Nutrition Guidelines for Heart and Blood Vessel Disease

Many factors affect your chances of getting heart and blood vessel disease. Some of these risk factors can’t be changed (family history, age and gender). Yet, by watching what you eat, you can improve your blood fat levels, control your weight and reduce high blood pressure.

By making wise food choices, you can lessen your risk of stroke (caused by blockages in the arteries that lead to the brain), heart attack (caused by blockages in the arteries around the heart) and peripheral vascular disease (caused by blockages in arteries in the legs).

Risk Factors of Heart and Blood Vessel Disease
- High LDL (low-density lipoprotein) or low HDL (high-density lipoprotein) cholesterol levels
- Family history of heart disease, stroke or peripheral vascular disease
- Tobacco use
- High blood pressure
- Diabetes
- Obesity
- Inactive lifestyle
- Male gender
- Age
- Smoking

Blood Fats
Fat is an important part of the blood. It is a major source of energy for muscles. It helps transport vitamins throughout your body. Fat is also needed to make certain body tissues.

Even so, some blood fats can lead to a type of heart and blood vessel disease called atherosclerosis. This disease is a buildup of cholesterol, calcium, and blood clotting factors in blood vessels. This buildup limits blood flow, which can increase the risk of a heart attack, stroke, leg pain or other problems.

Blood Fat Levels
The guidelines below applies to adults 20 years and older. All values are in milligrams/deciliter.

<table>
<thead>
<tr>
<th></th>
<th>Optimal</th>
<th>Normal</th>
<th>High</th>
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<tbody>
<tr>
<td>Total Cholesterol</td>
<td>Less than 160</td>
<td>Less than 200</td>
<td>200 or greater</td>
</tr>
<tr>
<td>LDL Cholesterol for people without heart disease</td>
<td>Less than 100</td>
<td>Less than 130</td>
<td>130 or greater</td>
</tr>
<tr>
<td>LDL Cholesterol for people with heart disease</td>
<td>Less than 70</td>
<td>Less than 100</td>
<td>100 or greater</td>
</tr>
<tr>
<td>Triglycerides</td>
<td>Less than 100</td>
<td>Less than 150</td>
<td>150 or greater</td>
</tr>
<tr>
<td>HDL Cholesterol</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Men</td>
<td>-</td>
<td>45 or greater</td>
<td>-</td>
</tr>
<tr>
<td>Women</td>
<td>-</td>
<td>55 or greater</td>
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</table>
Your Blood Fat Levels

<p>| | |</p>
<table>
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<th></th>
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<tbody>
<tr>
<td>Total Cholesterol</td>
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<tr>
<td>LDL</td>
<td></td>
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<tr>
<td>Triglycerides</td>
<td></td>
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<tr>
<td>HDL</td>
<td></td>
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</tbody>
</table>

What Do These Levels Mean?

Cholesterol is a substance found in all cells. It is needed for many body functions. Lipoproteins are particles that carry cholesterol and other fats throughout the blood stream. Two important types of lipoproteins are LDL (low-density lipoprotein) and HDL (high-density lipoprotein).

High LDL levels increase the risk of heart and blood vessel disease. LDL cholesterol can collect in the arteries. This is why it is called "bad cholesterol."

HDL removes extra cholesterol from your blood stream. This protects you from heart and blood vessel disease. For this reason, HDL is often called "good cholesterol."

Triglycerides are fats found in your food. Your liver can make them from excess calories, alcohol and sugars in your diet. They are also found in body fat. When triglycerides levels are high, HDL levels tend to be low.

Fat in Your Diet

Although some fat is needed for good health, most Americans eat too much fat. If fat intake is lowered it can help lower blood cholesterol levels and aid in weight loss. To reduce the amount of fat in your diet, eat less of:

- Fatty meats
- Fried foods
- Whole milk dairy products and cheese
- Added fats such as salad dressing, margarine, oil, or mayonnaise

Learn more about the different types of fats below.

Saturated fats are hard or semi-solid at room temperature. These fats tend to raise blood cholesterol levels and therefore should be controlled in your diet. These types of fats are found in animal fats (meat fat, milk fat, butter) and tropical oils (palm and coconut oil).

Trans fats are made when liquid vegetable oils are hardened to make shortening or margarine. They act like saturated fat by raising your cholesterol. You can check food labels to help you avoid trans fats.

Unsaturated fats are mostly liquid at room temperature. They lower LDL cholesterol and should be included in your diet. They may be used instead of saturated fats. Unsaturated fats contain the same number of calories as saturated fat.

- Monounsaturated fats are found mainly in olive oil, canola oil, peanut oil, sesame oil, nuts, avocado and olives.
- Polyunsaturated fats are found in corn, soybean, safflower, sunflower and cottonseed oils. Omega-3 fatty acids found in fish (salmon, mackerel, herring, and sardines) as well as flax seed, walnuts are also polyunsaturated fats. Include fish 2-3 times per week in your diet. If unsaturated oils have been hardened or hydrogenated (made into trans fats), they should be avoided.
**Cholesterol** is found in all foods from animals, such as meat, eggs, and milk. Cholesterol should be limited to 300 milligrams per day for the general public and 200 milligrams per day for people with heart disease or high cholesterol. Plants foods (fruits, vegetables, vegetable oils, grains, beans, nuts, peanut butter, and other plant products) do not contain cholesterol. Your body can make all the cholesterol it needs, so you don't need to consume any cholesterol. It is okay to include up to one egg daily. Eating foods high in saturated fats increases blood cholesterol levels more than eating cholesterol rich foods.

Choose healthier types of fat. Eat **less** saturated fats and **no** trans fat. **Replace** animal fats with plant fats.

<table>
<thead>
<tr>
<th>Saturated fats, eat <strong>less</strong>:</th>
<th>Trans fats, <strong>avoid</strong>:</th>
<th>Unsaturated fats, eat <strong>more</strong>:</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Fatty meat: brats, hot dogs, sausage</td>
<td>• Partially hydrogenated vegetable oils</td>
<td>• Vegetable oils</td>
</tr>
<tr>
<td>• Cheese, butter, 2% and whole milk, cream, ice cream, cream cheese</td>
<td>• Stick margarine</td>
<td>• Nuts and Nut Butters</td>
</tr>
<tr>
<td>• Candy bars, chocolate, desserts, cookies</td>
<td>• Doughnuts, pastries</td>
<td>• Avocado, Seeds, Olives</td>
</tr>
<tr>
<td>• Fast food: tacos, fried chicken sandwiches, cheeseburgers, French fries, biscuits, pot pie</td>
<td>• Some boxed crackers and cookies</td>
<td>• Fatty Fish: salmon, tuna, herring, sardines, anchovies</td>
</tr>
</tbody>
</table>

**Sodium and Blood Pressure**

Sodium is mostly found in salt (sodium chloride). A low-sodium diet is used for the prevention and treatment of high blood pressure. When you consume large amounts of salt, your body may retain fluid. This increases pressure on your arteries. Excess salt in the diet can also make it harder for high blood pressure medicines to work. People with high blood pressure, African Americans, and those who are 50 years or older should limit their sodium to 1,500 mg per day. The goal for other Americans is 2,300 mg of sodium per day or less.

**To reduce your sodium intake (often needed for persons with high blood pressure):**

- Remove the salt shaker from your table.
- Try cooking with half as much salt as in the past or do not add any salt when you are cooking.
- Avoid high-sodium processed foods.
- Use herbs and spices for flavor instead of salt.
- Make low-sodium choices when eating out.

**Fiber**

Fiber is the indigestible portion of the plant foods we eat. Eating 20-30 grams of dietary fiber per day (with a focus on soluble fiber) can help to reduce LDL by 5-15%. Soluble fiber is found in fruits and vegetables, barley, corn, dried peas and beans, and oats.

**To increase your fiber intake:**

- Use more fruits and vegetables (aim for at least 4-5 cups per day).
- Use whole grain breads and cereals. Include those with oats and barley.
- Plan meatless meals once a week or more, using navy beans, kidney beans, pinto beans, garbanzo beans, lentils, or split peas as a protein source.
Exercise
Exercise strengthens your heart, raises your HDL, lowers your triglycerides and helps with weight control. It can include aerobic activities like jogging, fitness walking (2.5 to 3.5 mph), biking, aerobic dancing, swimming, cross-country skiing, and rowing. It can also include routine daily movement like taking the stairs, mowing the lawn and washing windows. Experts suggest at least 150 minutes of exercise per week. If exercise is used as a means for weight control, aim to exercise 4 to 5 days per week (at least 30 minutes each day) to increase the amount of calories you burn.

How Should I Change my Diet?
Diet Guidelines
If you follow the food guidelines in this handout, your total fat, saturated fat, and trans fat intake should meet recommended goals. You do not need to count fat grams, but some people find it helpful to keep track. As a guideline:

- Total fat amounts: up to 60 grams/day women and up to 75 grams/day men
- Saturated fat amounts: up to 15 grams per day for men and women

ChooseMyPlate provides guidelines that help consumers make better food choices. The ChooseMyPlate food guide recommends you find a balance between food and physical activity by staying within your calorie needs.

To find the amounts of food that are right for you, go to www.ChooseMyPlate.gov

A Mediterranean diet may be best for preventing heart and blood vessel disease. This eating pattern includes about 30% of the calories as fat, with saturated and trans fats less than 7%. Most of the fat should come from monounsaturated fat (olive oil, canola oil, nuts and avocados). Cheese and meat are only eaten in small amounts. Fruits, vegetables, whole grains, fish and vegetable proteins (legumes and nuts) make up most of the diet. This diet is higher in unsaturated fats so portions may need to be reduced to prevent weight gain.
Heart Healthy Eating
Sample Daily Menu

**Breakfast**
- 1 cup cooked oatmeal, sprinkle with 1 tablespoon chopped walnuts
- Cinnamon on cereal
- 1 banana
- 1 cup 1% or fat-free milk

**Lunch**
- 1 cup low-fat (1% or lower) plain yogurt
- 1/2 cup peach halves
- 2 Rye-Krisp crackers with ½ cup tuna (mixed with a little mayonnaise or lemon juice)
- 1 cup raw broccoli and cauliflower
- Sparkling water

**Dinner**
- Grilled turkey burger (4 ounces) with a whole-grain bun
- 1 cup green beans
- 2 cups mixed salad greens with 2 tablespoons low-fat salad dressing
- 1 small orange

**Snack**
- ¼ cup nuts
- 1 small apple

**Snack**
- 1 cup 1% or fat-free milk
- 1 slice whole grain toast with peanut butter (2 tsp)

This menu provides about 1800 calories, 215 grams carbohydrate (28 g fiber), 62 grams fat (10 grams saturated fat), 93 grams protein (48% carbohydrate, 20% protein, 32% fat).

**Food Guidelines**
Follow these guidelines to reduce your intake of fat, saturated fat, cholesterol, and calories. Choose “recommended” items most often and use “not recommended” items sparingly. A ◆ indicates items high in sodium. Avoid these foods if you are trying to control your salt intake.

**Milk and Dairy Products**

<table>
<thead>
<tr>
<th>Recommended</th>
<th>Not Recommended</th>
</tr>
</thead>
<tbody>
<tr>
<td>Skim milk, 1% milk</td>
<td>Whole/2% milk</td>
</tr>
<tr>
<td>Low fat/non-fat cream substitutes</td>
<td>Full-fat, natural cheese</td>
</tr>
<tr>
<td>Evaporated skim milk</td>
<td>Processed cheese◆</td>
</tr>
<tr>
<td>Low fat, part skim cheese: Mozzarella (part skim) Farmer’s cheese Part-skim or non-fat ricotta Reduced fat cheese (5 gms fat per ounce or less) Low fat/non-fat cottage cheese Low fat/non-fat yogurt Low fat/non-fat sour cream Low fat/non-fat cream cheese Low fat/non-fat frozen yogurt Sherbet Low fat/non-fat ice cream Soy milk (calcium fortified)</td>
<td>Ice cream Frozen custard Sour cream Cream, half &amp; half Non-dairy creamers (if made with coconut or palm oil) Cream cheese</td>
</tr>
</tbody>
</table>
### Breads, Cereals & Grains

**Recommended**
- Whole grain breads
- English muffins
- Whole grain bagels
- Cereals, especially whole grain
- Pancakes, waffles (with 5 grams fat or less)
- Rice cakes
- Pita Bread
- Tortilla, corn or flour
- Rice, barley, quinoa or bulgur
- Pasta, especially whole grain
- Graham crackers

**Low Fat but High Sodium foods**
- Soda crackers •
- Crackers • (with 2 grams of fat or less per serving)

**Not Recommended**
- Doughnuts and other fried breads
- Croissants
- Crescent rolls
- Sweet rolls
- Muffins or biscuits made with saturated fats
- Crackers with more than 2 gm fat per serving
- Chow mein noodles, ramen noodles with palm oil
- Granola (unless lower than 2 grams of fat/serving)
- Rice/noodle mixes • (unless fat is omitted)

### Protein Foods

**Recommended**
- Lean beef – Top sirloin, tenderloin, top loin, round, ground round, rump, arm, flank.
- Lean pork – loin chop, tenderloin
- Game – venison, rabbit
- Poultry – chicken (skinless) turkey (skinless)
- Low fat/fat-free hot dogs
- Fish, all types
- Shrimp (limit to 4 ounces per week)
- Egg white/egg substitute
- Peanut butter
- Dried or canned beans, split peas, lentils
- Textured vegetable protein
- Tofu

**Low Fat but High Sodium foods**
- Lean pork – ham •
- Low fat TV dinners/frozen entrees • (Healthy Choice®)
- Low fat turkey bacon or sausage •
- Low fat turkey luncheon meats (3 grams fat or less per ounce) •
- Turkey/chicken bratwurst •
- Vegetarian burgers or sausage • (made of soy)
- Low fat creamed soups •

**Not Recommended**
- Fatty beef – regular hamburger, T-bone, prime rib, ribs, porterhouse
- Fatty pork – spare ribs, sausage •, bacon •
- Fatty poultry – poultry skin, duck, goose, self-basting turkeys
- Luncheon meats/cold cuts • with more than 3 grams of fat per ounce
- Hot dogs •
- Bratwurst •
- Deep-fried meats and seafood
- Egg yolk (limit to 4 per week)
- Creamed soups •

Limit meat, poultry and low-fat cheese intake to a total of 6 ounces per day. One 3-ounce serving is about the size of a deck of cards. Choose meats that are lean ‘select’ cuts rather than ‘prime/choice’ cuts. Trim visible fat before cooking. Prepare by baking, roasting, broiling or grilling to reduce fat content. Try meatless meals 1 to 2 times per week to further lower fat intake and increase fiber.
### Vegetables & Fruits – at least 4-5 cups per day

<table>
<thead>
<tr>
<th><strong>Recommended</strong></th>
<th><strong>Low Fat but High Sodium foods</strong></th>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fresh, frozen, dried, or canned fruits</td>
<td>Canned vegetables or vegetable juices ◆</td>
<td>Fried, deep-fried, creamed or au gratin vegetables</td>
</tr>
<tr>
<td>Fruit juices (limit quantity to control calories and sugar)</td>
<td>Pickles ◆</td>
<td>Coconut and coconut milk in large quantities</td>
</tr>
<tr>
<td>Fresh or frozen vegetables</td>
<td>Sauerkraut ◆</td>
<td>Frozen vegetables in sauces or cheese</td>
</tr>
<tr>
<td>Avocado</td>
<td>Olives ◆</td>
<td></td>
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</tbody>
</table>

### Fats

<table>
<thead>
<tr>
<th><strong>Recommended</strong></th>
<th><strong>Low Fat but High Sodium foods</strong></th>
<th><strong>Not Recommended</strong></th>
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</thead>
<tbody>
<tr>
<td>Vegetable oil-based spreads</td>
<td>Salad dressings ◆ (reduced calorie)</td>
<td>Margarine with hydrogenated oil as primary ingredient (most stick types)</td>
</tr>
<tr>
<td>Liquid vegetable oils - canola, olive, peanut, or sesame oil, sunflower, safflower, corn, soybean or cottonseed oil</td>
<td></td>
<td>Butter</td>
</tr>
<tr>
<td>Mayonnaise and sandwich spreads (reduced calorie)</td>
<td></td>
<td>Lard</td>
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<tr>
<td>Nuts and seeds in moderate amounts</td>
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<td>Cream cheese</td>
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</tbody>
</table>

The recommended fats should be used only in small amounts to control calories.

### Snacks and Desserts

<table>
<thead>
<tr>
<th><strong>Recommended</strong></th>
<th><strong>Low Fat but High Sodium foods</strong></th>
<th><strong>Not Recommended</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Fruit</td>
<td>Pretzels ◆</td>
<td>Regular tortilla, potato and corn chips ◆</td>
</tr>
<tr>
<td>Angel food cake</td>
<td></td>
<td>Candy bars</td>
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<tr>
<td>Puddings from skim milk</td>
<td></td>
<td>Cakes and cookies made with hardened fat and egg yolks</td>
</tr>
<tr>
<td>Cocoa powder, small amounts dark chocolate</td>
<td></td>
<td>Pies, pastry</td>
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<tr>
<td>Cakes and cookies made with oil and egg whites</td>
<td></td>
<td>Frosted or chocolate-covered granola bar</td>
</tr>
<tr>
<td>Low fat, high fiber granola and breakfast bars</td>
<td></td>
<td>Ice cream</td>
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<tr>
<td>Baked potato or corn chips</td>
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<td></td>
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<tr>
<td>Popcorn with little or no added fat</td>
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<td></td>
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<tr>
<td>Sherbet, fruit ices, Popsicles, sorbet</td>
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<td></td>
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<tr>
<td>Low fat ice cream or frozen yogurt</td>
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<td></td>
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<tr>
<td>Vanilla wafers, graham crackers, ginger snaps</td>
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<td></td>
</tr>
<tr>
<td>Hard candy, licorice, jelly beans (small amounts)</td>
<td></td>
<td></td>
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<tr>
<td>Jelly, jam, honey, syrups (small amounts)</td>
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</tbody>
</table>
Cut down on added sugars. Although sugar does not increase cholesterol levels, amounts should be controlled for persons who are overweight. Persons with diabetes or high triglycerides should eat fewer servings of sugar and sweets. Snacks and desserts can lead to weight gain. Try to eat them in small servings or less often if you are overweight.

Resources
Cookbooks


American Heart Association Quick and Easy Cookbook, Random House, 2010


The New Mediterranean Diet Cookbook, Bantam, 2009


How to Cook Everything Vegetarian: Simple Meatless Recipes for Great Food by Mark Bittman and Alan Witschonke, 2007

The Complete Idiot's Guide to Vegan Living by Beverly Lynn Bennett and Ray Sammartano, 2005

Vegetarian Times Complete Cookbook by Vegetarian Times Magazine, 2005

Vegetarian Cooking for Everyone by Deborah Madison, 2007

Web Sites
National Cholesterol Education Program, Live Healthier, Live Longer
http://www.nhlbi.nih.gov/cholesterol/

American Dietetic Association
http://www.eatright.org

Cooking Light Magazine
http://www.cookinglight.com

Eating Well Magazine
http://www.eatingwell.com

American Heart Association
www.americanheart.org

American Heart Association recipes
http://www.deliciousdecisions.org
DASH (Dietary Approaches to Stop Hypertension) Diet

National Stroke Association
http://www.stroke.org

Heart Decision
www.heartdecision.org

**Teach Back:**
What is the most important thing you learned from this handout?

What changes will you make in your diet/lifestyle, based on what you learned today?

**Questions**
If you are a UW Health patient and have more questions, please contact UW Health at one of the phone numbers listed below. You can also visit our website at [www.uwhealth.org/nutrition](http://www.uwhealth.org/nutrition).

Nutrition clinics for UW Hospital and Clinics (UWHC) and American Family Children’s Hospital (AFCH) can be reached: **(608) 890-5500**. Nutrition clinics for UW Medical Foundation (UWMF) can be reached at: **(608) 287-2770**.