

# Hyperlipidemia

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## Overview

Hyperlipidemia (HLP) is a condition in which there are high levels of lipid (or fat) in the blood. The two main types of fat that are found in the blood are cholesterol and triglycerides. Nutrition and lifestyle factors such as maintaining a healthy weight, limiting alcohol consumption, avoiding tobacco, and adequate physical activity play a role in both the prevention and treatment of hyperlipidemia. Hyperlipidemia is the most common risk factor for the development of cardiovascular disease, which is why it is important to manage your blood lipid levels by implementing a heart healthy lifestyle.

## LDL Cholesterol

Cholesterol is an essential component found in all human cell membranes and is required for healthy bodily functions. Your body makes all the cholesterol it needs to function and therefore the amount consumed in the diet should be limited. High levels of cholesterol in the blood increases your risk for heart disease by sticking to the walls of your arteries and causing plaque to build-up. Over time, this plaque can narrow your arteries and prevent adequate blood flow. This condition is called atherosclerosis and it is one of the primary causes of heart attack and stroke. There are two types of cholesterol, low-density lipoprotein (LDL) or “bad” cholesterol, and high-density lipoprotein (HDL) or “good” cholesterol. High levels of LDL are associated with the formation of atherosclerotic plaque. High levels of HDL have been shown to decrease the risk for heart disease and stroke by removing excess cholesterol from the bloodstream.

## Triglycerides

Triglycerides are the most common type of fat in the body. Excess energy from your diet is stored in triglycerides to be used at a later time. High levels of triglycerides in combination with high LDL or low HDL cholesterol is associated with atherosclerotic progression, increasing the risk of heart attack and stroke. Consuming a diet that replaces saturated fat with unsaturated ones can aid in reducing triglyceride levels and preventing heart disease, diabetes, and fatty liver disease.

## Nutrition and Hyperlipidemia

Lifestyle modifications such as regular exercise and a heart healthy diet can improve your quality of life and aid in stress and weight management. Such changes help prevent or manage co-existing conditions like high blood pressure, diabetes, and obesity. Studies show that your non-HDL cholesterol level is a more accurate predictor of cardiovascular risk than looking at total cholesterol levels. Non-HDL cholesterol contains all the ‘bad’ types of cholesterol and is directly associated with heart disease. Maintaining a healthy lifestyle has been shown to help reduce non-HDL cholesterol, increase HDL, and reduce the risk for heart attack and stroke.

## Fat and Cholesterol

The most effective way to lower your cholesterol is to reduce the amount of saturated and trans fat in your diet. Foods that contain saturated fat and cholesterol come from animal sources such as meat, poultry, and dairy products. High blood cholesterol levels eventually lead to atherosclerosis and hyperlipidemia. Because fat is an essential part of the diet, it is important to be familiar with the food sources that contain heart healthy fats.

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## Heart Healthy Fats to Include:

- **Omega-3 Fatty Acids:** Tuna, salmon, mackerel, trout, herring, and sardines; Ground flaxseed and flaxseed oil; Soybeans; Walnuts; Chia seeds
- **Monounsaturated Fats:** Canola oil, olive oil, and peanut oil; Olives; Avocados; Nuts and nut butters (e.g. almond butter and peanut butter)
- **Polyunsaturated Fats:** Vegetable oils (e.g. safflower, sunflower, sesame, and soybean oil)

## Fats to Avoid:

- **Saturated Fats:** Animal foods (e.g. meat and dairy); Tropical oils (e.g. coconut, palm oil); Cocoa butter
- **Trans Fats:** Partially hydrogenated vegetable oils; Hydrogenated vegetable oil; Processed foods (e.g. cookies, snack foods)
- **Cholesterol:** Found only in animal foods (e.g. eggs, whole milk dairy products, meats)



## Simple Carbohydrates

Consuming foods that contain high amounts of simple sugars, especially fructose (e.g. refined grains, added sugars, alcohol) is directly associated with increased triglyceride levels. Also, sugar provides empty calories because it contains no nutritional benefits. Added sugars are sugars and syrups that are added to foods and beverages during processing or preparation. Naturally occurring sugars that are found in fruit and milk do not affect triglyceride levels in the same way as they contain fiber and nutrients that support a healthy diet.

## Simple Carbohydrates to Avoid:

- **Fructose:** Cola and lemon-lime soda; Raisins; Agave nectar; Honey
- **Added Sugars:** White and brown sugar; Honey; Molasses; Syrup; High fructose corn syrup; Maltodextrin
- **Sugar Sweetened Beverages:** Sodas; Juice
- **Fruits:** Dried fruits; Applesauce
- **Other:** Desserts; Pastries; Candies; Ready to eat cereals; Sweetened yogurts; Ice cream

## Fiber

Diets that are high in fiber have been linked to a lower risk of heart disease and related comorbidities such as obesity and diabetes. Fiber is a type of carbohydrate that the body can't digest but is essential for maintaining good health. Not only does fiber help regulate blood sugar and aid in digestion, it also plays a crucial role in reducing cholesterol levels. There are two forms of fiber, soluble fiber and insoluble fiber and each have important yet distinguishable benefits.

**Soluble Fiber** directly lowers cholesterol levels by binding to it and excreting it in feces. Because fiber cannot be absorbed, the bound cholesterol is prevented from being absorbed and used by the body and total body cholesterol is reduced. Food sources include oats, peas, beans, apples, citrus fruits, carrots, barley, and psyllium.

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**Insoluble Fiber** does not have a direct effect on cholesterol, however, it is still an important aspect of the diet. Insoluble fiber acts as a bulking agent to help move food through your digestive system to promote bowel regularity and prevent constipation. Food sources include whole wheat flour, wheat bran, flaxseeds, chia seeds, leafy greens and vegetables such as cauliflower and green beans.

## Weight Management

Being overweight or obese significantly increases the risk for hyperlipidemia and associated complications such as cardiovascular disease. Studies show that a 5 to 10% weight loss results in a 20% decrease in triglycerides. Weight loss also aids in lowering LDL and increasing HDL cholesterol and reducing the amount of visceral fat in the abdomen. It is recommended to engage in at least 30 minutes of moderate intensity exercise per day to help achieve and maintain a healthy weight. Please speak to your healthcare provider or registered dietitian to establish an appropriate exercise routine to help manage your blood lipid levels.

## Heart Healthy Diet Recommendations

- Aim for 6 to 8 servings of grains per day. Focus on whole grains to help lower your cholesterol. Examples of one serving of grains: 1 slice 100% whole-wheat bread, 1 ounce dry cereal, ½ cup cooked cereal, rice, or pasta.
- Eat 3 to 5 servings of vegetables per day. Examples of one serving of vegetables: 1 cup raw vegetables or ½ cup cooked vegetables.
- Have 2 to 4 servings of fruits per day. Examples of one serving of fruit: 1 whole-fruit or ½ cup fresh, frozen, or canned fruit.
- Choose low fat or fat free dairy options to limit saturated fat intake. Examples of one serving include: 1 cup low fat milk, 1 cup low fat yogurt, or 1 ½ ounces part-skim cheese.
- Try and eat less than 5 ounces of lean meat, poultry, or fish per day. Although these foods are rich in protein, vitamin B, iron, and zinc, animal products tend to be high in saturated fat and cholesterol. Eat fish and fatty fishes whenever possible (e.g. salmon, herring, tuna). Fatty fish is high in omega-3 and helps lower cholesterol levels.
- Limit nuts and seeds to 4 or 5 servings per week. These foods are high in magnesium, potassium, fiber, and phytochemicals; however, they are also high in calories. Examples of one serving: 1/3 cup of nuts, 2 tablespoons of seeds, or ½ cup cooked beans or peas.
- Limit your consumption of healthy fats and oils to 2 to 3 servings of per day. Fat is essential to maintain health, however too much can increase risk for obesity, diabetes, and heart disease. Example of one serving: 1 teaspoon soft margarine, 1 tablespoon mayonnaise or oil, or 2 tablespoons salad dressing.

## Tips for Reading Food Labels

1. Check for sodium on the Nutrition Facts Label. A Daily Value (DV) of 20% or higher means the food is high in sodium. A DV of 5% or less means it's low in sodium.
2. Look for words that contain fiber. A high fiber food will contain 5 grams per serving.
3. Look for foods that are low in saturated fat and cholesterol.
4. Avoid products that contain added sugars. This can be a difficult task as sugar has many different forms and names. Name for added sugars include:
  - Brown sugar
  - Sugar molecules ending in '-ose' (e.g. dextrose, fructose, glucose, lactose, maltose, sucrose)
  - Corn sweetener
  - Corn syrup
  - High fructose corn syrup
  - Fruit juice concentrates

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## Nutrition and Lifestyle Guidelines

- Achieve and maintain a healthy weight.
- Eat a diet that is high in vegetables, fruits, fiber-rich whole grains, low fat milk and milk products, seafood, lean meats and poultry, beans, nuts, and seeds.
- Soybean based products, such as tofu and tempeh, can be good alternatives to meat because they contain all the amino acids your body needs, just like meat.
- Limit sugar intake. It has no nutritional value but is very high in calories.
- Limit sodium, saturated and trans fats, added sugars, and refined grains.
- Increase intake of fiber to help lower cholesterol levels. You should aim for 25-35 grams of fiber per day.
- Bake, broil, grill, boil, or steam foods instead of frying.
- Aim to eat fatty fish (e.g. salmon, tuna, mackerel) twice a week to increase omega-3 fatty acid intake.
- Keep alcohol consumption to 1 drink per day for women and two drinks per day for men. Excessive alcohol consumption contributes to high blood pressure, irregular heartbeats, and obesity.
- Quit smoking. Smoking damages your blood vessels, raises blood pressure, and reduces the amount of oxygen in your blood.
- Start an exercise routine. Exercise aids in reducing blood pressure and helps to achieve and maintain a healthy weight.
- Speak to your healthcare provider or registered dietitian whether you require a medication to help lower your cholesterol or triglyceride levels.

*Revised February 2019.*