autoimmune conditions.<sup>9</sup> There are many different types of probiotics, and research is beginning to identify which ones are more or less effective for treating IBD. Some examples of probiotic foods include miso soup, some soft cheeses, yogurt products like kefir, sauerkraut and many pickles. It is worth noting that not all probiotics are considered safe and effective. For example, fragile patients or those with impaired T-cell response to candida may not do well with yeast-based probiotics.

It is important that foods are consumed only to meet the energy needs of an individual and that a healthful weight is maintained.

### Preventing Malnutrition

In autoimmune diseases that target the gut, such as ulcerative colitis and Crohn's disease, there is a complex interaction between genetic and environmental factors such as nutrition. (A detailed article on celiac disease is available at [www.igliving.com/web\\_files/d-j09\\_Celiac.pdf](http://www.igliving.com/web_files/d-j09_Celiac.pdf).) One of the biggest challenges is to prevent nutrient deficiencies, promote growth in children and protect bones, muscles and immune function.<sup>10</sup> Physicians should pay special attention to preventing anemia by monitoring iron, B12 and folic acid status, and protecting bone by ensuring adequate calcium, magnesium and vitamin D intake. There is growing evidence to suggest an anti-inflammatory role and immune system regulator for vitamin D in Crohn's disease.<sup>11</sup> The role of nutritional therapy in the management

of adult Crohn's disease is not clear, but there is evidence for the use of an enteral diet among children. Researchers describe the potential anti-inflammatory effects of certain enteral diets on the gut mucosa. Consistent with current literature, they speculate that this may be related to particular fatty acids and/or components that alter the gut flora. Still, more bench and clinical research needs to be conducted.



## Summary

Complementary nutrition therapies offer much promise for reducing the severity of certain autoimmune and inflammatory conditions. But, individuals need to be cautious about using ingredients that have been concentrated and purified for therapeutic purposes. More clinical trials need to be conducted before the public can identify the appropriate dosages and nutritional supplements for the treatment of autoimmune diseases. At the same time, individuals who claim to feel better after eating or avoiding certain foods should not be dismissed. As a leading physician and nutrition expert said, when talking about the accidental discovery of a way to keep milk safe for human consumption: "Casual observations, if carefully made, often prove to be more than incidental in importance!"<sup>12</sup>

Clinicians who are experienced in using nutrition therapies may advise patients on an individual basis. Likewise, patients using nutraceuticals, probiotics or specialized diets ought to seek counsel and supervision from their physician. A

reasonable scenario might be the combined use of nutritional and medical interventions to improve outcomes and quality of life. Even if lifestyle and dietary factors are proven effective in treating certain autoimmune conditions, these strategies will not likely be curative. In such cases, diet and supplements should be used judiciously and not as a substitute for medical intervention. Patients with severe autoimmune diseases or regulator T-cell dysfunction, for example, may require stem cell transplant. As Sophocles reminded us two millennia ago: "A wise doctor does not mutter incantations over a sore that needs the knife."

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*Editor's Note: This article is intended for general information only. Individuals with medical conditions should consult a physician to determine what eating pattern or supplements are right for them.*

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