

Managing high cholesterol

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How can I improve my cholesterol levels?

Cholesterol levels are generally a reflection of lifestyle. The first step to improve your cholesterol levels is through lifestyle modifications, which refers to dietary modification, weight reduction, regular physical activity/exercise, smoking cessation and alcohol restriction.¹⁻³ Healthy lifestyle can lower your low-density lipoprotein (LDL) cholesterol by 20–30%.⁴

Lifestyle modification ¹⁻⁴	Recommendation
Dietary modification 	<ul style="list-style-type: none"> Reduce intake of foods high in cholesterol, <i>trans</i> fat and saturated fats. Examples: <ul style="list-style-type: none"> Sausages Meat pies Fatty cuts of meats Cream and butter Foods containing coconut oil or palm oil Biscuits and cakes Increase intake of foods high in unsaturated fats. Examples: <ul style="list-style-type: none"> Nuts Whole grains Avocados Vegetable oils and spreads (olive, corn, sunflower and rapeseed oils) Choose lean cuts of meat and poultry without skin. Choose low-fat dairy products. Consume foods rich in omega-3 fatty acids. Examples: <ul style="list-style-type: none"> Fish Fish oil supplements Flaxseeds and flaxseed oil Consume a mix of sources of fibre and soy protein. Examples: <ul style="list-style-type: none"> Wholemeal bread, bran and wholegrain cereals Fruits and vegetables Potatoes Oats and barleys Nuts and seeds Soybeans Instead of roasting or frying your foods, consider grilling, steaming, poaching and boiling.
Weight reduction 	<ul style="list-style-type: none"> Weight reduction helps to increase high-density lipoprotein (HDL) cholesterol and lower triglyceride levels. A weight reduction of 0.5–1 kg/week in overweight and obese individuals is recommended, until the body weight reaches <10% of baseline. The recommended body mass index for Asians is between 18.5 to <23 kg/m², whereas the waist circumference is <90 cm for males and <80 cm for females.
Physical activity/exercise 	<ul style="list-style-type: none"> Physical activity/exercise improves cardiovascular fitness, lowers blood pressure, increases HDL cholesterol levels, and decreases triglyceride levels. Activities that can be performed include aerobic exercises, brisk walking, jogging, cycling and swimming. Exercise has to be regular and adequate (around 30–45 minutes per session, at least 5 times a week).
Smoking cessation 	<ul style="list-style-type: none"> Smoking is a major risk factor for various diseases, including heart disease and stroke. Smoking must be stopped completely, and you should avoid the exposure to environmental tobacco smoke at work and at home. Upon quitting smoking, the risk of heart disease and stroke decreases within a year or two.
Alcohol restriction 	<ul style="list-style-type: none"> Restriction of alcohol is advisable in patients with high cholesterol as it increases plasma triglyceride levels. High intake of alcohol elevates blood pressure and contributes to acute pancreatitis in patients with high triglyceride levels.

Cholesterol-lowering medications: Options for consideration

If your cholesterol levels are still above the target range despite your efforts to live a healthier lifestyle, you may need to take cholesterol-lowering medications for better cholesterol-lowering effects.



Before starting treatment with cholesterol-lowering medications, you should have a blood test to check your cholesterol levels and liver health. After starting treatment, your blood cholesterol and liver function will continue to be monitored to assess how well the medication is working for you.⁵

Your doctor may suggest a single or a combination of cholesterol-lowering medications.

Cholesterol-lowering medications ^{6,8}	Possible side effects	Examples
Statins	<ul style="list-style-type: none"> Constipation Nausea Diarrhoea Stomach pain Muscle soreness and weakness 	<ul style="list-style-type: none"> Atorvastatin Fluvastatin Lovastatin Rosuvastatin Simvastatin
Fibrates	<ul style="list-style-type: none"> Nausea Stomach pain 	<ul style="list-style-type: none"> Fenofibrate Gemfibrozil
Bile acid binding resins	<ul style="list-style-type: none"> Constipation Bloating Nausea 	<ul style="list-style-type: none"> Cholestyramine Colesevelam Colestipol
Nicotinic acids	<ul style="list-style-type: none"> Facial and neck flushing Nausea Vomiting Diarrhoea Gout High blood sugar Peptic ulcers 	<ul style="list-style-type: none"> Niacin
Cholesterol absorption inhibitors	<ul style="list-style-type: none"> Stomach pain Fatigue Muscle soreness and weakness 	<ul style="list-style-type: none"> Ezetimibe
Combination of a statin and a cholesterol absorption inhibitor	<ul style="list-style-type: none"> Stomach pain Fatigue Constipation Abdominal pain Muscle soreness and weakness 	<ul style="list-style-type: none"> Ezetimibe-simvastatin
Combination of a statin and a niacin	<ul style="list-style-type: none"> Facial and neck flushing Dizziness Heart palpitations Shortness of breath Sweating 	<ul style="list-style-type: none"> Niacin-lovastatin

How long will I need to take my cholesterol-lowering medication?



Once you start on a cholesterol-lowering medication, you will most likely be on it indefinitely even if your cholesterol levels have decreased. Many people find that once they stop taking cholesterol-lowering drugs, their cholesterol levels go back up.⁷

Do supplements have a role in managing cholesterol?

In addition to maintaining a healthy lifestyle and taking cholesterol-lowering medications, you might wonder if adding certain cholesterol-lowering supplements to your diet can help reduce your cholesterol levels. It is important to discuss with your doctor first on this, as the long-term value of certain supplements (as listed below) may be controversial⁸:

- Artichoke extract
- Barley
- Fish oil
- Flaxseed
- Green tea extract
- Oat bran
- Plant stanols and sterols
- Whey protein
- Soy protein
- Grapefruit juice



While trying to manage your high cholesterol, take steps to manage other risk factors of heart disease as well. You and your healthcare professional each plays an important role in maintaining and improving your heart health.

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