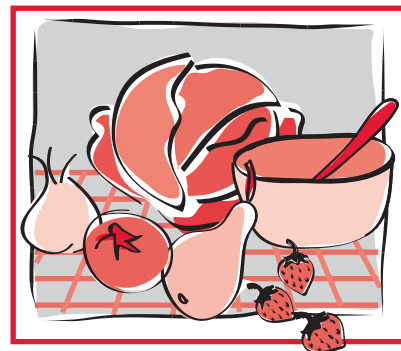


Heart Health: Managing Heart Disease through Diet

Fact Sheet No. 9.384

Food and Nutrition Series | Health



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What is Heart Disease?

Heart disease, also known as cardiovascular disease or coronary heart disease, is a broad term for conditions that result in narrowed or blocked blood vessels that may lead to chest pain, heart attack, or stroke. Common cardiovascular diseases include atherosclerosis (hardening of the arteries), hypertension (high blood pressure), and heart failure, all of which are related and often coexist. Other conditions such as arrhythmia (irregular heart beat), heart valve problems, or congenital heart defects, also fall under the definition of heart disease. Despite being a mostly preventable disease, death as a result of cardiovascular disease is the number one killer in the United States.

What Causes Heart Disease?

Most often, heart disease occurs due to poor lifestyle choices including lack of physical activity, tobacco use, or an unhealthy diet. Risk factors such as age, gender, and family history also play a major role. Heart disease may also occur as a result of infections or genetic abnormalities affecting the heart, not related to lifestyle choices.

An unhealthy diet and lack of physical activity can lead to conditions that are often precursors to heart disease such as: high blood cholesterol, high blood pressure, diabetes, and obesity. High blood cholesterol, often from a high fat diet, can lead to plaque formation in vessel walls. Plaque buildup occurs with no symptoms and causes narrowing of the arteries, high blood pressure, and may lead to a heart attack without warning. An unhealthy diet may also lead to obesity and diabetes. For more information on how dietary fat

and cholesterol affect blood cholesterol and triglyceride levels, see fact sheet [Cholesterol and Fats](#). For more information on how dietary patterns affect one's risk for hypertension, see fact sheet [Diet and Hypertension](#).

Reducing the Risk for Heart Disease

Heart Disease Management and the Diet:

The following tips are general dietary recommendations for the prevention and management of heart disease. Most importantly, one should attempt to maintain a **healthy body weight** by balancing caloric intake and physical activity, as these guidelines are aimed at meeting this overarching goal. These tips should be used alongside the American Heart Association (AHA) general lifestyle recommendations for managing heart disease and the United States Department of Agriculture (USDA) *Dietary Guidelines for Americans*.

Important Dietary Tips for the Prevention and Management of Heart Disease

1. *Consume a diet rich in vegetables, fruits, and whole-grains.*
2. *Limit the amount of saturated fat, trans fat, and cholesterol in the diet.*
 - a. *Read the 'Nutrition Facts' on food labels.*
 - b. *Choose lean meats and plant-based protein sources.*
 - c. *Cook meals that are low in saturated fat, trans fat, and cholesterol.*
3. *Limit foods and beverages with added sugar.*
4. *Choose foods with low salt content.*

Quick Facts

- Heart disease is the number one killer in the United States. However, healthy lifestyle modifications may reduce many risk factors.
- Healthy weight maintenance through a nutritious diet and physical activity are important steps to decrease one's risk for heart disease.
- Fruits and vegetables contain cholesterol lowering compounds such as antioxidants and phytonutrients that may help prevent heart disease.
- Limiting dietary saturated fat, trans fat, and cholesterol intake is an important strategy to reduce one's risk for heart disease, and can be achieved through label reading, shopping carefully for non-fat or low-fat dairy products, and choosing lean meats.
- Dietary approaches such as the Dietary Approaches to Stop Hypertension (DASH) and the Therapeutic Lifestyle Change (TLC) may help one follow a heart healthy diet.

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1. Consume a diet rich in vegetables, fruits, and whole-grains:

Fruits and vegetables help to regulate appetite and are naturally low in fat. Fiber and various plant compounds found in fruits, vegetables, and whole-grains may have cholesterol-lowering properties. For in-between meal snacks, it is important to choose fresh, frozen, or canned fruits and vegetables without added salt and sugar, instead of high calorie snack foods.

- **Antioxidants:** Research indicates that consuming a diet rich in fruits and vegetables may help to lower blood cholesterol levels and aid in healthy weight maintenance. Certain properties in fruits and vegetables known as antioxidants may be responsible for this effect. In particular, beta-carotene and vitamin C are both important antioxidants that play a role in heart disease prevention.

- **Phytonutrients:** Various phytonutrients that promote heart health can be found in fruits and vegetables. Soybeans and products made from soy such as tofu and tempeh contain phytonutrients that may reduce the risk for heart disease. This is especially true when plants that contain phytonutrients are consumed instead of products high in saturated fat.

- **Plant Stanols and Sterols:** These compounds are naturally found in fruits and vegetables, and can help lower low-density lipoprotein (LDL) 'bad' cholesterol. They work by inhibiting the body's absorption of cholesterol in the intestine.

- **Fiber:** Research has shown eating foods rich in soluble fiber may decrease LDL cholesterol levels. Fiber acts by binding to cholesterol in the intestine and passing it out of the body. Foods high in soluble fiber include beans, peas, legumes, fruits, vegetables, grain products, oatmeal, rice, oat and wheat bran, and barley. Fiber supplements have no known benefits for heart disease prevention. For more information on fiber, see fact sheet [Dietary Fiber](#).

2. Limit the amount of saturated fats, trans fat, and cholesterol in the diet:

Healthy individuals without heart disease should limit saturated fat to *less than 10%* of total daily calories, while those with heart disease, diabetes, or high LDL cholesterol should limit intake of saturated fat to *less than 7%* of total daily calories. All individuals should limit trans fat to *less than 1%* of total daily calories. Cholesterol should be limited to *less than 300 milligrams* daily for healthy individuals and *less than 200 milligrams* daily for those with heart disease, diabetes, or high LDL cholesterol. Following a diet low in saturated fat, trans fat, and cholesterol may lower one's risk for cardiovascular disease by reducing LDL cholesterol levels.

Recent research indicates that following the Mediterranean Diet (which includes plant-based fat sources such as nuts and olive oil that contain healthy unsaturated fats, as opposed to harmful saturated fats) can reduce cardiovascular disease events by up to 30%.

- a. **Read the 'Nutrition Facts' on food labels**—This panel on a food label provides the necessary information to help consumers meet dietary guidelines from the AHA and USDA *Dietary Guidelines for Americans*. The 'Nutrition Facts' panel lists the Daily Reference Values (DRV) for specific nutrients including fat, saturated fat, cholesterol, and sodium.

Health Claims on Food Labels—Specific health claims can be made for food products that meet certain requirements such as "lean," "low fat," or "low in cholesterol." Though these products may have reduced fat, one should still pay attention to portion size and calories per serving size. For more information on food labels in general, see fact sheet [Understanding the Food Label](#), and for more information on health claims and food labels for sodium, see fact sheet [Sodium in the Diet](#).

Health Claims on Food Labels

- **'Percent' Fat Free:** This term must accurately reflect the amount of fat present in 100 grams of the food. 'Percent fat free' products must meet the low fat or fat free product definitions. For example, if a product contains 2.5 grams of fat per 50 grams, the claim must be '95 percent fat free.'
- **Fat Free:** Less than 0.5 grams of fat per serving.
- **Low Fat:** 3 grams of fat or less per serving.
- **Saturated Fat Free:** Less than 0.5 grams of saturated fat and less than 0.5 grams of trans fat per serving.
- **Low Saturated Fat:** 1 gram of saturated fat or less, and less than 0.5 grams of trans fat per serving.
- **Cholesterol Free:** Less than 2 milligrams of cholesterol and 2 grams or less of saturated fat per serving.
- **Low Cholesterol:** Less than 20 milligrams of cholesterol and 2 grams or less of both saturated fat and trans fat per serving.
- **Lean:** Less than 10 grams of fat, less than 4 grams of saturated fat, and less than 95 milligrams of cholesterol per serving and per 100 grams.
- **Reduced:** At least 25 percent fewer calories, fat, saturated fat, cholesterol, or sodium per serving than the original product.
- **Extra lean:** Less than 5 grams of fat, less than 2 grams of saturated fat and trans fat, and less than 95 milligrams of cholesterol per serving and per 100 grams.
- **Light:** 1/3 fewer calories, 1/2 the fat, or 1/2 the sodium of reference food.

b. Choose lean meats and plant-based protein sources—Selecting lean cuts of beef and pork, along with preparing all meats in a heart-healthy way are important tips to meet this recommendation.

Adding two servings of fish per week and incorporating protein from vegetable sources may decrease one's risk for heart disease and high blood lipid levels (Table 1).

c. Cook meals that are low in saturated fat, trans fat and cholesterol—Preparing meals in a heart-healthy way involves recognizing hidden fat and cholesterol sources in food items. Simply substituting olive oil and vinegar in place of creamy salad dressings, or using other easy tips to reduce saturated fat and cholesterol in recipes can be effective ways to lower the risk for heart disease. The following are recommendations for reducing saturated fat, trans fat, and cholesterol in meats, dairy, and recipes:

To reduce fat and cholesterol in meat and poultry:

- Cut off all visible fat.
- Thoroughly drain fat off of all cooked meats.
- Make stews, broths, and stocks a day ahead of time and refrigerate. Remove the hardened fat from the top before it is reheated or used in soups and other recipes.
- Baste with wine or tomato juice instead of drippings.
- Broil rather than pan-fry meats such as hamburgers, chops, and steak.
- Remove skin from chicken.
- Purchase lean or extra lean meats.
- Purchase white meat as opposed to dark meat.
- Flavor meat with herbs and spices instead of high-fat marinades.

To reduce fat and cholesterol from dairy foods:

- Choose 1% or nonfat milk instead of whole milk.
- Choose fat free yogurt.
- Use lower fat chesses or limit portion sizes.

To reduce fat and cholesterol in recipes:

- Broil, bake, boil, steam, stir-fry, or microwave foods instead of deep frying or pan frying.
- Use lean meats in recipes.
- Limit use of butter, margarine, and lard, and replace with vegetable oil.
- In casseroles, use more vegetables and less meat.

- Be aware of fat content in sauces.
- Try cutting oil or fat in half when cooking on the stove top, as this usually does not affect the taste of the food. Be aware that reducing oil or fat when baking may affect the taste and properties of the finished product.
- Use low-fat alternatives such as nonfat yogurt or whipped topping made from skim milk, instead of high fat condiments like sour cream, mayonnaise and whipping cream.
- Use two egg whites instead of one yolk.

3. Limit foods and beverages with added sugar:

Consumption of added sugars and sweeteners such as sucrose, corn syrup, and high-fructose corn syrup has increased dramatically in the past few decades, leading to an increase in total calories and weight gain in many individuals. Added sweeteners are present in most pre-packaged food items and processed beverages (such as soda). In order to maintain a healthy weight, one should reduce intake of foods and beverages with added sugar. For more information on sugar and the diet, see fact sheet [Sugar and Sweeteners](#).

4. Choose foods with low salt content:

Sodium, a major component of salt, plays a crucial role in blood pressure regulation. Dietary guidelines suggest that reducing sodium intake may prevent and control high blood pressure (hypertension) by helping to lower blood pressure. A decreased sodium intake is also associated with reduced risk for congestive heart failure. General guidelines for sodium intake for adults recommend no more than 2,300 milligrams daily. Those who are African American, over the age of fifty, or have hypertension, diabetes, or chronic kidney disease should consume no more than 1,500 milligrams of sodium per day. For more information on sodium and the diet, see fact sheet [Sodium in the Diet](#), and for more information on how the diet affects one's risk for hypertension, see fact sheet [Diet and Hypertension](#).

Plan of Action for Heart Disease Management

- Healthy weight maintenance, by following these four dietary tips, is an important step in preventing and managing heart disease.
- A healthy diet that aides in healthy weight maintenance can help achieve recommended levels of LDL 'bad' cholesterol, high-density lipoprotein (HDL) 'good' cholesterol, triglycerides, normal blood pressure, and normal blood glucose levels. For a list of normal levels, see fact sheet [Dietary Fat and Cholesterol](#), and fact sheet [Diet and Hypertension](#).
- Several dietary patterns meet dietary recommendations, such as the DASH dietary pattern (see fact sheet [DASHing to Lower Blood Pressure](#)), and the Therapeutic Lifestyle Change Dietary Pattern (TLC) (http://www.nhlbi.nih.gov/health/public/heart/cho/cho_tlc.pdf). These diets are low in dietary fat, cholesterol, and sodium and rich in dietary fiber, fruits, and vegetables (Table 2).
- In addition to dietary recommendations, regular physical activity is necessary to maintain a healthy weight. Regular physical activity also improves blood pressure levels, cholesterol and triglyceride profiles, and blood sugar levels. Moderate exercise for at least thirty minutes every day is recommended.
- Limit tobacco use and exposure, and moderate alcohol consumption.

Table 1. Heart-Healthy Lean Protein Choices.

Protein Source	Healthy Lean Choices	Why are they Heart Healthy?
Beef	Round steak, rump roast, top ground steak and roast, tip steak and roast, lean cubed steak, top loin steak, tenderloin steak, flank, sirloin, and ground beef (lean or extra lean).	Lean cuts of beef still contain saturated fat and cholesterol, but in reduced amounts. A healthy portion of meat is 3 ounces, roughly the size of a deck of cards.
Pork	Leg roast (fresh ham), leg steak, lean pork cutlets, center rib chop and roast, butterfly chop, sirloin roast, tenderloin, tenderloin roast, ground pork (lean or extra lean), lean shoulder cubes, lamb-leg, and loin chops.	Lean cuts of pork still contain saturated fat and cholesterol, but in reduced amounts. A healthy portion of meat is 3 ounces, roughly the size of a deck of cards.
Fish	Cold-water fish: salmon, herring, mackerel, and whitefish.	Diets high in fish have been linked to reduced risk of heart disease. Those who include fish in their diet tend to have lower blood cholesterol and triglyceride levels, most likely due to high amounts of omega-3 fatty acids found in fish.
Poultry	Skinless, white meat.	Eliminating the skin and dark meat from poultry will reduce its overall fat content.
Vegetable Protein	Legumes, beans and bean products such as chick-peas, black beans, soybeans, tempeh, and tofu.	These proteins have cholesterol lowering qualities. They are also low in fat, low in saturated fat, and high in starches and fiber. These sources are also rich in unsaturated fatty acids, which can replace saturated fat found in red meats.

Table 2: Examples of Heart Healthy Dietary Patterns: DASH and TLC.

Food Group	DASH (servings/day)	TLC (servings/day)	Examples of 1 serving
Grains	6-8	7	1 slice of bread 1 ounce of cereal ½ cup cooked rice or pasta
Vegetables	4-5	5	1 cup raw vegetable ½ cup cooked vegetable ½ cup vegetable juice
Fruits	4-5	4	1 medium fruit, ¼ cup dried fruit, ½ cup fresh/ frozen/ canned fruit, ½ cup fruit juice
Fat-free or low-fat dairy products	2-3	2-3	1 cup of milk, yogurt, or 1- ½ ounces cheese
Lean meats, poultry, fish	Less than 6 oz.	Less than 5 oz.	3 ounces is the size of a deck of cards
Nuts, seeds, legumes (beans)	4-5	Counted as vegetable servings	2 tablespoons of peanut butter, seeds, or ½ cup dry beans
Fats and Oils	2-3	Dependent on daily calorie level	1 teaspoon of margarine, 1 tablespoon of mayonnaise, 2 tablespoons of salad dressing, 1 teaspoon of vegetable oil
Sweeteners and sugars	Less than 5 servings per week	No recommendation	1 tablespoon of sugar or jelly, ½ cup sorbet, 1 cup of lemonade

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