

Autoimmune Diseases

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Autoimmune diseases are characterized by the body's immune responses being directed against its own tissues, causing prolonged inflammation and subsequent tissue destruction. Autoimmune disorders can cause immune-responsive cells to attack the linings of the joints--resulting in rheumatoid arthritis--or trigger immune cells to attack the insulin-producing islet cells of the pancreas leading to insulin-dependent diabetes.

A healthy immune system recognizes, identifies, remembers, attacks, and destroys bacteria, viruses, fungi, parasites, and cancer cells or any health-damaging agents not normally present in the body. A defective immune system, on the other hand, wreaks havoc throughout the host by directing antibodies against its own tissues.

Any disease in which cytotoxic cells are directed against self-antigens in the body's tissues is considered autoimmune in nature. Such diseases include, but are not limited to, celiac disease, Crohn's disease, pancreatitis, systemic lupus erythematosus, Sjogren's syndrome, Hashimoto's thyroiditis, and other endocrinopathies. Allergies and multiple sclerosis are also the result of disordered immune functioning.

AGING

Age is recognized as an important factor in the appearance of autoimmune disease. In a paper that appeared in *The Lancet* in 1992, investigators measured healthy centenarians and unhealthy 60- and 70-year-olds and assessed the difference in physiological chemistry between the two groups. The most striking difference was that the healthy centenarians had very low levels of autoantibodies to their thyroid, adrenal, pituitary, hypothalamus (Mariotti et al. 1992). This has led some people to speculate that autoimmunity is the result of environmental exposure to foreign substances. Thus, the immune system may also be suppressed or weakened as a result of factors not associated with a degenerative disease, but due to the intake of alcohol, caffeine, tobacco, drugs, sugar, and of course poor diet and lack of sleep. These lifestyle factors can have a substantial effect on the trends of autoimmune diseases.

As we age, our autoimmune system declines in its effectiveness due in large part to oxidative damage caused by the recurrent presence of significant amounts of free radicals. In addition, proteins can become glycated, that is, a sugar molecule is attached to the protein. The accumulation of these glycated proteins in the body affects the immune system because the immune system sees them as altered proteins that have different structure and function (Monboisse et al. 2000; Sasaki et al. 2001; Collison et al. 2002). Regarding these substances as foreign, the immune system develops antibodies against them. The possibility of becoming allergic to oneself, with the associated autoimmunity and inflammation, increases as one accumulates these damaged glycated proteins.

The body is made up largely of proteins, so its health depends upon its freedom from damage (as through oxidation or glycation) and upon its timely removal as part of normal protein turnover. The body's antioxidant system and other lines of defense cannot completely protect proteins. Nature's second line of defense is the body's system for repairing or removing damaged proteins. While some protein repair mechanisms exist, it is difficult for the body to repair most protein damage. Yet, it is essential to efficiently remove aberrant and unneeded proteins to fully protect against autoimmune diseases.

Methods to protect against excessive protein glycation will be discussed later in this protocol.

BASIC PATHWAYS OF AUTOIMMUNE DYSFUNCTION

Autoimmune diseases tend to be viewed as separate entities. A broader perspective, however, may reveal that shared mechanisms are the cause of disease, rather than just its byproduct. If this perspective were applied, patients would benefit from improved therapies and early intervention, before the development of irreversible tissue damage. As reported in the journal *Hospital Practice*, Dr. Majid Ali has long considered that there must be a single initial common pathway to all disease, including immune dysfunction.

One consideration is the continued exposure to heavy metals and environmental pollution that overload the immune system. On a daily basis, we battle with pesticides, herbicides, chemical fertilizers, industrial wastes, cigarette smoke, and automobile exhaust. Our air, water, and food in particular are full of toxic substances. There is no doubt that these toxins play a role in immune dysfunction. Even substances considered by most people as safe actually impair immune function. Sugar consumption in all forms (glucose, fructose, and sucrose) will impair the ability of white cells to destroy biological agents. This effect begins within a half hour and lasts for 5 hours. After 2 hours, immune function is reduced by 50% (Sanchez et al. 1973; Bernstein et al. 1977).

Oxidative stress plays a role in autoimmune diseases. It can be compared to a piece of metal rusting and results from the action of damaging molecules known as free radicals that are a natural byproduct of the body's metabolism. The electrically charged free radicals attack healthy cells, causing them to lose their structure and function and eventually destroying them. Free radicals are not only produced by our bodies, but they are also ingested from toxins and pollution in the air we breathe.

Chronic systemic inflammation is related to several autoimmune disorders, such as lupus, rheumatoid arthritis, Sjogren's syndrome, and fibromyalgia (see separate protocols on these topics). Inflammation can be traced to destructive cell-signaling chemicals known as cytokines that contribute to many degenerative diseases (Brod 2000). In rheumatoid arthritis, excess levels of proinflammatory cytokines, such as tumor necrosis factor-alpha (TNF-alpha), interleukin-6 (IL-6), interleukin 1(b) (IL-1b), and/or leukotriene B4 (LTB4), are known to cause or contribute to the inflammatory syndrome that ultimately destroys joint cartilage and synovial fluid. Certain nutritional supplements and low-cost prescription medications will often lower cytokine levels and control the inflammatory state.

NUTRITIONAL SUPPLEMENTS TO IMPROVE AUTOIMMUNE HEALTH

- Protein
- Inflammation
- Free-Radical Damage
- Immune System
- GI Tract
- Stress
- Liver Health

The autoimmune system needs a good nutritional foundation over a long period of time to alleviate or reverse lifestyle autoimmune dysfunction and to assist with combating fully developed autoimmune diseases. The fundamental causal basis for autoimmune system boosting was shown in an early study that was designed to measure the serum concentrations of vitamin E, beta-carotene, and vitamin A in patients prior to developing rheumatoid arthritis or systemic lupus erythematosus. Two to 15 years after the volunteer patients had originally donated their blood to the serum bank (1974), the serum samples were assayed for vitamin E, beta-carotene, and vitamin A. Those patients who developed rheumatoid arthritis or lupus showed lower serum concentrations of vitamin E, beta-carotene, and vitamin A from 1974. Those who had the lowest serum level of beta-carotene in 1974 were the most likely to develop rheumatoid arthritis later in life (Comstock et al. 1997). This indicates the long-term importance of maintaining adequate vitamin status for the prevention of autoimmune diseases.

Slowing the Damage to Healthy Protein

Carnosine is a dipeptide amino acid found naturally in the body that helps to slow the formation of glycated protein end products. Recall that glycated protein may be unrecognizable to the immune system, thereby triggering an autoimmune attack. Since the normal removal of damaged protein declines with aging, slowing the development of protein crosslinking (glycation) may help to reduce an autoimmune reaction. In addition to its antiglycation effects, carnosine has been found to modulate immune system neutrophils, thus suppressing a response (Tan et al. 1998).

Reducing Inflammation

In a study conducted at the University of Texas Health Sciences Center, it was found that fish oil containing vitamin E delayed the onset of autoimmune diseases in autoimmune-prone mice (Venkatraman et al. 1994). Another study on the effects of vitamin E deficiency was conducted in the United Kingdom and reported in *Inflammation Research* (1995). It was found that dietary components that provide antioxidant effects may contribute to the treatment of inflammatory/autoimmune diseases (Amarakoon et al. 1995).

Supplementation with omega-3 essential fatty acids (EFAs) from fish, flax, or perilla oils--along with borage oil, evening primrose oil, or black currant seed oil, which contain the essential omega-6 fatty acid gamma-linolenic acid (GLA)--can alleviate many symptoms of autoimmune disease through their anti-inflammatory activity. Docosahexaenoic acid (DHA) extracted from fish oil may be as effective as some prescription medications in reducing inflammation.

Dehydroepiandrosterone (DHEA) is a prosteroidal hormone that decreases with aging. Decreases in DHEA levels have been linked to a number of chronic and degenerative diseases including cancer, coronary artery disease, depression, stress disorders, and neurological functioning (Straub et al. 1998). As a result of aging, immunity may become compromised due to dysregulation of cellular hormones (cytokines and growth factors) that govern the immune response. Too much or too little of various cytokines produces disease states or compromised responses to various challenges.

In aging animals, the addition of DHEA has normalized deranged cytokine levels, including a primary inflammatory factor called interleukin-6 (IL-6) (Araghi-Niknam et al. 1998). In the aged test animals, serum IL-6 was elevated ninefold from normal. After administration of DHEA or dehydroepiandro-sterone-sulfate (DHEA-S), IL-6 dropped to within 15% of youthful levels. In the same studies, it was shown that antibodies directed toward self rose fivefold with aging, but after 2 weeks on DHEA-S fell by over 50% (Spencer et al. 1996).

In a study of ten women with the autoimmune disease Sjogren's syndrome, all were shown to have decreased serum concentrations of DHEA-S and an increased cortisol/DHEA-S ratio compared with healthy controls (Valtysdottir et al. 2001).

Lessening Free-Radical Damage

Antioxidants are a broad group of compounds that destroy or neutralize free radicals in the body, thereby protecting against oxidative damage to cells caused by the normal aging process or daily exposure to pollutants and toxic substances. Antioxidants are found naturally in healthy food, especially fruits and vegetables. The most effective of the antioxidants include vitamin C, vitamin E, green tea extract, beta-carotene, grape seed-skin extract, coenzyme Q10 (CoQ10), and selenium.

- Vitamin C may be the most important water-soluble antioxidant, having an ability to scavenge both reactive oxygen and nitrogen radicals. In controlled studies, vitamin C has demonstrated antiatherogenic, anticarcinogenic, antihistaminic, and immunomodulatory benefits.
- Vitamin E is a fat-soluble, essential nutrient for humans. Increased risk for coronary artery disease, Alzheimer's disease, and cancer has been reported in regard to vitamin E deficiency.
- Green tea belongs to the flavonoid family. Green tea catechins are potent free radical scavengers and have also demonstrated anticarcinogenic, anti-inflammatory, antiatherogenic, and antimicrobial activity.
- Beta-carotene is a dietary precursor to vitamin A. Beta-carotene has demonstrated immunomodulatory effects in male nonsmokers and has demonstrated increased lymphocyte counts in healthy male smokers. Beta-carotene's antioxidant activity may prevent oxidative damage to DNA and inhibit lipid peroxidation.
- Grape-seed-skin proanthocyanadins have demonstrated several antioxidant activities, including inhibiting the oxidation of damaging LDL cholesterol. Other research has shown tumor-protective, cardio-protective, and liver-protective benefits.
- CoQ10 has shown antioxidant activity within the mitochondria and cellular membrane. CoQ10 levels decline with aging and are strongly related to increased cardiovascular disease, especially congestive heart failure. Supplemental CoQ10 has shown usefulness in treating periodontal disease and boosting energy levels.
- Selenium is a trace mineral that is essential for healthy immune function, providing protection to immune cells from stress-induced oxidative damage and neutralizing the effects of some toxic metals. Low dietary intake of selenium is associated with cardiovascular disease and certain cancers.

Modulating the Immune System

The immune system functions because of adequate amounts of circulating antibodies. Antibodies are proteins with a unique concave region (combining site) in which they can combine with foreign proteins (antigens). Antigens are most often surface molecules found on the membrane of invading or diseased cells. After the antigen and antibody combine, the new complex produces a number of changes that inactivate or kill the invading cell. This function is known as humoral or antibody-mediated immunity. Lymphocytes are the most numerous cells of the immune system and are responsible for antibody production. B-cells are lymphocytes that produce humoral immunity.

T-cells are lymphocytes formed in the thymus shortly before and after birth. When T-cells come into contact with foreign antigens, the antigen binds to protein on the surface of the T-cell, making it sensitized. Sensitized T-cells destroy invading pathogens by releasing a specific and toxic poison to the cells of bound antigens. T-cells can also indirectly destroy toxic invaders by releasing a substance that attracts macrophages to the area that will ingest and destroy (phagocytose) the pathogen. This function is known as cell-mediated immunity. T-cells regulate natural killer cell activity and the body's inflammatory response to disease.

In a healthy body, circulating antibodies attack and destroy pathogenic invaders by means of humoral or cell-mediated immunity. In autoimmune disease, circulating antibodies seek, attack, and destroy self-antigens found in healthy tissue (see the following table for examples).

Table 1: Autoimmune Classification

Disease	Antibody Action on
Myasthenia gravis	Acetylcholine receptors
Graves's disease	Thyroid-stimulating hormone receptor
Thyroiditis	Thyroid
Insulin-resistant diabetes	Insulin receptor
Asthma	Beta-2 adrenergic receptors
Juvenile insulin-dependent diabetes	Pancreatic islet cells
Pernicious anemia	Gastric parietal cells
Addison's disease	Adrenal cells
Idiopathic hypoparathyroidism	Parathyroid cells
Spontaneous infertility	Sperm
Premature ovarian failure	Interstitial cells, corpus luteum cells
Pemphigus	Intercellular substance of skin
Primary biliary cirrhosis	Mitochondria
Autoimmune hemolytic anemia	Erythrocytes
Idiopathic thrombocytopenic purpura	Platelets
Idiopathic neutropenia	Neutrophils
Vitiligo	Melanocytes
Osteosclerosis and Meniere's disease	Type-II collagen
Chronic active hepatitis	Nuclei of hepatocytes
Goodpasture's syndrome	Basement membranes
Rheumatoid arthritis	Gamma globulin, virus-related antigens
Sjogren's syndrome	Nuclei and centromeres
Systemic lupus erythematosus	Nuclei, DNA, RNA, erythrocytes, etc.
Scleroderma	Nuclei and centromeres
Polymyositis	Nuclei, RNA

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Autoimmune Diseases

T-cells can further divide into helper lymphocytes (Th) and cytotoxic (Tc) or suppressor cells. In response to a foreign pathogen, T-cells secrete communication molecules known as lymphokines, cyto-kines, interleukins, and interferons. T-helper cells assist B-cells and further divide into two special lines of defense. These are Th1 and Th2. When one of these lines (Th1 or Th2) overexpresses, an opportunity for immune dysregulation occurs, resulting in either a hyperimmune response causing autoimmune disease or a hypoimmune response leading to uncontrollable infection. Sterinol, a combination of natural plant sterols and sterolins, modulates the function of the body's T-cells by enhancing their ability to divide. They further promote interleukin-2 and gamma-interferon without enhancing Th2 helper cells that promote inflammation and produce more antibodies. Conventional drug treatment inhibits the entire immune response. Sterolins, however, modulate immune response and are able to reverse immune abnormality at the disease site (Bouc et al. 1996; Gupta et al. 1998).

Alkylglycerols are derived from shark liver oil. Studies indicate that the activation of protein kinase C, an essential step in cell proliferation, can be inhibited by alkylglycerols. Although the mechanism of antiproliferative and immunomodulatory action is unknown, hormonal action of both the autocrine and paracrine systems has been suggested (Pugliese et al. 1998). Alkylglycerols have been promoted for use in immune system stimulation. However, benefits have been reported in those suffering from asthma, lupus, rheumatoid arthritis, and other autoimmune disorders.

L-carnitine is an amino acid that is known to improve conditions associated with low cellular energy. L-carnitine has been shown to reduce the impairment of immune function caused by the consumption of dangerous fats (De Simone et al. 1982). This beneficial action is attributed to L-carnitine's ability to lower serum lipids (fats) by enhancing the transport of beneficial fatty acids into the cell's mitochondria, where they are used to produce energy. Acetyl-L-carnitine is the form of carnitine that is utilized more efficiently in the mitochondria.

Supporting the GI Tract

Intestinal permeability is often disrupted by health conditions such as rheumatoid arthritis, Crohn's disease, pancreatic dysfunction, and food allergies. Events such as aging, stress, medications, and alcohol consumption also alter permeability, compromising the barrier that separates food and intestinal bacteria from the rest of the body.

Poor intestinal motility and peristalsis can change beneficial bacterial flora by altering the natural flow of nutrients that are available to them. These same factors can add to the overgrowth of abnormal bacteria and the byproducts they produce, leading to the absorption of antigenic substances into the bloodstream. Immune-related disease is associated with antigenic substances produced by intestinal flora. To correct the problem, bacterial balance must be restored through the use of supplemental probiotics and prebiotics that feed the underproduced bacteria. Species of bifidobacteria and lactobacilli will help restore microfloral balance and stabilize permeability. Fructooligosaccharides (FOS) are simple sugars that are the preferred nutrient for lactobacilli and bifidobacteria (with the exception of the bifidum species).

Certain nutritional supplements are used by intestinal cells for growth and function. They include:

- L-glutamine, a nonessential amino acid that increases the number of cells in the small intestine along with the number and height of villi on those cells
- Butyric acid, a short-chain fatty acid that enhances function and integrity in the large intestine and is an anticancer agent
- The fatty acids DHA (from fish oil) and GLA (from borage oil), which decrease inflammation and improve intestinal functioning

Appendix A of this protocol provides specific information relating to dietary and intestinal factors involved in autoimmune disease.

Reducing Stress

Stress is a major risk factor in developing disease. Even prolonged low-level stress stimulates the adrenal glands to produce cortisol, which, in excess, impairs immune function. Lack of proper rest and sleep, depression, and emotional disturbance contribute to immune dysfunction. In addition, there is a connection between the limbic system, the part of the brain that gives rise to emotion, and immune function. Therefore, to balance the immune system, one must balance the mind and emotions. Biofeedback, guided imagery, yoga, deep breathing, musical participation, positive affirmations, meditation, and prayer all help maintain balance (Hughes 1997; Long et al. 2001; Kuhn 2002; Lehrer et al. 2002; Vempati et al. 2002).

A supplemental approach to stress reduction would be obtained from *Garum armaricum* extract (Adapton), which contains a class of unique polypeptides that act as precursors to endorphins and other neurotransmitters. These polypeptides exert a regulatory effect on the nervous system enabling an individual to adapt to mentally and physically stressful conditions (Crocq et al. 1978). Another antidote to stress is an amino acid found in green tea called theanine. Although theanine creates a tranquilizing effect on the brain, it appears to increase concentration and focus thought (Juneja et al. 1999). DHEA supplementation is the most effective

way of blocking the effects of excess cortisol secretion.

Improving Liver Health

The liver plays a critical role in all aspects of metabolism and health. It is important in the synthesis and secretion of albumin (a blood clotting protein), in the storage of glucose, and in the synthesis of vitamins and minerals. Because the liver has a major role in the purification and clearance of waste products, drugs, and toxins, disease states may be improved by supporting liver function. The herb milk thistle and its components silymarin and silibinin have two therapeutic mechanisms. First, they alter the structure of the outer cell membrane of the hepatocyte to prevent penetration of liver poison into the interior of the cell. Second, they stimulate the action of nucleolar polymerase A, resulting in an increase in ribosomal protein synthesis, thus stimulating the regenerative ability of the liver and the formation of new hepatocytes (Flora et al. 1998; Luper 1998).

SUMMARY

Autoimmune diseases may be greatly improved by strengthening the immune system with nutritional supplements and by making healthy lifestyle changes in diet and stress reduction. The protocols needed may include prescription drugs as well as the following supplements.

1. Omega-3 and omega-6 fatty acids will help reduce systemic inflammation that accompanies autoimmune diseases. Life Extension recommends Super GLA/DHA, which has a balanced blend of both EFAs. EPA is also added to the formula to reduce the effects of arachidonic acid, the inflammatory agent found in meat products. Take 6 softgels daily.
2. DHEA is a steroidal hormone that can reduce the effects of inflammatory cytokines; 25-50 mg daily is recommended. DHEA is contraindicated in men with prostate cancer and in women with estrogen related cancer (refer to the DHEA Replacement Therapy protocol for complete information).
3. Free-radical damage is a byproduct of normal metabolic functioning and exposure to toxic substances. The following supplements have proven to be effective free radical scavengers:
 - Vitamin C, 2.5-6 grams daily.
 - Vitamin E, 1 softgel daily of Gamma E Tocopherol/Tocotrienols. (The most balanced form of vitamin E is Gamma E Tocopherol/Tocotrienols, which provides broad spectrum protection.)
 - Green tea extract, two to four 300-mg (90% polyphenols) decaffeinated capsules daily.
 - Beta-carotene, one 25,000-IU softgel daily.
 - Grape seed-skin extract, two 100-mg capsules daily.
 - CoQ10, 100-200 mg daily.
 - SeMSc (selenium) may be the most effective selenium derivative to fight inflammation and neutralize free radicals; 1 capsule daily between meals.
4. Alkylglycerols from Norwegian Shark Liver Oil may modulate the immune system in certain forms of autoimmune disease; one 1000-mg [containing 20% alkylglycerols (200mg)] softgel daily.
5. Acetyl-L-carnitine enhances the transport of EFAs into the cell's mitochondria and may modulate the effects of damaging saturated fats. Suggested dose is two 500-mg softgels twice daily.
6. Super Carnosine will help protect against the formation of glycated proteins; two to three 500-mg capsules daily.
7. Moducare containing plant sterinols improves the immune system by balancing the Th1/Th2 response; 1 capsule 3 times daily between meals.
8. Life Flora is a probiotic that can reinoculate the gut with healthy bacteria; 1-4 capsules daily for maintenance of GI health.
9. NutraFlora is a prebiotic containing FOS, a nutrient for intestinal flora; 1-4 tsp daily for people with chronic disease states.
10. Butyric acid is a short-chain fatty acid needed for healthy functioning of the large intestine. Butyrate enemas may help reduce the intestinal inflammation that accompanies certain autoimmune conditions. Butyrate enemas must be prescribed by a physician.
11. L-glutamine will aid the small intestines by increasing the number and health of intestinal cells; 1-2 grams daily.
12. Adapton acts as a precursor to endorphins, which help to reduce stress. To begin dosing, take 4 softgels first thing in the morning for 15 days and then reduce amount as needed.
13. L-theanine, the amino acid derived from green tea, reduces stress by creating a sense of well-being; 1-4 capsules daily.
14. The liver is the most important organ in the body for detoxification. Silymarin and Silibinin Plus improve liver function. Suggested dosage is 2 capsules daily of Silibinin Plus, which provides 250 mg of silibinin and 60 mg of silymarin.

PRODUCT AVAILABILITY

Super GLA/DHA, perilla oil, flax seed oil, borage oil, evening primrose oil, cod liver oil, DHEA, vitamin C, Gamma E Tocopherol/Tocotrienols, Green Tea Extract, beta-carotene, grapeseed-skin extract, CoQ10, SeMSc (selenium), Super Carnosine, Norwegian Shark Liver Oil, acetyl-L-carnitine, Moducare, Life Flora, NutraFlora, L-glutamine, Adapton, L-theanine, and Silibinin Plus are available by calling (800) 544-4440 or order online.

Leaky Gut Syndrome

The healthy gastrointestinal tract (gut) performs a multitude of functions. It digests foods; absorbs small food particles that are converted into energy; transports vitamins and minerals across the intestinal lining and into the bloodstream; contributes to the chemical detoxification system of the body; and contains immunoglobulins or antibodies that act as the first line of defense against infection.

Leaky gut syndrome represents a condition in which large spaces develop in the intestinal mucosa, allowing bacteria, toxins, and food to leak into the bloodstream. This hyperpermeable condition leads to inflammation and atrophic damage to the mucosal lining. Once the gut lining becomes inflamed or damaged, the functioning of the GI system is disrupted, allowing large food molecules and toxic pathogens that are foreign to our natural defense system to be absorbed into the body. The result is the production of antibodies that launch an attack on the foreign invaders, with our own healthy tissue often being damaged in the process. Food allergies often complicate leaky gut syndrome. An elimination diet should be undertaken to determine food irritants. See the section entitled Supporting the GI Tract for nutritional supplements that will aid digestion and repair a hyperpermeable condition.

Maintaining Proper pH Balance in the Gut

Diet can significantly impact complete immune function. Because 80% of immune system cells reside in the area of the small intestine, numerous potential antigens can form from the incomplete breakdown of food products. Autoimmune states can be induced by food sensitivities that cause intestinal gut permeability and complicate leaky gut syndrome (Kitts et al. 1997). A first defense against the alteration of protein structure that produces autoimmunity is in the consumption of food sources as close to natural as possible. In addition, the body should be kept in the proper acid/alkaline balance. The correct ratio by volume would be 25% acidifying to 75% alkalizing foods. The following chart provides guidelines on proper food selection. In general, it is important to eat a diet that contains both alkalizing and acidifying foods. Allergic reactions and other forms of stress tend to produce acids in the body. The presence of high acidity indicates that more of your foods should be selected from the alkalizing group.

Alkalizing Foods

Vegetables

Garlic	Celery	Mustard greens	Sea veggies
Asparagus	Chard	Nova Scotia dulse	Spirulina (algae)
Fermented veggies	Chlorella (algae)	Dandelions	Sprouts (all types)
Watercress	Collard greens	Edible flowers	Squashes
Bets	Cucumbers	Onions	Alfalfa grass
Broccoli	Eggplant*	Parsnips (high-glycemic)	Barley grass
Brussels sprouts	Kale	Peas	Wheat grass
Cabbage	Kohlrabi	Peppers*	Wild grass
Carrot	Lettuces (all types)	Pumpkins	Cauliflower
Mushrooms	Rutabaga		

Fruits

Apple	Cantaloupe	Nectarine	Tangerine
Apricot	Cherries, Currants	Orange, Lemon	Tomato*
Avocado	Dates, Figs	Peach, Pear	Tropical fruits
Banana (high-glycemic)	Grapes	Pineapple	Watermelon
Blackberry	Grapefruit, Lime	Raspberry (all berries)	Blueberry
Honeydew	Strawberry		

Protein

Free-range eggs	Organic yogurt	Flax seeds	Sunflower seeds
Whey protein powder	Almonds	Pumpkin seeds	Millet
Fat-free cottage cheese	Chestnuts	Tempeh (fermented)	Sprouted seeds, Nuts
Lean chicken breast	Tofu (fermented)	Squash seeds	

Other

Apple cider vinegar	Bee pollen	Lecithin granules	Dairy-free probiotic cultures
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Beverages

GREENS+	Veggie juices	Fresh fruit juice	Mineral water (non-carbonated)
Organic milk (unpasteurized)	Quality water	(unsweetened)	

Teas

Green tea	Herbal tea	Dandelion tea	Bancha tea
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Ginseng	Kombucha		
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Sweeteners

Stevia

Spices and Seasonings

Cinnamon

Ginger	Curry	Mustard	Miso
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All herbs	Chili peppers	Tamari	Salt (Sea, Celtic)
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Oriental Vegetables

Maitake

Shiitake

Daikon

Kombu

Dandelion root

Reishi

Nori

Umeboshi

Sea veggies

Wakame

Acidifying Foods

Fats and Oils

Avocado oil

Hemp seed oil

Lard

Sesame oil

Canola oil

Flax oil

Olive oil

Sunflower oil

Corn oil

Grape seed oil

Safflower oil

Fruits

Cranberries

Grains

Rice cakes

Buckwheat

Rice (brown, basmati)

Wheat

Wheat cakes

Corn

Rye

Hemp seed flower

Amaranth

Barley

Oats (rolled)

Spelt

Quinoa

Kamut

Dairy (Milk and Hard Cheeses)

Cheese, cow

Cheese, goat

Cheese, processed

Milk

Cheese, sheep

Butter

Nuts and Butters

Cashews

Brazil nuts

Peanut butter

Tahini

Filberts

Peanuts

Pecans

Walnuts

Animal Protein

Beef

Lamb

Rabbit

Turkey

Carp

Lobster

Salmon

Venison

Clams

Mussels

Shrimp

Duck

Oysters

Scallops

Fish, white meat

Pork

Tuna

Pasta (White)

Noodles

Macaroni

Spaghetti

Other

Distilled vinegar

Brewers yeast

Wheat germ

Potatoes*

Drugs and Chemicals

Drugs, medicinal

Drugs, psychedelic

Pesticides

Herbicides

Sweets and Sweeteners

Molasses

Maple syrup

Sugar

Fruit-flavored drinks

Candy

Saccharin

Aspartame

Soft drinks

Alcoholic Beverages

Beer

Spirits

Hard liquor

Wine

Beans and Legumes

Black beans

Chick peas

Pinto beans

Rice milk

Lentils

Lima beans

White beans

Soybeans

Soy milk

Kidney beans

Almond milk

Green peas

Red beans

** Nightshade family foods*

Note: Use organically grown foods whenever possible

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