A PATIENT GUIDE FROM YOUR CARDIOLOGIST

Medicines to lower cholesterol *& protect your heart*

A patient guide to statins and other treatments. Understanding your options, benefits and side effects.

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Medicines to lower cholesterol

A patient guide to statins and other treatments

Lowering LDL cholesterol helps protect you from heart attacks and strokes. The right treatment depends on your cholesterol level, your overall risk and what you can comfortably take over the long term.

This leaflet covers medicines used in UK adult care, their expected effects, important side effects and cholesterol targets. Availability and NHS funding depend on your diagnosis and local prescribing criteria.

Understanding your blood test

LDL cholesterol is a major contributor to fatty build-up in artery walls. **Non-HDL cholesterol** includes LDL and other potentially harmful cholesterol particles; it is total cholesterol minus HDL. **Triglycerides** are a different blood fat and sometimes need separate treatment. A high HDL result does not cancel out a high LDL result.

How much can treatment lower LDL

These are approximate average reductions. Your response depends on the dose, starting level and other treatment. An add-on medicine lowers the LDL that remains; percentages should not simply be added. [4,5,6,7,8,9,10]

Treatment	Typical LDL reduction
Statins	About 20-55%, depending on drug and dose
Ezetimibe	About 15-20% alone; 20-25% extra with a statin
Bempedoic acid	About 15-25%; about 35-40% with ezetimibe
Alirocumab or evolocumab	About 50-60% extra
Inclisiran	About 50% extra
Bile acid binders	About 15-25%

Example: LDL of 4.0 mmol/L falls to 2.0 after a 50% reduction. A further 20% reduction brings it to 1.6 mmol/L, a total fall of 60%.

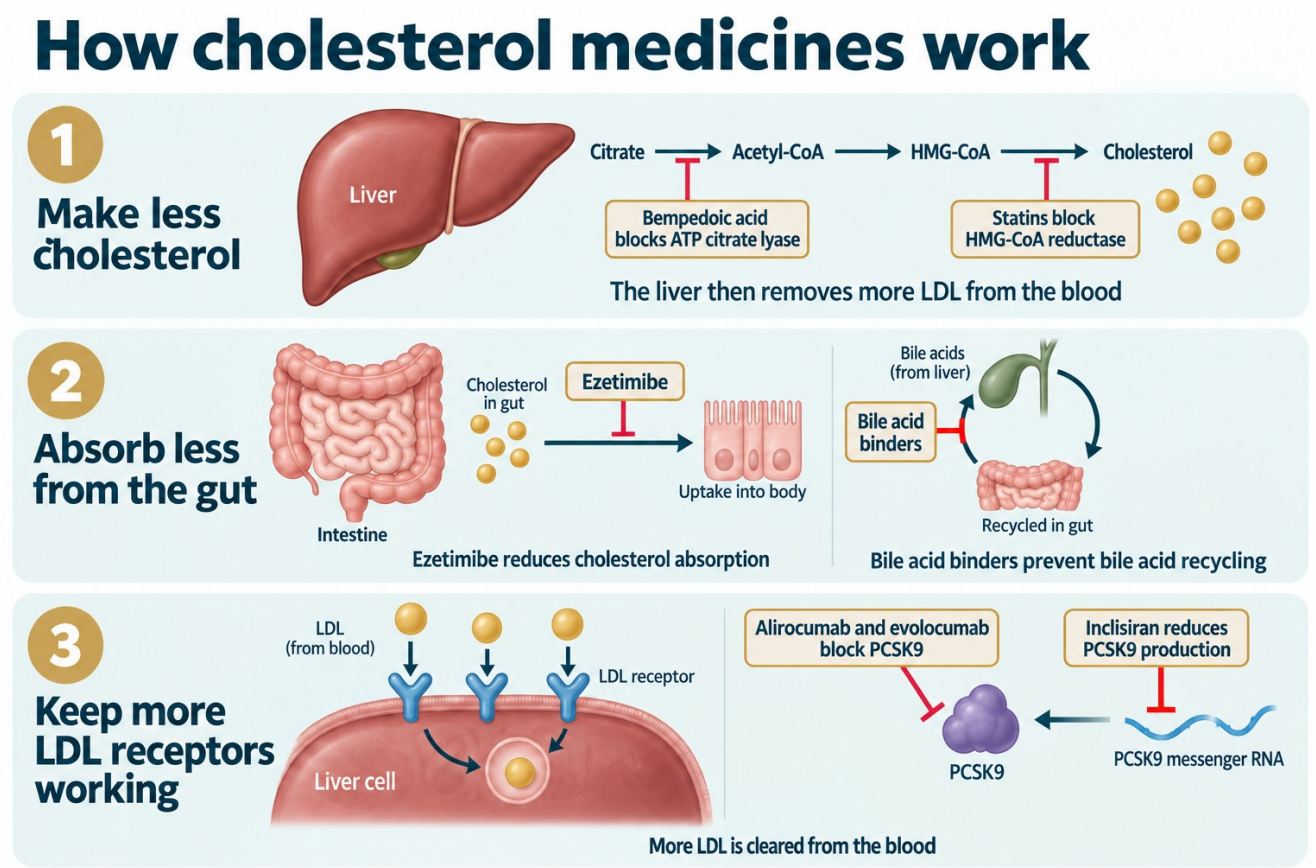
What does this mean for my health

For every 1 mmol/L LDL reduction with statins, major vascular events fall by about one fifth over several years. The absolute benefit is larger when your starting risk is higher. For illustration, a 20% relative reduction turns a 10 in 100 risk into 8 in 100 over the same period: 2 fewer people affected. This is not your personal forecast. [16]

Read the section for your medicine and the safety advice on page 7. Your prescription and the leaflet supplied with your medicine give your individual dosing instructions.

How the medicines work

Different medicines act at different points. Your clinician may combine them to reach your target. These drawings simplify what happens in the liver and gut. [4,6,7,8,9,10,12]



Treatment schedules at a glance

Medicine	How it is usually taken
Statins	Daily tablet
Ezetimibe and bempedoic acid	Daily tablets; a combined tablet is available
Alirocumab and evolocumab	Injection under the skin, every two weeks or monthly
Inclisiran	Injection at the start, at three months, then every six months
Bile acid binders	Tablets or powder, as prescribed; separate from some medicines

Follow your own prescription. The following pages explain benefits, side effects and practical precautions. [5,6,7,8,9,10,12]

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Your cholesterol target

Your target is based on your chance of a heart attack or stroke, rather than the laboratory's general reference range. Age, blood pressure, smoking, diabetes, kidney function, family history and existing artery disease all matter. [1,2,3]

UK NICE targets

Your situation	Usual treatment goal
No established cardiovascular disease	If prescribed a statin for prevention, aim for more than a 40% fall in non-HDL from your untreated level.
Previous heart attack, angina, coronary stent or bypass, ischaemic stroke or peripheral arterial disease	LDL 2.0 mmol/L or less OR non-HDL 2.6 mmol/L or less. Your cardiologist may recommend a lower target.
Familial hypercholesterolaemia or FH	An inherited cause of high cholesterol. Aim for at least a 50% LDL reduction; a specialist may also set an absolute target.

For people without established disease, NICE usually offers a statin at a QRISK3 ten-year risk of 10% or more. Treatment can still be appropriate below 10%. FH, type 1 diabetes and significant kidney disease need specific assessment; a low calculated score must not falsely reassure. [1,2]

European targets used in specialist care

ESC/EAS targets remain unchanged in the 2025 update. Risk categories need clinical assessment and do not directly correspond to QRISK3 percentages. [3]

Risk profile and examples	LDL goal in mmol/L
Low risk after assessment	Below 3.0
Moderate risk after assessment	Below 2.6
High risk: FH without other major risk factors, markedly high LDL, or moderate chronic kidney disease	Below 1.8 AND at least a 50% fall
Very high risk: established atherosclerotic disease, severe kidney disease, or diabetes with significant organ damage	Below 1.4 AND at least a 50% fall

Diabetes does not have one universal target: duration, organ damage and other risks matter. After a second vascular event within two years despite maximal tolerated statin treatment, a specialist may consider LDL below 1.0 mmol/L. Targets should also reflect frailty, other illness and your preferences. [3]

My agreed target: _____ **My starting level:** _____
Next blood test: _____ **Review date:** _____

Tablets commonly used to lower LDL

Statins

Examples: atorvastatin, rosuvastatin, simvastatin, pravastatin and fluvastatin. These block the liver enzyme HMG-CoA reductase, reducing cholesterol production and helping the liver remove LDL from the blood. Usually taken daily. [4,5]

Effect: around 20-55% LDL lowering. Atorvastatin 40-80 mg or rosuvastatin 20-40 mg typically lowers LDL by about 50% or more; lower doses and other statins produce smaller falls. A lower tolerated dose can still be useful. Statins have the strongest and longest evidence for preventing heart attacks and strokes. [4,5,16]

Side effects: muscle aching can occur. Headache, digestive symptoms and sleep problems are reported, although many symptoms also occur without treatment. Small liver blood-test rises and a small increase in diabetes risk are recognised. Serious muscle injury and serious liver injury are rare. See page 7 for warning signs and the evidence on common concerns. [5,17,18,19]

Practical points: interactions can increase muscle risk, including some antibiotics, antifungals and other medicines. Grapefruit interacts with simvastatin and can interact with atorvastatin; ask your pharmacist about your specific prescription. Statins are normally avoided in pregnancy and breastfeeding. [5,20]

Ezetimibe

How it works: blocks the NPC1L1 cholesterol transporter in the gut, so less cholesterol is absorbed. Usually a 10 mg tablet once daily, alone or alongside a statin. [6]

Effect: about 15-20% LDL lowering alone, or a further 20-25% when added to a statin. After an acute coronary event, IMPROVE-IT found cardiovascular events in 32.7% with ezetimibe plus statin versus 34.7% with statin alone at seven years: about 2 fewer people per 100 treated. [6,13]

Side effects: abdominal discomfort, diarrhoea, wind and tiredness can occur. Liver enzyme rises are more relevant with a statin; muscle injury and serious allergy are rare. Discuss unexplained muscle weakness or pain. Tell your prescriber if you take ciclosporin, warfarin or a bile acid binder because monitoring or separated doses may be needed. [6]

Bempedoic acid

How it works: blocks ATP citrate lyase, an earlier step in liver cholesterol production. It is activated mainly in the liver, rather than skeletal muscle. Usually 180 mg daily; also available with ezetimibe as Nustendi. [7,29]

Effect: about 15-25% LDL lowering, or about 35-40% with ezetimibe. In CLEAR Outcomes, people unable to take recommended statin doses had cardiovascular events in 11.7% versus 13.3% with placebo over 3.4 years: about 1.6 fewer per 100. [7,15]

Side effects: raised uric acid and gout, limb discomfort, anaemia and liver enzyme changes can occur. In CLEAR Outcomes, gout occurred in 3.1% versus 2.1% with placebo over about 3.4 years; gallstones were also more frequent. Discuss a history of gout, kidney problems and interacting statins. It is contraindicated in pregnancy and breastfeeding. [7,15]

Injections and bile acid binders

Alirocumab and evolocumab

How they work: these antibodies block PCSK9, a protein that removes LDL receptors from the liver. More receptors remain available to clear LDL from the blood. Brand names include Praluent and Repatha. [8,9]

Effect and schedule: typically a further 50-60% LDL reduction. Injections under the skin are usually every two weeks or monthly, depending on the medicine and dose. Patients or carers can often give them after training. Both reduce cardiovascular events in established disease. In FOURIER, events occurred in 9.8% with evolocumab versus 11.3% with placebo over 2.2 years, on background statins: 1.5 fewer per 100. [8,9,14]

Side effects: redness, pain or swelling at the injection site; cold-like symptoms, back or joint pain, or itching may occur. Serious allergy is rare. In FOURIER, injection reactions occurred in 2.1% with evolocumab versus 1.6% with placebo over a median 2.2 years. Overall adverse-event rates were similar. [8,9,14]

Practical points: follow storage instructions, rotate injection sites and ask what to do if a dose is missed. They may be used with tablets or when statins cannot be taken. Eligibility for NHS treatment is narrower than the medicine's licence.

Inclisiran

How it works: a small interfering RNA switches down PCSK9 production in liver cells. It does not edit your DNA. Brand name Leqvio. [10]

Effect and schedule: around 50% additional LDL lowering. A healthcare professional gives 284 mg under the skin at the start, again at three months, then every six months. [10]

Side effects: injection-site reactions occurred in 8.2% versus 1.8% with placebo in the main trials; these were mild or moderate and temporary. Other serious harms have not shown a clear excess in those trials, but long-term evidence is less extensive than for statins. [10]

Evidence still developing: LDL lowering is established. As of September 2026, definitive results from dedicated trials testing prevention of heart attacks and strokes are still awaited. It should not yet be described as having the same proven outcome benefit as the PCSK9 antibodies. [11]

Bile acid binders

Examples: colestyramine, colesevelam and colestipol; local supply varies. They trap bile acids in the gut, making the liver use cholesterol to replace them. LDL typically falls by about 15-25%. They are less commonly used today; older colestyramine trials support coronary benefit. [4,12]

Side effects and cautions: constipation, bloating and nausea are common practical limitations. They can raise triglycerides and reduce absorption of other medicines and vitamins A, D, E and K. Your pharmacist should provide a medicine-spacing schedule. They are not absorbed into the bloodstream and may sometimes be chosen during pregnancy by a specialist. [12]

Side effects at a glance

This table is a quick reminder. The medicine pages and the safety advice on page 7 explain what to watch for and when to seek help. Not everyone experiences side effects.

Medicine	Effects to discuss with your clinician
Statins	Muscle symptoms; liver blood-test changes; a small diabetes risk. Serious muscle or liver injury is rare.
Ezetimibe	Abdominal discomfort, diarrhoea or wind; liver changes, especially with a statin; rare muscle injury or allergy.
Bempedoic acid	Raised uric acid or gout; limb discomfort; anaemia or liver changes. Tell your prescriber about previous gout.
Alirocumab and evolocumab	Injection-site reactions; cold-like symptoms, back or joint pain, or itching. Serious allergy is rare.
Inclisiran	Usually mild, temporary injection-site reactions. Long-term outcome evidence is still developing.
Bile acid binders	Constipation, bloating or nausea; raised triglycerides; reduced absorption of some medicines and vitamins.

Summary based on prescribing information. Side-effect rates cannot be compared directly across different trials. [5,6,7,8,9,10,12]

Medicines mainly aimed at triglycerides

Fibrates, including fenofibrate, bezafibrate, ciprofibrate and gemfibrozil, activate PPAR-alpha to alter how the body processes fats. They mainly lower triglycerides, often by 30-50%; LDL effects vary and LDL can rise when triglycerides are very high. They are not routinely added to statins simply to lower cardiovascular risk. [4,21]

Digestive symptoms, gallstones, liver enzyme changes and kidney blood-test changes can occur. Muscle injury risk increases with a statin, especially with gemfibrozil; combinations require careful prescribing and monitoring. [21]

Icosapent ethyl, or Vazkepa, is a purified EPA prescription medicine for selected statin-treated patients with raised triglycerides and cardiovascular risk. It reduces events in an eligible population but is not an LDL-lowering replacement. Important risks include atrial fibrillation and bleeding, especially with blood-thinning medicines. Ordinary fish-oil supplements do not have equivalent evidence. [22]

Niacin is not recommended for routine cardiovascular prevention: adding it to effective statin therapy did not improve outcomes and increased harms. Red yeast rice can contain a statin-like substance with variable dosing and similar side effects; “natural” does not mean safer. [19,23]

Side effects and taking treatment safely

Muscle symptoms deserve attention

Aches are common with or without statins. In blinded trials, statins caused about **11 extra reports of muscle pain or weakness per 1,000 people in the first year**. More than 90% of reports in statin-treated participants were not caused by the statin. This does not mean your symptoms are imagined. [17]

Tell your clinician about new symptoms. They may check thyroid function, medicine interactions and, when indicated, a muscle blood test called CK. A supervised pause, lower dose, different statin or non-statin treatment can help. Do not abandon long-term protection without a replacement plan.

Diabetes liver health and memory

Diabetes: statins can slightly raise blood sugar, particularly if you are already near the diabetes threshold. In low- or moderate-intensity trials, new diabetes occurred in about 1.3% per year versus 1.2% with placebo. Risk is higher with intensive therapy and depends on your starting blood sugar. For most people offered treatment, cardiovascular benefits outweigh this risk. [18]

Liver: mild blood-test changes are not the same as liver failure. Serious liver injury is rare, and stable fatty liver usually does not prevent statin treatment. **Memory:** large randomised trials have not shown that statins cause dementia or meaningful excess memory problems. New symptoms still deserve assessment. [19,20]

A previous bleeding stroke needs individual discussion of statin benefits and risks. [16] **Very low LDL:** trials of intensive treatment, including PCSK9 antibodies, have been reassuring about safety at very low achieved levels over studied follow-up. Your body still makes needed cholesterol. This does not establish that every medicine is risk-free or that everyone needs the lowest target. [8]

When to seek help

Call 999 for difficulty breathing, swelling of the face or tongue, or collapse after a medicine. Also call 999 for possible heart attack or stroke symptoms.

Seek urgent same-day advice for severe unexplained muscle pain or weakness, particularly with dark urine, fever or reduced urine; stop a suspected statin pending urgent assessment. Yellow skin or eyes, or severe persistent abdominal pain, also need prompt assessment. Report a new painful, hot, swollen joint while taking bempedoic acid. [5,6,7,20]

Checks and follow-up

Before treatment, review cholesterol, liver and kidney function, diabetes risk, other medicines and pregnancy plans. Repeat cholesterol and liver enzymes about **2-3 months** after starting or changing lipid treatment; repeat liver tests at **12 months**, then when clinically indicated. CK is not routinely needed without muscle symptoms. Have an ongoing medication review, usually annually. Some medicines need additional checks. [1,20,21]

If pregnant, planning pregnancy or breastfeeding, contact your prescriber before starting or continuing treatment: most LDL medicines are avoided, and some are contraindicated. Read your medicine's leaflet, never double a missed dose without advice, and report suspected side effects through the MHRA Yellow Card scheme at yellowcard.mhra.gov.uk.

Diet exercise and your LDL level

Lifestyle changes work alongside medication. Diet can often lower LDL by around **10-15%**, although response varies. Inherited high cholesterol or established artery disease usually still needs medication. [24]

Food swaps that help

Choose less often	Choose more often	Why it helps
Butter, ghee, coconut oil	Olive or rapeseed oil	Replaces saturated fat with unsaturated fat
Fatty or processed meat	Beans, lentils, fish and nuts	Less saturated fat; more fibre or unsaturated fat
Low-fibre cereals and refined grains	Oats, barley and wholegrains	Soluble fibre helps lower cholesterol
Pastries and biscuits	Fruit and a small handful of unsalted nuts	Supports a sustainable heart-healthy pattern

Aim for around **30 g of fibre daily**, increasing gradually with adequate fluid. Around 3 g daily of oat or barley beta-glucan can reduce LDL by roughly 4-6%. Include vegetables and pulses regularly; weight loss, if needed, especially helps triglycerides and blood sugar. [25,26]

Optional plant sterols or stanols: 1.5-3 g daily in fortified foods can lower LDL by 7-12.5%, but prevention of heart attacks is unproven. NICE does not advise them specifically for cardiovascular prevention. Avoid in pregnancy, breastfeeding or sitosterolaemia; discuss with your clinician. Do not add dietary percentage effects together. [1,27]

Move regularly even if LDL changes little

Exercise usually has a modest, variable effect on LDL. It still improves fitness, blood pressure, insulin sensitivity and triglycerides, and lowers cardiovascular risk. Aim for **150 minutes of moderate activity weekly**, or 75 minutes of vigorous activity if appropriate, plus strength work on **two days**. Break up long periods of sitting. [28]

Start gradually. If you have symptoms or a recent heart event, agree a safe plan with your team; cardiac rehabilitation can help. Avoid smoking and do not start drinking alcohol to raise HDL.

Choose two achievable food changes and activity you enjoy. Keep taking prescribed treatment and review your blood result together. A good result usually means the plan is working.

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Sources and further information

Prepared September 2026 for adult patient information. Numbered references support the preceding sections. Trial averages describe groups, not an individual prediction. The cited cardiovascular trials measured combinations of events such as heart attack, stroke, cardiovascular death and artery procedures. Their populations, endpoints and follow-up differed, so the numbers must not be used to rank medicines directly. This leaflet complements your consultation and the manufacturer's patient leaflet.

1. NICE NG238
2. NICE CG71 on familial hypercholesterolaemia
3. ESC EAS 2025 focused update and treatment goals
4. ESC EAS 2019 guideline on lipid treatment
5. NHS information on statins
6. Ezetrol prescribing information
7. Nilemdo prescribing information
8. Repatha prescribing information
9. Praluent prescribing information
10. Leqvio prescribing information
11. ORION 4 trial status and design 2026
12. Questran Light prescribing information
13. IMPROVE IT trial of ezetimibe
14. FOURIER trial of evolocumab
15. CLEAR Outcomes trial of bempedoic acid
16. Cholesterol Treatment Trialists Collaboration findings
17. CTT analysis of muscle symptoms 2022
18. Oxford Population Health analysis of diabetes risk 2024
19. Oxford review of reported statin side effects 2026
20. NHS atorvastatin information
21. Fenofibrate prescribing information
22. NICE TA805 on icosapent ethyl
23. Oxford Population Health cholesterol trials
24. HEART UK familial hypercholesterolaemia booklet
25. HEART UK advice on dietary fat
26. HEART UK cholesterol lowering foods
27. HEART UK plant stanols and sterols
28. NHS exercise benefits and recommendations
29. Nustendi prescribing information

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The links above are clickable in the electronic leaflet. For medicine leaflets, search the medicine name at medicines.org.uk. For suspected side effects, visit yellowcard.mhra.gov.uk.