



THE UNIVERSITY OF ARIZONA

Andrew Weil Center for Integrative Medicine

Dietary Tips: Anti-Inflammatory Diet

It is becoming increasingly clear that chronic inflammation is the root cause of many serious illnesses - including heart disease, many cancers, and Alzheimer's disease. We all know inflammation on the surface of the body as local redness, heat, swelling and pain. It is the cornerstone of the body's healing response, bringing more nourishment and more immune activity to a site of injury or infection. But when inflammation persists or serves no purpose, it damages the body and causes illness. Stress, lack of exercise, genetic predisposition, and exposure to toxins (like second-hand tobacco smoke) can all contribute to such chronic inflammation, but dietary choices play a big role as well. Learning how to use diet to reduce chronic inflammation can be an important way to reduce chronic disease.

GENERAL TIPS

- Aim for a variety of whole, unprocessed and colorful foods.
- Include as much fresh food as possible.
- Minimize your consumption of processed foods, alcohols and fast-food.
- Eat an abundance of fruits and vegetables.
- Include healthy oils.
- Avoid food allergies and intolerances.

CALORIC INTAKE

- Most adults need to consume between 2,000 and 3,000 calories a day. Consider using a calorie-counting app to track your daily caloric intake.
- Women and smaller and less active people need fewer calories.
- Men and bigger and more active people need more calories.
- If you are eating the appropriate number of calories for your level of activity, your weight should not fluctuate greatly.
- The distribution of calories you take in should be

as follows: 40 to 50 percent from carbohydrates, 30 percent from fat, and 20 to 30 percent from protein.

- Try to include carbohydrates, fat, and protein at each meal.
- Timing is important. Try to consume all of your calories within an 11-hour window. This means that you fast for 13 hours overnight. The fasting period allows your body to replenish its antioxidant capacity, accomplish cell repair and recalibrate immunity.

PROTEINS

- Protein provides amino acids which are used to make a variety of enzymes, neurotransmitters, and is needed by our immune system, muscles, bones and skin.
- On a 2,000 calorie-a-day diet your daily intake of protein should be between 80 and 120 grams. Another way to determine your protein intake is to multiply your weight (in pounds) by 0.36. This will give you the total grams of protein to consume on a daily basis. Eat less protein if you have liver or kidney problems, allergies, or autoimmune disease.
- Limit your consumption of animal protein except for fish and high quality natural cheese and yogurt
- Eat more vegetable protein, especially from beans in general and soybeans in particular.
- Become familiar with the range of whole soy foods available and find ones you like.

CARBOHYDRATES

- Carbohydrates are an important source of energy and carbohydrate foods typically contain many vitamins and minerals essential to cellular health.
- On a 2,000-calorie-a-day diet, adult women should consume between 160 to 200 grams of carbohydrates a day.
- Adult men should consume between 240 to 300 grams of carbohydrates a day.
- Eat more vegetables and fruits – aim for 5 to 10 servings each day (one serving = 1 cup raw vegetables = ½ cup cooked vegetable = 1 whole fruit).
- The majority of this should be in the form of less-

refined, less-processed foods with a low glycemic load.

- Reduce your consumption of foods made with flour and sugar, especially bread and most packaged snack foods (including chips and pretzels).
- Eat more beans, winter squashes, and sweet potatoes.
- Eat more whole grains (not whole-wheat flour products) such as brown rice and bulgur wheat, in which the grain is intact or in a few large pieces.
- Cook pasta al dente and eat it in moderation.
- Avoid products that contain high fructose corn syrup.

FATS

- Fats are important sources of energy and are used to make hormones.
- On a 2,000-calorie-a-day diet, 600 calories can come from fat—that is about 67 grams. This should be in a ratio of 1:2:1 of saturated to monounsaturated to polyunsaturated fat.
- Saturated fats are typically solid at room temperature and are so-called because the fat molecule is saturated with hydrogen molecules instead of having double bonds connecting carbon atoms. While saturated fats are not inherently bad for you, eating too much saturated fat is linked with chronic inflammation. Saturated fats include fat from red meats, chicken skin, butter and cheese, many processed baked goods, fried foods, and palm and coconut oils.
- Monounsaturated fat molecules have one unsaturated carbon bond (a double bond). These oils are usually liquid at room temperature. Monounsaturated fats are generally anti-inflammatory and healthy sources include olive oil, nuts, and avocado.
- Polyunsaturated fats have more than one unsaturated carbon bond (double bond). These oils are usually liquid at room temperature and include essential omega fatty acids such as omega-6 and omega-3 fatty acids. Generally speaking, most people consume more than enough omega-6 fatty acids, but insufficient omega-3 fatty acids. The main sources of dietary omega-6 polyunsaturated fats are corn oil, sunflower oil, soybean oil, canola oil, egg yolks, and animal meats. Healthy sources of omega-3 polyunsaturated fats include fish,

algae, flaxseeds, soy foods, nuts, seeds and their oils.

- Reduce consumption of saturated fat, especially from meat and skinless chicken, processed baked goods, and fried foods; avoid products made with palm kernel oil.
- Use extra-virgin olive oil as a main cooking oil up to its smoke point. For higher temperature cooking, use coconut or avocado oils. If you want a neutral tasting oil, use expeller-pressed grape seed oil or organic expeller-pressed canola oil. Organic, high-oleic, expeller pressed versions of sunflower and safflower oil are also acceptable.
- Avoid regular consumption of safflower and sunflower oils, corn oil, cottonseed oil, and mixed vegetable oils.
- Strictly avoid margarine, vegetable shortening, and all products listing them as ingredients. Strictly avoid all products made with partially hydrogenated oils of any kind. Avoid products made with refined soybean oil.
- Include in your diet avocados and nuts, especially walnuts, cashews, almonds, and nut butters made from these nuts.
- For omega-3 fatty acids, eat salmon (preferably fresh or frozen wild or canned. sockeye), sardines packed in water or olive oil, herring, black cod (sablefish, butterfish). Unfortunately, many seafoods are high in mercury, a heavy metal that can contribute to inflammation. The Environmental Working Group has a good guide to healthy and safe seafood: www.ewg.org/research/ewgs-good-seafood-guide. Other excellent sources of omega-3 fatty acids are omega-3 fortified eggs; hemp seeds and flaxseeds (preferably freshly ground) and walnuts.

FIBER

- Fiber is important to maintain bowel regularity, lowers cholesterol and improves blood sugar control, lowers inflammation, creates a sense of fullness thereby helping with weight loss, and supports a healthy microbiome. There are two types of fiber – soluble and insoluble fiber – and we need both. After ingesting soluble fiber, it forms a gelatinous substance by combining with water in our intestines. Soluble fiber binds to cholesterol and sugar, lowering their absorption into the blood. Soluble

fiber also serves as fuel for the beneficial bacteria in our intestines. Insoluble fiber remains intact and promotes bowel regularity.

- Try to eat 25-30 grams of fiber a day. You can achieve this by increasing your consumption of vegetables, fruit (especially berries and avocado), legumes (beans), seeds, and whole grains.
- Cereals can be good fiber sources, but read labels to make sure they give you at least 4 and preferably 5 grams of fiber per serving.
- Soluble fiber is found in oatmeal, oat bran, nuts, seeds, beans, barley and some vegetables and fruits. Insoluble fiber is found in wheat bran, whole grains, fruit skins, and most vegetables.

PHYTONUTRIENTS

- Phytonutrients are important to our health, not because they are sources of calories for our energy needs, but rather because they provide direct anti-inflammatory, antioxidant, glucose balancing and hormonal modulating effects. Phytonutrients are found exclusively in plants.
- Eat a variety of fruits, vegetables and mushrooms to get maximum natural protection against age-related diseases (including cardiovascular disease, cancer, and neurodegenerative disease).
- Choose fruits and vegetables from all parts of the color spectrum, especially grapes and berries, tomatoes, orange and yellow fruits, broccoli, legumes, seeds and dark leafy greens.
- Choose organic produce whenever possible. Learn which conventionally grown crops are most likely to carry pesticide residues and avoid them (visit www.foodnews.org).
- Eat cruciferous (cabbage-family) vegetables such as broccoli, cabbage, Brussels sprouts, arugula, and kale regularly.
- Add a tablespoon of ground flaxseeds to cereals or smoothies.
- Include soy foods in your diet (such as edamame, soy nuts, soy milk, tofu, tempeh).
- Drink tea (especially white, green or oolong) and/or

coffee, especially good quality and organic.

- If you drink alcohol, use red wine preferentially and in moderation.
- Enjoy plain dark chocolate in moderation (ideally with a minimum cocoa content of 70%).

VITAMINS AND MINERALS

- Vitamins and minerals are required by hundreds of actions in the body. We need vitamins and minerals to support our immune system, for strong bones, to make energy, to repair damage and transport oxygen, and to protect tissues against oxidative damage and inflammation. The best way to obtain all of your daily vitamins, minerals, and micronutrients is by eating a diet high in fresh foods with an abundance of fruits and vegetables.
- It is important to consume foods that contain B vitamins and vitamin C as these are water soluble vitamins not stored in the body. Healthy sources of B vitamins include whole grains, meats (ideally from wild or grass-fed animals), eggs, nuts, dairy (ideally from grass-fed animals) and legumes. Vitamin C is found in peppers, citrus, berries, broccoli, tomatoes and spinach.
- Fat-soluble vitamins such as A, D, E and K are stored in the body, but it is still possible to become deficient. Good sources of fat-soluble vitamins include:
 - Vitamin A: leafy greens, orange and yellow vegetables and fruits, organ meats, fatty fish
 - Vitamin D: fatty fish, grains
 - Vitamin E: nuts, seeds, green vegetables
 - Vitamin K: leafy greens, broccoli, cabbage, fish, organ meats, eggs

WATER

- Our bodies are mostly water. Water is critical to our health and wellness. We need water to maintain blood flow, lubricate our joints, for detoxification and for optimal brain functioning.
- The amount of water that we each need depends upon our age, activity level and body weight. A good rule of thumb is drink enough water so that your urine is colorless or light yellow. Another guide is that if you

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