

## **Dietary and lifestyle changes to improve your cholesterol**

High cholesterol increases your risk of heart disease and heart attacks. Medications can help improve your cholesterol. A few changes in your diet can reduce cholesterol and improve your heart health:

Some General guidelines:

- ***Eat a lot more fiber-rich foods (especially soluble fiber from foods like beans, oats, barley, fruits, and vegetables)***
- ***Choose protein-rich plant foods (such as legumes or beans, nuts, and seeds) over meat.***
- ***Lose as much excess weight as possible.***
- ***Take plant sterol supplements.***
- ***Take psyllium (such as Metamucil).***
- ***Don't substitute sugar for fat.***

### **Eat heart-healthy foods**

- Reduce saturated fats. Saturated fats, found primarily in red meat and full-fat dairy products, raise your total cholesterol. Decreasing your consumption of saturated fats can reduce your low-density lipoprotein (LDL) cholesterol — the "bad" cholesterol.
- Monounsaturated fats may also reduce the oxidation of lipoproteins, which contributes to clogged arteries. A study of 26 people found that replacing polyunsaturated fats with monounsaturated fats in the diet reduced the oxidation of fats and cholesterol.
- Overall, monounsaturated fats are healthy because they decrease harmful LDL cholesterol, increase good HDL cholesterol and reduce harmful oxidation.

Some great sources of monounsaturated fats and polyunsaturated fats:

Olives and olive oil

Canola oil

Tree nuts, such as almonds, walnuts, pecans, hazelnuts and cashews

Avocados

### **Eliminate trans fats.**

- Trans fats, sometimes listed on food labels as "partially hydrogenated vegetable oil," are often used in margarines and store-bought cookies, crackers and cakes. Trans fats raise overall cholesterol levels. The Food and Drug Administration has banned the use of partially hydrogenated vegetable oils by Jan. 1, 2021. Polyunsaturated fats also seem to reduce the risk of metabolic syndrome and type 2 diabetes.
- Trans fats are unsaturated fats that have been modified by a process called hydrogenation. This is done to make the unsaturated fats in vegetable oils more stable as an ingredient. Many margarines and shortenings are made of partially hydrogenated oils. The resulting trans fats are not fully saturated, but are solid at room temperatures. This is why food companies have used trans fats in products like spreads, pastries and cookies — they provide more texture than unsaturated, liquid oils. Unfortunately, partially hydrogenated trans fats are handled differently in the body than other fats, and not in a good way. Trans fats increase total cholesterol and LDL, but decrease beneficial HDL by as much as 20%
- In the United States and an increasing number of other countries, food companies are required to list the amount of trans fats in their products on nutrition labels. However, these labels can be misleading, because they are allowed to round down when the amount of trans fat per serving is less than 0.5 grams. This means some foods contain trans fats even though their labels say "0 grams of trans fat per serving." To avoid this trick, read the ingredients in addition to the nutrition label. If a product contains "partially hydrogenated" oil, it has trans fats and should be avoided.

### **Eat foods rich in omega-3 fatty acids**

- Omega-3 fatty acids don't affect LDL cholesterol. But they have other heart-healthy benefits, including reducing blood pressure. Foods with omega-3 fatty acids include salmon, mackerel, herring, walnuts and flaxseeds.
- Omega-3 fats are found in high amounts in fatty fish like salmon, mackerel, herring and deep sea tuna like bluefin or albacore.

## **Reducing carbs**

- In adults replacing 5% of their calories from carbohydrates with polyunsaturated fats. Their blood glucose and fasting insulin levels decreased, indicating a decreased risk of type 2 diabetes.
- Don't substitute sugar for fat. Food manufacturers may boost the sugar content of food to add flavor. If you see sugar, corn syrup, or any word ending in "ose" near the top of the list of ingredients, choose a higher-fat version without trans fats instead.
- Avoid or minimize white bread, white rice, pasta, corn, potatoes and other starchy vegetables. Look for whole grain bread - not multigrain or whole wheat.

## **Increase soluble fiber.**

- Soluble fiber can reduce the absorption of cholesterol into your bloodstream. Soluble fiber is found in such foods as oatmeal, kidney beans, Brussels sprouts, apples and pears.
- Soluble fiber is a group of different compounds in plants that dissolve in water and that humans can't digest.
- However, the beneficial bacteria that live in your intestines can digest soluble fiber. In fact, they require it for their own nutrition. These good bacteria, also called probiotics, reduce both harmful kinds of lipoproteins, LDL and VLDL
- In one study, adults taking 3 grams of soluble fiber supplements daily for 12 weeks decreased LDL by 18%
- Soluble fiber can also help increase the cholesterol benefits of taking a statin medication.
- One 12-week study had 68 adults add 15 grams of the psyllium product Metamucil to their daily 10-mg dose of the lipid-lowering medication simvastatin. This was found to be as effective as taking a larger 20-mg dose of the statin without fiber
- Some of the best sources of soluble fiber include beans, peas and lentils, fruit, oats and whole grains. Fiber supplements like psyllium are also safe and inexpensive sources.
- Oatmeal contains soluble fiber, which reduces your low-density lipoprotein (LDL) cholesterol, the "bad" cholesterol. Soluble fiber is also found in such foods as kidney beans, Brussels sprouts, apples and pears.
- Soluble fiber can reduce the absorption of cholesterol into your bloodstream. Five to 10 grams or more of soluble fiber a day decreases your LDL cholesterol by 1-2%.
- One serving of a breakfast cereal with oatmeal or oat bran provides 3 to 4 grams of fiber.
- Add whey protein. Whey protein, which is found in dairy products, may account for many of the health benefits attributed to dairy. Studies have shown that whey protein given as a supplement lowers both LDL cholesterol and total cholesterol as well as blood pressure.

## **Exercise on most days of the week and increase your physical activity**

- Exercise can improve cholesterol. Moderate physical activity can help raise high-density lipoprotein (HDL) cholesterol, the "good" cholesterol. With your doctor's OK, work up to at least 30 minutes of exercise five times a week or vigorous aerobic activity for 20 minutes three times a week.

Consider:

- Taking a brisk daily walk during your lunch hour
- Riding your bike to work
- Playing a favorite sport
- To stay motivated, consider finding an exercise buddy or joining an exercise group.
- Exercise is a win-win for heart health. Not only does it improve physical fitness and help combat obesity, but it also reduces harmful LDL and increases beneficial HDL.
- Activity that elevates the heart rate to 85% of its maximum increases HDL and also decreases LDL. The longer the duration, the greater the effects.

## **Quit smoking**

Quitting smoking improves your HDL cholesterol level. The benefits occur quickly:

- Within 20 minutes of quitting, your blood pressure and heart rate recover from the cigarette-induced spike
- Within three months of quitting, your blood circulation and lung function begin to improve
- Within a year of quitting, your risk of heart disease is half that of a smoker
- Smoking increases the risk of heart disease in several ways. One of these is by changing how the body handles cholesterol.
- The immune cells in smokers are unable to return cholesterol from vessel walls to the blood for transport to the liver. This damage is related to tobacco tar, rather than nicotine.
- These dysfunctional immune cells may contribute to the faster development of clogged arteries in smokers.
- In a large study of several thousand adults, smoking was associated with decreased HDL levels and increased total cholesterol.

## **Lose weight**

- Carrying even a few extra pounds contributes to high cholesterol. Small changes add up. If you drink sugary beverages, switch to tap water. Snack on air-popped popcorn or pretzels — but keep track of the calories. If you crave something sweet, try sherbet or candies with little or no fat, such as jelly beans.
- Look for ways to incorporate more activity into your daily routine, such as using the stairs instead of taking the elevator or parking farther from your office. Take walks during breaks at work. Try to increase standing activities, such as cooking or doing yardwork.
- Dieting influences the way your body absorbs and produces cholesterol.
- A two-year study of 90 adults on one of three randomly assigned weight loss diets found weight loss on any of the diets increased the absorption of cholesterol from the diet and decreased the creation of new cholesterol in the body.
- Over these two years, “good” HDL increased while “bad” LDL did not change, thus reducing the risk of heart disease.
- Overall, weight loss has a double benefit on cholesterol by increasing beneficial HDL and decreasing harmful LDL.

## **Drink alcohol only in moderation**

- Moderate use of alcohol has been linked with higher levels of HDL cholesterol — but the benefits aren't strong enough to recommend alcohol for anyone who doesn't already drink.
- If you drink alcohol, do so in moderation. For healthy adults, that means up to one drink a day for women of all ages and men older than age 65, and up to two drinks a day for men age 65 and younger.
- Too much alcohol can lead to serious health problems, including high blood pressure, heart failure and strokes.
- When used in moderation, the ethanol in alcoholic drinks increases HDL and reduces the risk of heart disease. HDL levels, unfortunately, have an inverse (negative) effect on cardiovascular health at levels above 75 mg/dl.
- Alcohol also improves “reverse cholesterol transport,” meaning cholesterol is removed from blood and vessel walls and taken back to the liver. This reduces the risk of clogged arteries and heart disease.
- While moderate alcohol intake reduces heart disease risk, too much alcohol harms the liver and increases the risk of dependence. The recommended limit is two drinks daily for men and one for women.

## **Plant Sterols and Stanols**

- Plant stanols and sterols are plant versions of cholesterol. Because they resemble cholesterol, they are absorbed from the diet like cholesterol.
- Plant Sterols and stanols can be found in several butter "substitutes" and in pill form.
- Because parts of their chemistry are different from human cholesterol, they do not contribute to clogged arteries.
- Instead, they reduce cholesterol levels by competing with human cholesterol. When plant sterols are absorbed from the diet, this replaces the absorption of cholesterol.
- Small amounts of plant stanols and sterols are naturally found in vegetable oils, and are also added to certain oils and butter substitutes.
- Consuming yogurt with one gram of plant stanols reduced LDL by about 15%, compared to a placebo.

## **Niacin (Vitamin B3)**

- Niacin, also called vitamin B3, is used to lower cholesterol. Specifically, it appears niacin lowers LDL cholesterol and triglycerides and raises "good" HDL cholesterol. Niacin also appears to significantly lower levels for another risk factor for atherosclerosis, lipoprotein A.
- Niacin is available in prescription form and as a dietary supplement. The American Heart Association cautions patients to only use the prescription form of niacin. Because of side effects, niacin should not be used to lower cholesterol unless under the supervision of a physician because of identified significant side effects and potential for stroke.
- Niacin can increase the effect of high blood pressure medication or cause nausea, indigestion, gas, diarrhea, or gout. It can worsen peptic ulcers or trigger liver inflammation, and high blood sugar.
- The most common side effect of high-dose niacin is skin flushing or hot flashes, which is caused by widening of blood vessels. Most people only notice this when they initially start taking niacin. The flushing may be lessened by taking niacin with meals.

## **Other supplements for lowering cholesterol with *limited* effectiveness:**

- Garlic: According to some studies, garlic may decrease blood levels of total cholesterol by a few percentage points, but only in the short term.
- Guggulipid: Guggulipid is the gum resin of the mukul myrrh tree. It has been used in traditional Ayurvedic medicine, which originated in India more than 2,000 years ago. In clinical studies done in India, guggulipid significantly reduced blood levels of total cholesterol and LDL cholesterol. But most of these studies do not meet the criteria for scientific validity.
- Red yeast rice: Red yeast rice has been found to lower cholesterol in studies and was previously found in the over-the-counter supplement Cholestin. However, in 2001, FDA

took Cholestin off the shelf because it contained lovastatin, a compound found in the cholesterol prescription medication Mevacor. Reformulated products no longer contain the actual cholesterol lowering component or contain very small levels of lovastatin. The FDA does not allow promotion of red yeast rice for lowering cholesterol.

- Policosanol: Produced from sugar cane, policosanol was found to be effective in lowering LDL cholesterol in several studies. Most policosanol supplements found in the U.S. policosanol extracted from beeswax and not the sugar cane policosanol. There is no evidence that policosanol extracted from beeswax can lower cholesterol.
- Turmeric - this spice contains curcumin, which has a very limited effect on levels of total and LDL cholesterol in the blood.
- Other herbal products: The results of several studies suggest fenugreek seeds and leaves, artichoke leaf extract, yarrow, and basil all may help lower cholesterol. These and other commonly used herbs and spices -- including ginger, turmeric, and rosemary have extremely limited and questionable effects on cholesterol and cardiovascular disease.
- CoQ10 - This supplement has no effect on blood cholesterol, LDL levels or HDL levels. It also has no effect on reducing cardiovascular disease. It is used (not supported by credible scientific studies) to reduce muscle pains caused by statin medications.