



# Dietary Approaches to Autoimmune and Immune Deficiency Disorders

Research shows many different dietary approaches are beneficial in preventing and treating autoimmune disorders, but some approaches still require additional study.

By Mindy Hermann, MBA, RDN

**THE NUMBER OF** people developing or living with an autoimmune disease has increased noticeably over the past 30 years.<sup>1</sup> The National Institutes of Health estimates approximately 24 million Americans have an autoimmune disorder, although organizations such as the American Autoimmune Related Diseases Association estimate the number to be much higher. The Benaroya Research Institute at Virginia Mason, a research institute in Seattle, Wash., dedicated to discovering causes and cures to eliminate autoimmune and immune system diseases, notes on its website that the incidence of many autoimmune diseases is increasing possibly due to changes in the environment that impact the immune system. This increases the likelihood that someone who is genetically predisposed to a particular autoimmune disorder will in fact develop it.

Can diet change the course of autoimmune disease? If we are what we eat, then linking diet with the development of autoimmune disorders makes a lot of sense. If only the relationship were that simple. What is known is diet can improve or worsen autoimmune symptoms, and autoimmune diseases often require diet changes to manage them. This article presents an overview of several research-based dietary approaches to autoimmune disease, along with practical tips from dietitians working with clients who have immune deficiency disorders.

## The Elimination Diet

People with high levels of autoimmune antibodies are thought to have more intolerances to foods. In one study, cow's milk, casein protein, wheat and egg white were

linked to the greatest antibody reaction, while no antibody reaction resulted from eating vegetables, fish or meat.<sup>2</sup>

The elimination diet is a challenging but important first step in identifying foods and ingredients that may be causing immune disease symptoms to worsen. In the first phase of this diet, a person cuts out all common food allergens from the diet: milk, eggs, nuts, peanuts, wheat, soy, fish, shellfish and beef. Careful label reading is essential because many ingredients contain common allergens! It may take several weeks for symptoms of allergy or intolerance to subside. And, because an elimination diet is highly restricted and nutritionally unbalanced, it should be closely supervised by a doctor and dietitian.

Once symptoms stabilize or disappear, allergenic foods are added back to the diet one by one, and tolerance is monitored for several days before trying a different allergenic food. People who are reintroducing foods with the help of a dietitian and physician must keep a log of foods and symptoms. Any food that appears to make symptoms worse stays on the list of foods to avoid.

The elimination diet can be an effective tool for directing disease management. A 2017 study showed improvement of symptoms and inflammation following a six-week elimination diet and five-week maintenance phase to help manage Crohn's disease and ulcerative colitis in young adults.<sup>3</sup>

## Fasting

Fasting long has been part of certain religious observances. In Judaism, fasts last a full 24 hours, while Islamic fasts for Ramadan require avoiding food and beverages during daylight hours. More recently, variations on fasting have become a popular strategy for weight loss. These modified fasts restrict eating and drinking to a set number of hours, say eight hours, during the day.

Early evidence suggests fasting may benefit the immune system. In a group of mice with a multiple sclerosis-like illness who were placed on a modified fast, the disease became less severe, and symptoms completely reversed in some mice.<sup>4</sup> The research team explained that diet and nutrients affect the formation, function and lifespan of lymphocytes, and diets that imitate fasting seem to improve health.<sup>5</sup>

Modified fasting should be undertaken only with supervision from a doctor or dietitian to make sure food choices are nutritionally adequate.

## Fiber

The typical Western diet is high in fried foods, butter and processed meat, and low in fruits, vegetables, whole grain and fiber. A European research team points out this type of diet can contribute to inflammation in the intestine and throughout the body and increase the prevalence of autoimmune diseases.<sup>6</sup> The team suggests increasing dietary fiber could benefit T cells to help lessen inflammation and restore the health of the intestine.

The topic of fiber has become much more exciting as researchers continue to discover new roles for fiber in nourishing the bacteria in the intestinal tract, called the microbiome. The microbiome in turn helps control immune function. Different types of fiber improve the health of the microbiome and are readily available in a balanced diet that includes fruits, vegetables, whole grains and legumes (chickpeas, kidney beans, peas, lentils and others). In one study, the type of fiber found in common fruits and vegetables improved immune response in mice with an experimental form of multiple sclerosis.<sup>7</sup>

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## Gluten-Free

Gluten is a protein found in wheat, rye and barley. People with celiac disease have an immunological reaction to gluten that damages the surface of the intestine, causing diarrhea, poor absorption of certain nutrients and an autoimmune response throughout the body. Some immune disorders, including autoimmune thyroid disease, also are linked to celiac disease. A gluten-free diet may improve autoimmune disease symptoms throughout the body, for example, in women with Hashimoto's thyroiditis.<sup>8</sup>

A gluten-free diet is well-established as part of the management of celiac disease. People following a gluten-free diet must

eliminate all sources and derivatives of wheat, rye and barley in their diet. Gluten-free counterparts for traditional sources of gluten such as bread, muffins and snack bars can be found in supermarkets and online. Eliminating ingredients with gluten, as well as foods made in a facility that also processes ingredients that contain gluten, requires careful label reading and shopping.

## Sodium Management

The connection between salt and autoimmune diseases might seem surprising. However, it appears a high-sodium diet (sodium is one of two elements in salt, so eating a lot of salty or processed foods increases sodium intake) may prevent certain types of T cells from controlling inflammation, while also stimulating other cells that cause inflammation. This effect has not yet been studied in humans, but various studies confirm the relationship between a high-sodium diet and multiple sclerosis, lupus nephritis, rheumatoid arthritis, colitis and Crohn's disease in animals.<sup>9</sup> Avoiding eating too much salt is a good strategy for general health.

## Supplements

Any decisions regarding supplements should be made with a doctor or dietitian and should focus on shortfalls in nutrients that play a role in immune health:

- Vitamin A is involved in components of innate and adaptive immunity, including natural killer cells, macrophages, neutrophils and lymphocytes. It is stored in the body, and high doses can be toxic.

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- Vitamin B6 takes part in several immune functions.
- Vitamins C and E work as antioxidants that protect cells from damage by reactive compounds in the body.
- Vitamin D helps regulate various types of immune cells: monocytes, macrophages, dendritic cells and activated T cells. "Vitamin D deficiency appears to be the most consistent micronutrient deficiency associated with autoimmunity,"



explains Anthony Thomas, PhD, director of scientific affairs for Jarrow Formulas. "Essentially, supplementation is warranted to improve and maintain vitamin D status, particularly in people without adequate skin sun (UVB) exposure."

- The mineral selenium is part of enzyme reactions related to immune function. A recent paper, however, points out that study results regarding supplements and immunity are not consistent, so further research is needed before making recommendations regarding dietary supplements for autoimmune disease.<sup>10</sup>

- Omega-3 fatty acids, found in fish oil supplements, may be considered for people who don't get omega-3s in their diet from canola oil, walnuts, at least two weekly servings of salmon or other higher fat fish, or other foods.

## Overall Diet

Dietary approaches to autoimmune disease are thought to benefit the body by reducing inflammation, repairing existing damage and preventing further damage. Many of the dietary measures that appear to help individuals with diseases such as multiple sclerosis also are part of a well-balanced healthful diet: fish that provide omega-3 fats, dairy products that supply vitamin D, plenty of fruits and vegetables, and fiber-rich foods, along with less meat and processed foods that are low in fiber and high in saturated fat.<sup>11,12</sup>

One of the challenges in dietary management is people respond differently to restrictions and nutrients. A group of researchers from a hospital in Romania gathered research on various vitamins, minerals, fatty acids, phytochemicals and other food components that have been associated with management of lupus.<sup>13</sup> They concluded a personalized diet

rather than a single type of eating plan could help keep the body healthy, improve remission from lupus symptoms, prevent negative reactions to medication, and improve physical and mental well-being.

“Diet and nutrition answers are not simple as every person has different needs,” says Joanne Gardner, MS, RDN, LDN, integrative dietitian nutritionist and certified LEAP therapist for food hypersensitivities at Duke Integrative Medicine in Durham, N.C. “We personalize recommendations. Some people find an approach through their self-directed explorations and experimentations that serves them well. Yet, as with any health improvement protocol, dietary approaches tend to be generalized and will need to be modified for each individual.”

Angela B. Coate-Hermes, RDN, LD, CLT, who works with clients with autoimmune diseases through her company Nourishing Transitions Nutrition Services in Beaverton, Ore., shares a few general tips for people with autoimmune diseases. “I cannot emphasize enough the importance of drinking plenty of water. Water helps to carry oxygen to your cells, protects your kidneys and is essential for removing waste from the system. Proper hydration is also important for digesting nutrients, including water-soluble vitamins that the body cannot properly utilize if you are dehydrated. Chronic dehydration also can contribute to symptoms that are associated with autoimmune conditions, including headaches, fatigue and muscle and joint pain. A lack of proper hydration can also play a role in gastrointestinal issues such as constipation. The current recommendation is to drink at least half of your body weight in ounces every day. For example, if you weigh 150 pounds, you should drink at least 75 ounces of water each day.

“Next, be sure to have your vitamin D levels checked. Vitamin D deficiency can contribute to a compromised immune system and is linked with many different autoimmune conditions. Having low vitamin D levels can also prevent your immune system from fighting off bacterial and viral infections. And also get tested for food sensitivities if you have not yet been tested. Most

people with autoimmune conditions have food sensitivities that lead to inflammation and symptoms associated with inflammation. These can include headaches, joint and muscle pain, fatigue, depression, anxiety and gastrointestinal problems. Identifying your trigger foods and eliminating them from

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your diet can help to greatly reduce your symptoms related to your autoimmune condition. Work with a registered dietitian nutritionist who is trained in food sensitivities and can help you plan a well-balanced diet that also eliminates your trigger foods.” ■

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## Resources

- National Institute of Environmental Health Sciences — Autoimmune Disease: [www.niehs.nih.gov/health/materials/autoimmune\\_diseases\\_508.pdf](http://www.niehs.nih.gov/health/materials/autoimmune_diseases_508.pdf)
- Benaroya Research Institute — Autoimmune Diseases: [www.benaroyaresearch.org/what-is-bri/disease-information/autoimmune-diseases](http://www.benaroyaresearch.org/what-is-bri/disease-information/autoimmune-diseases)