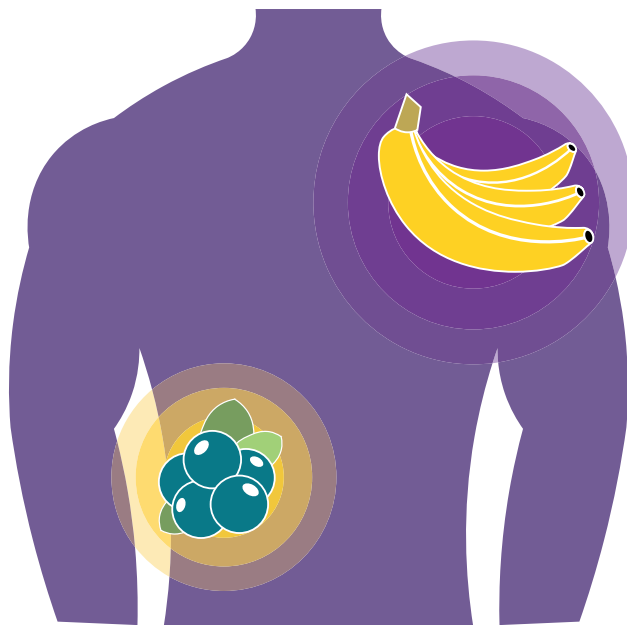




FIGHTING INFLAMMATION WITH FOOD



Inflammation is a natural process that occurs when the body's immune system sends inflammatory cells to an injured area to protect against infection and initiate healing. There are two types of inflammation: acute and chronic. Acute inflammation is the response to an irritant, injury or infection. It usually resolves within days to weeks. Chronic inflammation is a long-term inflammatory response, continuing well beyond the initial impairment. This type of inflammation is associated with various conditions including cardiovascular disease, Type 2 diabetes, Alzheimer's disease, cancer, depressive symptoms and more.^{1,2} A healthy and active lifestyle has been found to play a role in managing chronic inflammation.³ There is no specific diet that has been found to prevent chronic inflammation. But, a healthy eating pattern, rich in anti-inflammatory foods, is referred to as an anti-inflammatory diet because it can help lower the risk of diseases associated with chronic inflammation.



What is an anti-inflammatory diet?

An anti-inflammatory diet is one that can help manage inflammation by incorporating foods that help to lower inflammation, while limiting those that can contribute to it. Antioxidants, such as polyphenols, beta-carotene, vitamin C and vitamin E, are all compounds found in foods and function in various ways to lower inflammation in the body. Antioxidants are compounds that fight inflammation by removing free radicals. Free radicals are reactive chemical species that can cause oxidative stress that damages cells throughout the body. Over time, this can lead to chronic inflammation and disease.

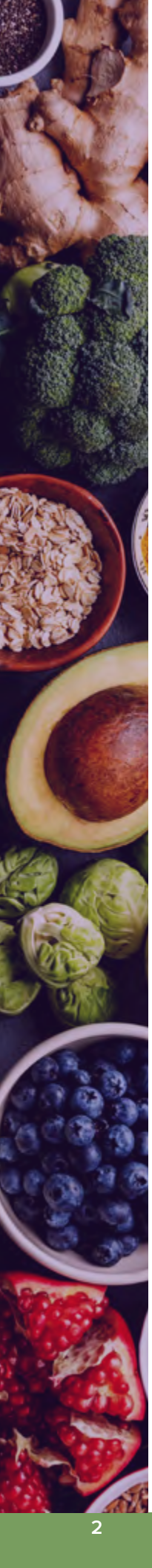
An anti-inflammatory diet encourages consumption of:

- Nuts and seeds.
- A variety of fruits, especially berries and citrus.
- A variety of vegetables, especially cruciferous, leafy greens and tomatoes.
- Fatty fish and lean proteins.
- Avocado and olive oil.
- Herbs and spices, especially garlic, onions and turmeric.

An anti-inflammatory diet discourages consumption of:

- Refined carbohydrates.
- Sugar sweetened beverages.
- Processed meats.
- Fried foods, shortening, lard.
- Ultra-processed foods.
- Excess alcohol.

People who consume high-calorie diets, rich in saturated fats and low in fiber, tend to have higher levels of oxidative stress and greater risk of chronic diseases. Shifting to a diet rich in beneficial antioxidants can lower oxidative stress and reduce the risk of metabolic diseases.⁴ Antioxidant compounds are more concentrated in plant foods than in animal foods.⁵ A diet that includes a diverse selection of vegetables, fruits, herbs, spices, nuts and seeds will contain thousands of bioactive, health-promoting chemicals.⁶ The Mediterranean diet and the DASH diet are both examples of what can be considered an anti-inflammatory diet.⁷ These diets encourage healthy eating patterns that are rich in nutrient-dense, plant-based foods and limited in saturated fats, refined carbohydrates and ultra-processed foods.



What are the health benefits?

Consumption of anti-inflammatory foods can reduce inflammatory markers and improve symptoms associated with inflammation. C-reactive protein (CRP) is a blood test commonly used to measure inflammation. Adhering to the Mediterranean style diet has been shown to deliver many health benefits, among which is to lower CRP by as much as 20%.⁸ Studies have demonstrated that high intakes of fruits and vegetables can improve several inflammatory biomarkers⁹ and that omega-3 fatty acids, found primarily in fish, nuts and seeds, can also significantly reduce CRP levels and other inflammatory biomarkers.⁶ The benefits of anti-inflammatory diets may extend to mental health as well, with the potential to help treat symptoms of depression.¹ While many studies support the consumption of anti-inflammatory foods for overall health, these foods alone have not been shown to reverse health conditions and should be used as a complimentary therapy to medical treatment.¹⁰

How to follow an anti-inflammatory diet?

An anti-inflammatory diet means consuming a wide variety of fruits, vegetables, legumes, whole grains and lean meats and fish, rich in nutrients, antioxidants, fiber and healthy fats. Dishes such as ratatouille or red snapper stir-fry, prepared from an array of colorful ingredients, can provide a wide range of beneficial compounds. Dried plant products are particularly powerful antioxidants, so incorporating herbs or spices such as garlic, ginger, turmeric, cinnamon and rosemary into any type of dish, such as soups, salads, stews, grains or desserts, can be a flavorful way to boost consumption of anti-inflammatory foods.

For example, part of an anti-inflammatory meal or snack plan could be:

- Smoothie made with Greek yogurt, ice, blueberries, chia seeds, nut butter and cinnamon.
- Garlic hummus with celery, carrots and grape tomatoes.
- Baked salmon over purple rice with beet and arugula salad dressed in lemon, olive oil and herbs.
- Mixed nuts with dried apricots or dark chocolate chips.
- Herbal teas with ginger and turmeric.

The anti-inflammatory diet also means avoiding or limiting foods that are pro-inflammatory, such as highly processed foods, added sugars, excess salt and alcohol. Even small swaps of pro-inflammatory foods for healthier options can help lower your risk of chronic inflammation and chronic disease. Try ...

- Replacing regular sodas with iced green tea or fruit-infused water with no added sugars.
- Trading a sausage biscuit for a whole-wheat English muffin with egg and avocado.
- Substituting roasted sweet potato wedges for french fries.

Small changes for better health

Many lifestyle factors can feed or fight inflammation. Healthy eating, a healthy weight, stress management, sufficient sleep and tobacco-free living all help to reduce inflammation.¹⁰ Taken now, just a few small steps toward prevention or management of chronic inflammation could have positive long-term impacts on your health and well-being.

An anti-inflammatory diet shopping list could include:

- Salmon
- Sardines
- Berries
- Cherries
- Oranges
- Kale
- Spinach
- Broccoli
- Mushrooms
- Bell peppers
- Legumes (beans, peas, lentils)
- Nuts
- Seeds
- Olive oil
- Garlic
- Onions
- Ginger
- Dried herbs and spices

...and maybe a bit of dark chocolate (at least 70% cocoa) for dessert.

Selected references:

- ¹Depression meta analysis: <https://pubmed.ncbi.nlm.nih.gov/30502975/>
- ²Diseases: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC7147972/>
- ³Lifestyle factors: <https://www.ncbi.nlm.nih.gov/books/NBK493173/>
- ⁴Diet and oxidative stress: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC8391153/>
- ⁵Plant versus animal, antioxidant content of foods: <https://nutritionj.biomedcentral.com/articles/10.1186/1475-2891-9-3>
- ⁶Omega-3: <https://www.nature.com/articles/s41598-019-54535-x>,
- ⁷Dietary patterns and oxidative stress systematic review: <https://www.sciencedirect.com/science/article/pii/S2213231721000173>
- ⁸Mediterranean diet: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4443792/>
- ⁹Fruits vegetables meta-analysis: <https://pubmed.ncbi.nlm.nih.gov/29931038/>
- ¹⁰Anti-inflammatory evidence: <https://www.medicalnewstoday.com/articles/do-anti-inflammatory-diets-really-work#How-does-an-anti-inflammatory-diet-work>

Authors:

Jordan Losavio, Graduate Assistant
School of Nutrition and Food Sciences

Elizabeth Gollub, Ph.D., M.P.H., R.D., Nutrition Specialist
School of Nutrition and Food Sciences



Visit our website: www.LSUAgCenter.com

Pub. 3890 (online) 9/23

The LSU AgCenter and LSU provide equal opportunities
in programs and employment.