

**EXTENSION**

Journey through Health: Heart and Blood Vessels

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Age-Related Heart and Blood Vessel Changes

The risk of heart and blood vessel (cardiovascular) disease increases with age. Cardiovascular disease can affect blood vessels in the heart, brain, legs, and kidneys.

With age, the heart and blood vessels become stiffer and less elastic. As a result, the heart and blood vessels are less able to expand and constrict. However, the biggest factor for the increased risk of cardiovascular disease with age is the accumulative effect of risk factors over time.

Cardiovascular disease is usually caused by atherosclerosis. Atherosclerosis is a process where plaque slowly builds up in the blood vessel wall for many years. Chronic inflammation and oxidative damage play a role in plaque formation. Plaque deposits can eventually narrow the blood vessels.

Narrowed blood vessels can result in decreased blood flow. As a result, the heart has to work harder to pump blood, which can lead to high blood pressure. Reduced blood flow to the legs can result in lower leg pain with walking.



Over time, a blood vessel may become blocked because of the plaque itself or because of a blood clot in a narrowed portion of a blood vessel. When a blood vessel is blocked, blood and oxygen cannot reach cells in nearby tissues. The lack of oxygen can cause damage to that tissue. If a blockage occurs in a vessel going to the heart, it can cause a heart attack. If it occurs in a vessel going to the brain, it can cause a stroke. If a blockage occurs in a blood

vessel in the kidney, it can result in kidney disease.

There are many factors which can increase the risk of cardiovascular disease. Factors may increase risk by contributing to:

- Atherosclerosis (plaque formation).
- Plaque rupture.
- Blood clotting.

Some cardiovascular risk factors cannot be changed:

- Increasing age.
- Gender.
- Family history of heart disease.

Some cardiovascular risk factors can be changed:

- High blood pressure.
- Diabetes.
- High LDL-cholesterol and triglycerides.
- Low HDL-cholesterol.
- High blood homocysteine.
- Obesity (especially in the abdominal area).
- Physical inactivity.
- Smoking.

Diet, Physical Activity and Heart and Blood Vessel Health

There are many actions which can lower the risk of cardiovascular disease.

Prevent high blood pressure or keep blood pressure under control. Preventing high blood pressure or keeping it under control can decrease blood vessel damage, atherosclerosis, and plaque rupture.

Prevent diabetes or keep diabetes under control. Preventing type 2 diabetes or keeping it under control can decrease inflammation and blood vessel damage.

Maintain a healthy weight. Maintaining a healthy weight or moderate weight loss can help prevent or control type 2 diabetes and lower LDL cholesterol, triglycerides, and blood pressure.

Be physically active each day. Regular physical activity can improve heart and blood vessel function. Physical activity can also help with weight and blood glucose control. In addition, physical activity can help lower LDL cholesterol, triglycerides and blood pressure and increase HDL cholesterol.

Abstain from smoking. Abstaining from smoking can remove the negative effects of smoking related to oxidative damage, lowering HDL cholesterol, and increasing the risk of blood clots.

Choose foods with less saturated fat and trans fat. When consuming fats choose more unsaturated fats and oils. Choosing foods with less saturated fat and trans fat and also choosing unsaturated fats and oils over saturated and trans fats can help with weight control and lower LDL cholesterol and triglycerides.

Choose foods with less added sugar. Choosing foods with less added sugar can help with weight control and lower triglycerides.

Choose and prepare foods with less added salt and sodium. Choosing foods with less added salt can help lower blood pressure among sodium sensitive people.

Use alcohol in moderation. Moderate alcohol intake, one drink a day for women or two drinks a day for men, has beneficial effects on HDL-cholesterol, inflammation and blood clotting. However, heavy alcohol intake, three or more drinks a day, can increase blood pressure and triglycerides.

Consume enough fruits, vegetables, whole grains, legumes, seafood, and low-fat milk. These foods provide helpful nutrients. Fiber can help lower LDL-cholesterol. Vitamin E and vitamin C can help protect against LDL-cholesterol oxidation. Folate, vitamin B6, and vitamin B12 can lower homocysteine. Omega-3 fatty acids can defend against inflammation, lower triglycerides, and reduce the risk of blood clots. Potassium, calcium, and magnesium can help lower the risk of high blood pressure.

MyPlate Messages Promoting Heart and Blood Vessel Health

Several of the MyPlate messages can help promote heart and blood vessel health.

Build a Healthy Plate

- Make half your plate fruits and vegetables.
- Switch to skim or 1% milk.
- Make at least half your grains whole.
- Vary your protein choices
 - Twice a week, make seafood the protein on your plate.
 - Eat beans, peas and lentils, which are a natural source of fiber and protein.

Cut Back on Foods High in Saturated Fats, Added Sugars and Salt

- Choose foods and drinks with little or no added sugars
- Look out for salt (sodium) in foods you buy.
- Eat fewer foods that are high in saturated fats.
 - Make major sources of saturated fats occasional choices, not everyday foods.
 - Select lean cuts of meats or poultry and fat-free or low-fat milk, yogurt, and cheese.
 - Switch from saturated fats to unsaturated oils when preparing food.

Eat the Right Amount of Calories for You

- Enjoy your food, but eat less.
- Cook more often at home, where you are in control of what is in your food.
- When eating out, choose lower calorie options.
- If you drink alcoholic beverages, do so sensibly.

Be Physically Active Your Way

- At least 150 to 300 minutes of moderate-intensity physical activity a week, or 75 to 150 minutes of vigorous-intensity physical activity, or an equivalent combination of moderate and vigorous-intensity physical activity.
 - If you cannot meet this guideline, be as physically active as your abilities and conditions will allow.

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