



GLUTEN FREE  
*with Coral*

# Fighting Inflammation & Supporting Your Immune System

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# Inflammation

Inflammation refers to your body's process of fighting against things that harm it, like infections, injuries, and toxins, in an attempt to heal itself.

When something damages your cells, your body releases chemicals that trigger a response from your immune system.

This response includes the release of antibodies and proteins, as well as increased blood flow to the damaged area. In the case of **acute inflammation** — like getting a cut on your knee or dealing with a cold — the whole process usually lasts for a few hours or a few days.

**Chronic inflammation** happens when this response lingers, leaving your body in a constant state of alert. Over time, chronic inflammation may have a negative impact on your tissues and organs.

The **anti inflammatory diet** can improve your autoimmune disease symptoms and overall inflammation throughout your body. With control of your diet, you can help manage your symptoms better and live life with less worry.

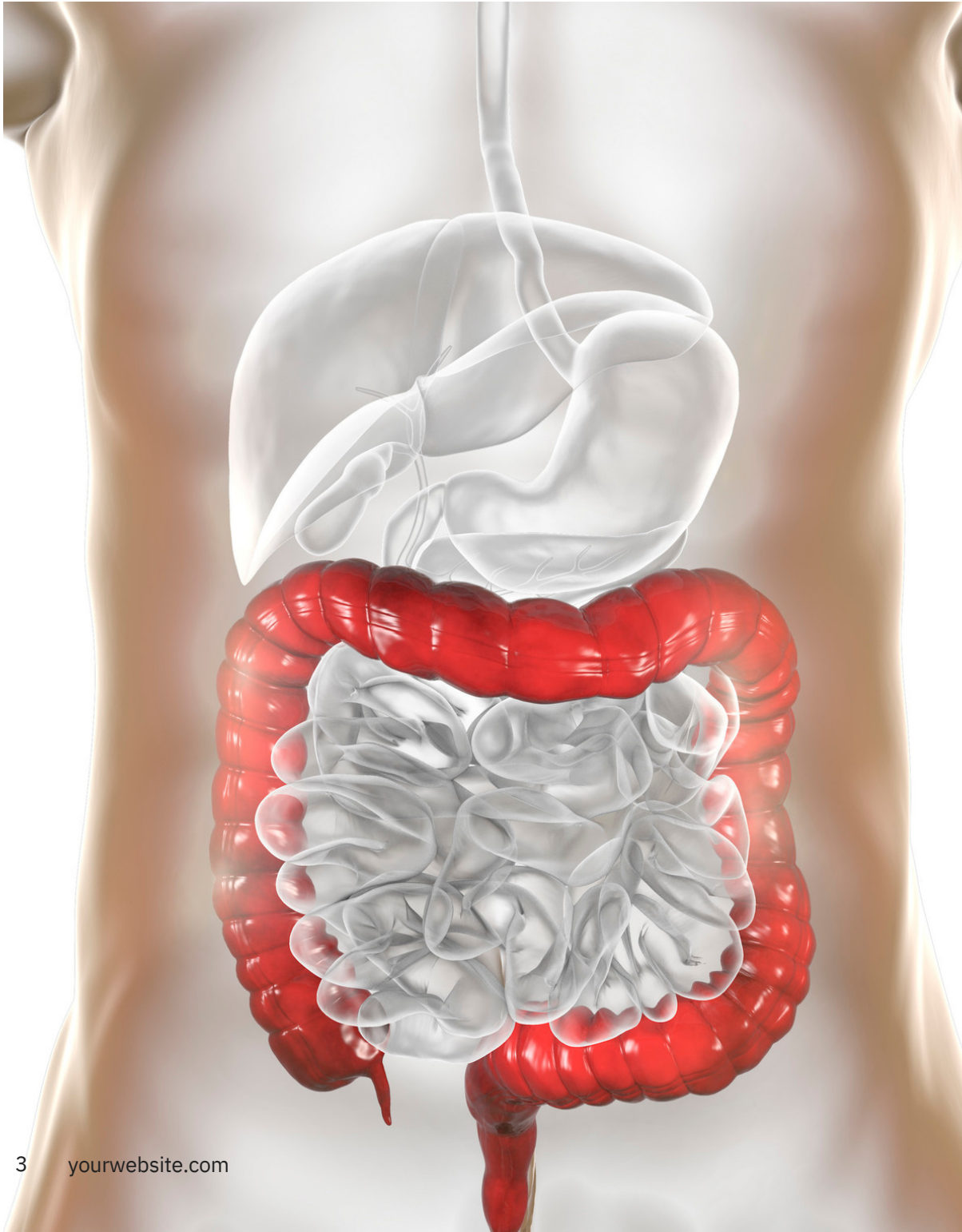
*Common symptoms of chronic inflammation include:*

- *fatigue*
- *body pain*
- *depression or anxiety*
- *gastrointestinal complications (diarrhea or constipation)*
- *weight gain*
- *weight loss*
- *persistent infections*

*These symptoms can range from mild to severe and last for several months or years.*

# Anti Inflammatory Diet

Follow the AIP diet strictly for 30-90 days. When you're ready, you may reintroduce foods one at a time to see how your body responds. For example, if you choose dairy, you might start with low-fat milk and drink a serving each day for three days. If you don't notice a negative reaction, add other dairy products in phases.



# Anti Inflammatory Diet

## Foods to eat

**Vegetables:** a variety of vegetables except for nightshade vegetables and algae, which should be avoided

**Fresh fruit:** a variety of fresh fruit, in moderation

**Tubers:** sweet potatoes, taro, yams, as well as Jerusalem or Chinese artichokes

**Minimally processed meat:** wild game, fish, seafood, organ meat, and poultry; meats should be wild, grass-fed or pasture-raised, whenever possible

**Fermented, probiotic-rich foods:** nondairy-based fermented food, such as kombucha, kimchi, sauerkraut, pickles, and coconut kefir; probiotic supplements may also be consumed

**Minimally processed vegetable oils:** olive oil, avocado oil, or coconut oil

**Herbs and spices:** as long as they're not derived from a seed

**Vinegars:** balsamic, apple cider, and red wine vinegar, as long as they're free of added sugars

**Natural sweeteners:** maple syrup and honey, in moderation

**Certain teas:** green and black tea at average intakes of up to 3–4 cups per day  
Bone broth

# Anti Inflammatory Diet

## **Foods to avoid**

**Grains:** rice, wheat, oats, barley, rye, etc., as well as foods derived from them, such as pasta, bread, and breakfast cereals

**Legumes:** lentils, beans, peas, peanuts, etc., as well as foods derived from them, such as tofu, tempeh, mock meats, or peanut butter

**Nightshade vegetables:** eggplants, peppers, potatoes, tomatoes, tomatillos, etc., as well as spices derived from nightshade vegetables, such as paprika

**Eggs:** whole eggs, egg whites, or foods containing these ingredients

**Dairy:** cow's, goat's, or sheep's milk, as well as foods derived from these milks, such as cream, cheese, butter, or ghee; dairy-based protein powders or other supplements should also be avoided

**Nuts and seeds:** all nuts and seeds and foods derived from them, such as flours, butter, or oils; also includes cocoa and seed-based spices, such as coriander, cumin, anise, fennel, fenugreek, mustard, and nutmeg

**Certain beverages:** alcohol and coffee

**Processed vegetable oils:** canola, rapeseed, corn, cottonseed, palm kernel, safflower, soybean, or sunflower oils

**Refined or processed sugars:** cane or beet sugar, corn syrup, brown rice syrup, and barley malt syrup; also includes sweets, soda, candy, frozen desserts, and chocolate, which may contain these ingredients

**Food additives and artificial sweeteners:** trans fats, food colorings, emulsifiers, and thickeners, as well as artificial sweeteners, such as stevia, mannitol, and xylitol

# What Is The Immune System

The immune system is a complex organ system in the body comprised of white blood cells, skin, mucus and bacteria. Its central role is to seek, recruit, attack and destroy foreign invaders, such as bacteria and viruses that enter the body.



# There Are Two Main Levels Of Immunity:

## 1. Innate Immunity System

The first level is called the innate immune system. This system provides a quick first line of defence and acts against a wide range of pathogens. The innate immunity system refers to nonspecific defence mechanisms that come into play immediately or within hours of an antigen's appearance in the body. These mechanisms include physical barriers such as skin, chemicals in the blood, and immune system cells that attack foreign cells in the body. The chemical properties of the antigen activate the innate immune response.

## 2. Adaptive Immune System

The second main level of immunity is called the adaptive immune system. This level refers to antigen-specific immune response. The adaptive immune response is more complicated than the innate. The antigen first must be processed and recognized. Once an antigen is identified, the adaptive immune system creates an army of immune cells specifically designed to attack that antigen. Adaptive immunity also includes a "memory" that makes future responses against a specific antigen more efficient.

### *Keywords explained:*

- *Antigen - Anything that causes an immune response is called an antigen. An antigen may be harmless, such as grass pollen, or harmful, like the flu virus.*
- *Pathogen - Disease-causing antigens are called pathogens. The immune system is designed to protect the body from pathogens.*



# How to Support Your Immune System

The immune system is a system, not a single entity. For it to function well, it requires balance and harmony.

Researchers are still exploring the effects of diet, exercise, age, psychological stress, and other factors on the immune response.

A healthy lifestyle is the single best step you can take toward naturally keeping your immune system strong and healthy. Every system in your body, including the immune system, functions better when following balanced and healthy strategies such as these:

- Eating a whole food diet with plenty of fruit and veggies
- Exercising regularly
- Staying hydrated
- Maintaining a healthy weight
- Getting enough sleep
- Reducing stress
- Drinking alcohol in moderation
- Not smoking



# Diet & Your Immune System

There is evidence that various micronutrient deficiencies (think vitamins and minerals) could alter immune responses. However, the impact of these immune system changes on health is less clear.

If you suspect you have micronutrient deficiencies, eat a varied diet with ample amounts of fruit and vegetables or support yourself with a good quality multivitamin.

*Read the information below to find out which are the best immunity boosting fruit and vegetables and how to incorporate them into your diet.)*

# 7 Vitamins, Minerals & Antioxidants for Your Immune System



# #1. Vitamin D



Research shows that vitamin D supplementation may reduce the risk for viral infections, including respiratory tract infections, by reducing the production of pro-inflammatory compounds in the body.

## Supplementation:

The body produces vitamin D from cholesterol, provided there is an adequate amount of UV light from sun exposure.

For moderate supplementation, a 1,000-2,000IU dose of vitamin D3 is sufficient to meet the needs of most of the population. The safe upper limit in the United States and Canada is 4,000IU/day.

## #2. Vitamin C



Vitamins C and E are antioxidants that help to destroy free radicals and support the body's natural immune response.

### Vitamin C Sources:

- red bell peppers
- oranges
- strawberries
- broccoli
- lemons

### Vitamin C Supplementation:

Vitamin C is often supplemented to reduce the symptoms of the common cold. Supplementing vitamin C can reduce the duration of a cold by 8-14% in any population, when it is taken as a daily preventative measure, or at the beginning of a cold. The Recommended Daily Intake (RDI) of vitamin C is 100-200mg. This is easily attained through the diet, so supplementation of such low doses is usually unnecessary. Higher doses of vitamin C, up to 2,000mg, are used to support the immune system (for athletes) or reduce the duration of the common cold.

# #3. Vitamin E



Vitamins C and E are antioxidants that help to destroy free radicals and support the body's natural immune response.

## Vitamin E Sources:

- almonds
- spinach
- avocado
- olives

## Vitamin E Supplementation:

Maintaining adequate levels of vitamin E in the body can be achieved through very low daily doses of 15mg (22.4 IU) or less. This dose of vitamin E can be acquired through the diet, making supplementation unnecessary in many cases. An older person supplementing vitamin E to improve immunity should take a 50-200mg dose.

## #4. Beta-Carotene



Beta-carotene is a powerful antioxidant that can reduce inflammation and boost immune function by increasing disease-fighting cells in the body.

### Sources:

- sweet potatoes
- carrots
- green leafy vegetables

## #5. Zinc



Zinc is a mineral that can help boost white blood cells, which defend against invaders.

### Sources:

- pumpkin seeds
- sesame seeds
- beans
- lentils

### Supplementation:

Zinc has two standard dosages. The low dosage is 5-10mg, while the high dosage is 25-45mg. The low dose works well as a daily preventative, while the high dosage should be taken by anyone at risk for a zinc deficiency.

## #6. Allicin



Allicin is the principal bioactive compound present in the aqueous extract of garlic. When garlic is chopped or crushed, the alliinase enzyme is activated, and allicin is produced. When cooking with garlic, it is recommended to crush or chop it and leave for 10 mins for the enzyme to be activated.

The benefits of garlic to health has been proclaimed for centuries; however, only recently, it's been proposed as a promising candidate for maintaining a healthy immune system.

Most studies on garlic use a dosage range of 600-1,200mg a day, usually divided into multiple doses. The minimum effective dose for raw garlic is a single segment of a garlic bulb (called a clove), eaten with meals two or three times a day.

# #7. Astragalus



Astragalus membranaceus is an important herb in traditional Chinese medicine. It has been used in a wide variety of herbal blends and 'natural' remedies. This Chinese herb has been researched for its cardioprotective, anti-inflammatory, and longevity effects.

## Supplementation:

Astragalus membranaceus and Angelicae Sinensis are highly synergistic, meaning they are more powerful when taken together. This combination is traditionally called Dang-gui buxue tang.

The starting point for the preparation of Dang-gui buxue tang in traditional Chinese medicine is 30g of Astragalus membranaceus root paired with 6g of Angelicae Sinensis. This is a 5:1 ratio, which is ideal for extracting the bioactive ingredients of the plants.

The main bioactive compound in Astragalus membranaceus is astragaloside IV, which can be supplemented by itself. The standard dose for astragaloside IV is 5-10mg.