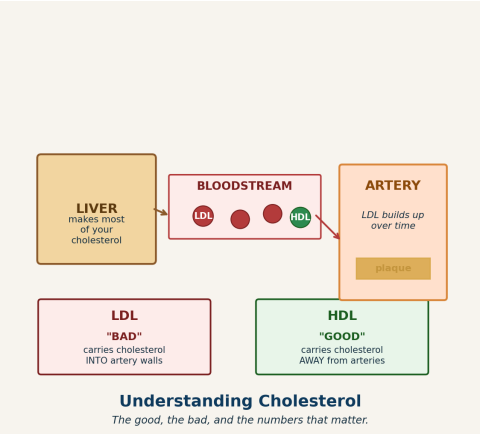
Understanding Cholesterol

The Good, the Bad, and the Numbers That Matter

The wrong kind of cholesterol, at the wrong level, slowly damages your arteries. This guide explains your lipid panel in plain English.



Online: https://go.riasalimd.com/cholesterol-guide

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Names & Terms You Will Hear

Term	Meaning
Cholesterol	A waxy, fat-like substance your body needs for cells, hormones, and bile. Made by the liver; some comes from food.
Lipid Panel	The blood test that measures cholesterol and triglycerides. Usually checked fasting, but a non-fasting test is fine for screening.
LDL	Low-density lipoprotein — the BAD cholesterol. Carries cholesterol into artery walls where it builds plaque.
HDL	High-density lipoprotein — the GOOD cholesterol. Carries cholesterol back to the liver to be cleared.
Triglycerides	Another type of fat in the blood. Comes from food and from extra calories your body stores.
Non-HDL Cholesterol	Total cholesterol minus HDL. Sums up all the bad particles in one number. Target is your LDL target plus 30.
ApoB (Apolipoprotein B)	A protein on every bad-cholesterol particle. Counts the particles directly. Newer, more precise risk marker.
Lp(a)	Lipoprotein little-a. An inherited form of bad cholesterol. Checked once in a lifetime. About 1 in 5 people carry high levels.
Familial Hypercholesterolemia (FH)	An inherited cause of very high LDL (often above 190 mg/dL). Runs in families. Needs early, aggressive treatment.
ASCVD	Atherosclerotic cardiovascular disease — heart attack, stroke, or blocked-artery disease anywhere in the body.
Statin	The most-used cholesterol medicine. Lowers LDL by 30 to 50 percent and cuts heart attack and stroke risk.
Plaque	A mix of cholesterol, calcium, and other cells that builds up inside artery walls and narrows the artery.

Three things to remember about cholesterol:

1. **LDL = BAD** (carries cholesterol INTO artery walls). Lower is better.
2. **HDL = GOOD** (carries cholesterol AWAY). Higher is better.
3. **Your LDL target depends on your overall risk** — not just the number itself. See the ladder.

What Is Cholesterol?

- Cholesterol is a waxy substance your body needs. It helps build cell walls, make hormones, and produce bile that digests fat. Without any cholesterol, the body would not work.
- Most of your cholesterol is made by the liver. Only about 20 percent comes from the food you eat. That is why diet alone is often not enough to bring high numbers down.
- Cholesterol travels through the blood inside tiny packages called lipoproteins. The two main kinds are LDL and HDL. They do opposite jobs.
- LDL (low-density) is the BAD one. It carries cholesterol from the liver INTO the artery walls. Over years, this builds plaque and narrows arteries.
- HDL (high-density) is the GOOD one. It carries cholesterol AWAY from the artery walls and back to the liver to be cleared.
- Triglycerides are another blood fat. They come from food and from extra calories your body stores. Very high triglycerides can inflame the pancreas — a separate problem from plaque.
- A lipid panel is the blood test that measures all of these. Most adults should have a first lipid panel by age 20, then every 4 to 6 years — sooner and more often if you have risk factors.
- You can have very high cholesterol and feel completely fine. There are no symptoms until plaque is already large enough to cause a heart attack, stroke, or leg pain. The blood test is the only way to know.

Your Lipid Panel: What Each Number Means

LDL *test*	the BAD one — drives plaque	**Lower is better. Target depends on your risk tier.**
HDL *test*	the GOOD one — clears cholesterol	**Men ≥ 40, Women ≥ 50 mg/dL. Higher is better.**
Triglycerides *test*	blood fats from food and liver	**< 150 mg/dL. Above 500 = risk of pancreatitis.**
Non-HDL *test*	everything bad in one number	**Total minus HDL. Target = LDL target + 30.**
ApoB *test*	counts every bad particle	**Newer marker. < 90 mg/dL for most.**
Lp(a) *test*	inherited risk you cannot diet away	**Check once. > 50 mg/dL = high lifelong risk.**

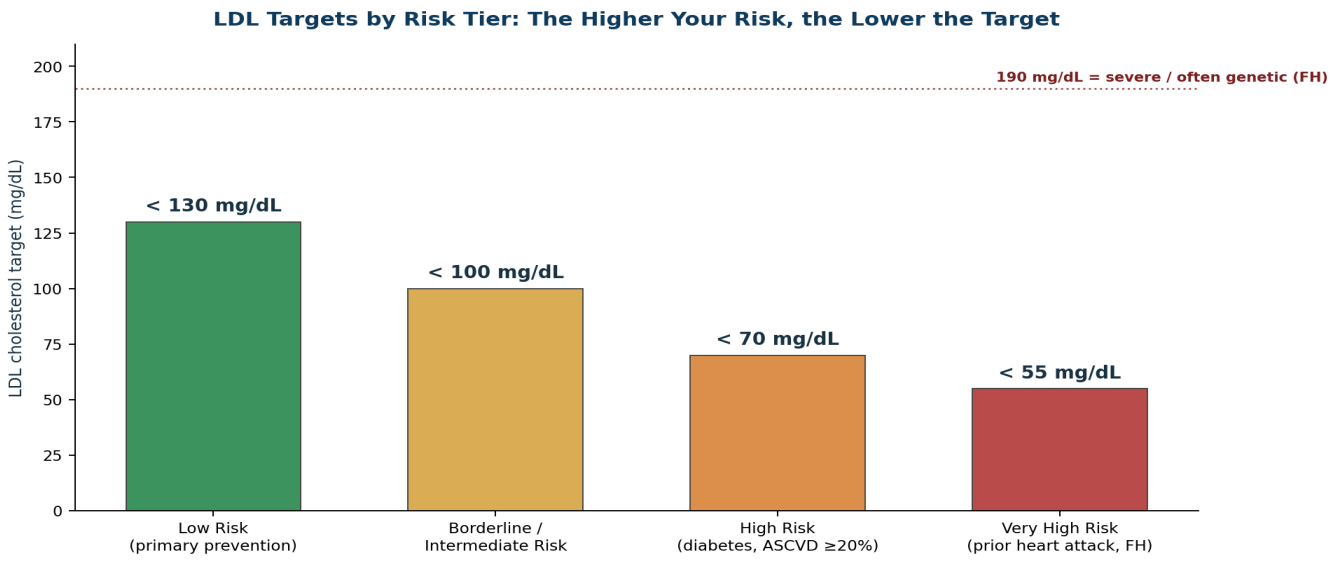
Your lipid panel decoded. LDL drives plaque (lower is better). HDL clears it (higher is better). Triglycerides are blood fats from food and excess calories. Non-HDL sums all the bad in one number. ApoB counts the bad particles directly. Lp(a) is an inherited form of bad cholesterol — check it once. Sources: AHA, Mayo Clinic, 2018 ACC/AHA cholesterol guideline.

Fasting or non-fasting?

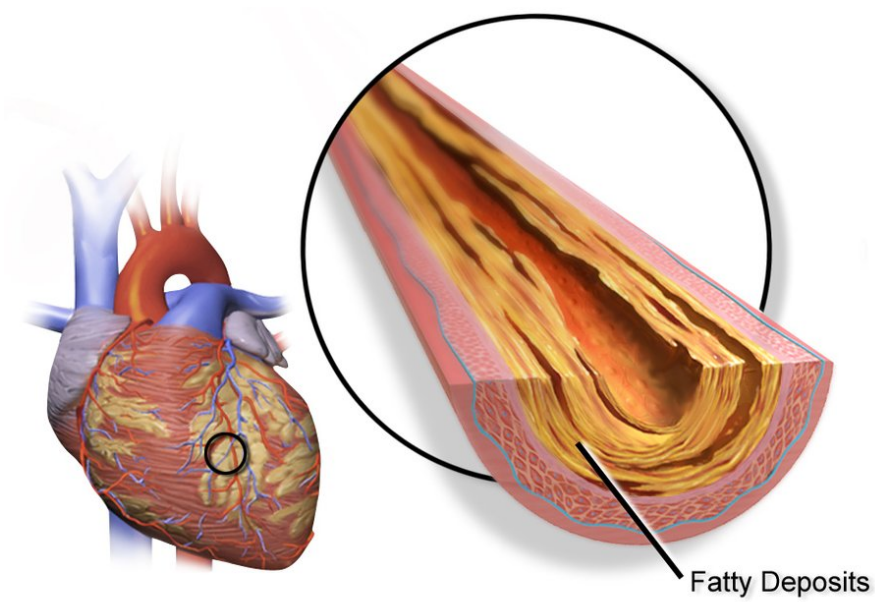
For routine screening, a non-fasting lipid panel is FINE — the LDL and HDL numbers are accurate either way. If your triglycerides come back high on a non-fasting test, your team may repeat the panel after a 9 to 12 hour fast to be sure. Fasting is usually needed if triglycerides are very high or if specific advanced tests are ordered.

Why It Matters

- High LDL is one of the strongest causes of heart attack and stroke. Lowering LDL has been shown — in dozens of large trials — to prevent heart attacks, strokes, and cardiovascular deaths.
- The benefit is dose-dependent: each 40 mg/dL drop in LDL reduces major heart events by about 20 to 25 percent. Lower is better, and the lower you go, the more events you prevent.
- The damage from high LDL adds up SLOWLY over decades. The earlier you bring LDL down, the more years of protected artery you get. This is why screening starts at age 20.
- Your LDL target depends on your overall heart risk — not just the number itself. A 35-year-old with no risk factors and an LDL of 120 is in a different situation than a 65-year-old after a heart attack with the same LDL.
- Cholesterol works WITH the other risk factors: high blood pressure, smoking, diabetes, and family history. Treating cholesterol does not let you ignore the others.
- Lp(a) is an inherited form of bad cholesterol that diet and exercise cannot change. About 1 in 5 people carry high levels. If your Lp(a) is high, your team will treat all your OTHER risk factors more aggressively.



Your LDL target depends on your overall risk. Primary-prevention low-risk adults aim under 130. Borderline / intermediate risk: under 100. High risk (diabetes, ASCVD risk 20% or higher): under 70. Very-high-risk patients (prior heart attack, stroke, or familial hypercholesterolemia): under 55 mg/dL. The dotted line at 190 marks the level where genetic (familial) cholesterol disease is likely. Adapted from 2018 AHA/ACC and 2019 ESC/EAS cholesterol guidelines.



Cholesterol-rich plaque builds up inside the wall of a coronary artery. The fatty deposit narrows the channel that carries blood to the heart muscle. Image credit: BruceBlaus, Wikimedia Commons (CC BY 3.0).

Lp(a): The Inherited Risk You Need to Check Once

- Lp(a) is a special kind of bad-cholesterol particle. The level is set by your genes — diet and exercise barely change it.
- About 1 in 5 adults worldwide carry high Lp(a) (above 50 mg/dL or 125 nmol/L). It runs in families.
- High Lp(a) raises lifelong risk of heart attack, stroke, and aortic-valve calcification — even when LDL looks fine.
- Check Lp(a) ONCE in your lifetime. The number stays stable. Insurance usually covers a one-time test.
- There is no Lp(a)-specific approved drug yet (several are in trials). If your Lp(a) is high, we treat all your OTHER risk factors more aggressively — lower LDL target, lower BP target, no smoking.
- First-degree relatives (parents, siblings, children) of anyone with high Lp(a) should also be tested.
- See the companion guide: go.riasalimd.com/lpa-guide.

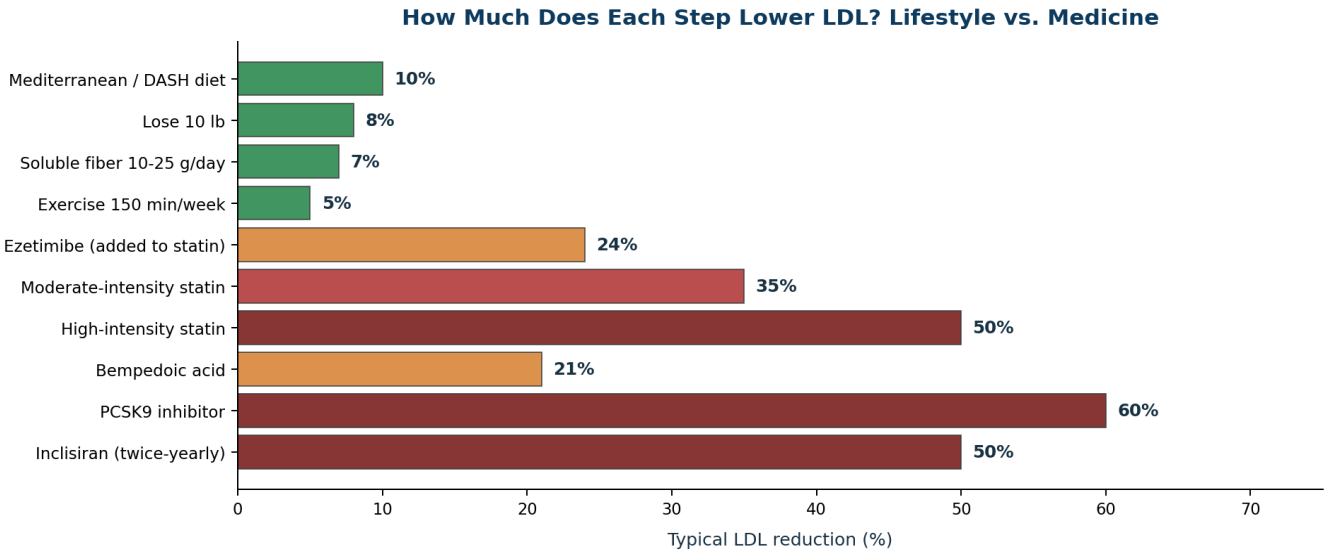
Risk Factors

Some patients are more likely to develop this condition. Knowing your risk helps your care team take extra precautions.

Risk Factor	Why It Increases Risk
Family history of high cholesterol or early heart disease	Familial hypercholesterolemia (FH) raises LDL above 190 from birth. Heart attack in a parent or sibling before 55 (men) / 65 (women) doubles your risk.
Diet high in saturated fat	Butter, fatty meat, full-fat cheese, lard, palm and coconut oil raise LDL. Trans fat (still in some packaged baked goods) is worse — avoid it completely.
Overweight or obesity	Extra body fat lowers HDL and raises LDL and triglycerides. Losing 5 to 10 percent of body weight improves all three.
Sedentary lifestyle	Lack of regular activity lowers HDL and raises triglycerides. 150 minutes a week of moderate exercise helps.
Smoking and vaping	Lowers HDL, damages artery walls, and makes LDL more harmful. Quitting raises HDL within weeks.
Type 2 diabetes and prediabetes	Drives high triglycerides, low HDL, and small dense LDL particles — the worst pattern for the arteries.
Underactive thyroid (hypothyroidism)	Raises LDL even on a perfect diet. A simple TSH blood test catches it; treating the thyroid often fixes the cholesterol.
Some medicines	Steroids, some HIV medicines, certain birth-control pills, and a few mental-health medicines can raise cholesterol. Ask your doctor about your list.
Inherited Lp(a)	About 1 in 5 people carry levels above 50 mg/dL. Diet and exercise do not change Lp(a). Check it ONCE in your lifetime.

Treatment Options

- **Step 1 — Heart-healthy eating.** The Mediterranean and DASH patterns lower LDL by about 10 percent and triglycerides by 15 to 20 percent. See our companion guide go.riasalimd.com/heart-healthy-eating-guide.
- **Step 2 — Soluble fiber.** Oats, beans, lentils, apples, berries, and psyllium (Metamucil) lower LDL by another 5 to 10 percent. Target 10 to 25 grams of soluble fiber per day.
- **Step 3 — Move your body.** 150 minutes per week of moderate exercise (brisk walking) lowers LDL by about 5 percent and raises HDL. Adds independent protection beyond the number.
- **Step 4 — Weight loss if needed.** Losing 10 pounds can drop triglycerides by 25 percent or more. Slow, steady loss is far better than a crash diet.
- **Step 5 — Stop smoking.** Raises HDL, drops LDL, and cuts heart-attack risk by half within 1 to 2 years. The single highest-yield change for any smoker.
- **Step 6 — Statin therapy** when LDL is still above your target after lifestyle, or when you are higher risk from the start. Statins lower LDL by 30 to 50 percent and cut heart attack and stroke risk by 25 to 35 percent. See go.riasalimd.com/statins-guide.
- **Step 7 — Ezetimibe** (Zetia) is added when a statin alone does not reach goal. Lowers LDL another 15 to 25 percent. Pill-form, well tolerated. See go.riasalimd.com/ezetimibe-guide.
- **Step 8 — PCSK9 inhibitors** (Repatha, Praluent) are powerful injectable medicines added for very-high-risk patients or familial hypercholesterolemia. Lower LDL another 50 to 60 percent. See go.riasalimd.com/pcsk9-guide.
- **Step 9 — Bempedoic acid** (Nexletol) is a newer non-statin pill, useful for statin-intolerant patients. Lowers LDL by about 20 percent. See go.riasalimd.com/bempedoic-guide.
- **Step 10 — Check Lp(a) once.** If high, there is no Lp(a)-specific approved drug yet — but knowing the number changes how aggressively we treat everything else. See go.riasalimd.com/lpa-guide.



How much each step lowers LDL. Lifestyle changes (green) work but max out around 10 to 15 percent. Statins (red) are the most powerful single step. PCSK9 inhibitors and inclisiran add another 50 to 60 percent on top. Most patients combine 2 or 3 of these — the effects add up. Sources: 2018 AHA/ACC guideline, IMPROVE-IT, FOURIER, CLEAR Outcomes.

Cholesterol-lowering medicines at a glance

Drug class	How much LDL drops	Form / dosing	Common side effects
Statin (atorvastatin, rosuvastatin, simvastatin)	30 to 50% (moderate intensity) 50% or more (high intensity)	Pill, once daily, usually at night	Muscle aches (5-10%), mild liver-enzyme rise, small rise in blood sugar
Ezetimibe (Zetia)	15 to 25% added to a statin	Pill, once daily	Very few. Mild diarrhea or stomach upset
PCSK9 inhibitor (Repatha, Praluent)	50 to 60% added to a statin	Injection every 2 weeks or monthly	Injection-site soreness, mild cold-like symptoms
Bempedoic acid (Nexletol)	About 20% added to a statin (or alone if statin-intolerant)	Pill, once daily	Small rise in uric acid (gout risk), tendon issues (rare)
Inclisiran (Leqvio)	50% added to a statin	Injection twice a year	Injection-site soreness; convenience is the main benefit

If you struggle with statin side effects.
Up to 1 in 10 patients have muscle aches on a statin. The good news: most can take SOME statin after switching brand, lowering the dose, or trying every-other-day dosing. If statins truly do not work, ezetimibe + bempedoic acid + PCSK9 inhibitor can replace most of the lost LDL reduction. See our Statin-Associated Muscle Symptoms guide: go.riasalimd.com/sams-guide.

Comfort Measures at Home (No Medication Needed)

These simple steps support healing and ease symptoms. Use them alongside any medication your doctor prescribes.

- Eat MORE plants. Half your plate vegetables and fruit. Beans and lentils 3 to 4 times a week. Fish 2 times a week.
- Choose WHOLE grains. Oats for breakfast, brown rice or quinoa for dinner, whole-wheat bread for sandwiches. Cut white bread and white pasta.
- Swap butter and lard for extra-virgin olive oil. Use it for cooking AND salads. A small handful of unsalted walnuts or almonds counts as healthy fat too.
- Add 10 to 25 grams of SOLUBLE fiber per day. Oats, beans, lentils, apples, oranges, berries, brussels sprouts. A packet of psyllium (Metamucil) is an easy add for many patients.
- Limit red meat to once a week. Skip processed meats (bacon, sausage, hot dogs, deli meats) — they raise LDL and blood pressure at the same time.
- Drink water as your default. Skip sugary drinks and fruit juice — they raise triglycerides quickly.
- Move your body 150 minutes a week. Brisk walking counts. Two short sessions of strength training per week add a boost.
- Sleep 7 to 8 hours per night. Poor sleep raises LDL, triglycerides, and blood pressure.
- If you smoke, ask us about quit support. Patches, gum, and prescription help all work. We can refer you.

Risks, Benefits, and Alternatives

Every choice has trade-offs. Use this table to start the shared decision conversation.

Option	Risks	Benefits	Alternatives
Lifestyle change alone	May not be enough if LDL is genetically high or your risk is already high. Slow to work — 8 to 12 weeks to see numbers shift.	Lowers LDL up to 15 percent, triglycerides 20 to 30 percent. Also lowers BP, blood sugar, and weight at the same time.	Adding a statin if numbers do not reach goal. Diet + medicine work BETTER together than either alone.
Statin (moderate or high intensity)	Muscle aches in 5 to 10 percent. Small rise in liver enzymes (rarely matters). Small rise in blood sugar in pre-diabetics. See our Statin-Associated Muscle Symptoms guide.	Lowers LDL 30 to 50 percent. Cuts heart attack and stroke risk by about 25 to 35 percent. Strongest cardiovascular benefit of any cholesterol pill.	Lower dose, every-other-day, or different statin if side effects. Ezetimibe or bempedoic acid if truly statin-intolerant.
Ezetimibe added to statin	Very few side effects. Costs more than generic statin alone. Modest LDL drop on top of statin.	Lowers LDL another 15 to 25 percent. Cuts heart events in post-heart-attack patients (IMPROVE-IT trial).	Higher statin dose first. PCSK9 inhibitor if very-high-risk and not at goal.
PCSK9 inhibitor (injection)	Injection every 2 weeks (or monthly). Expensive — usually requires prior authorization. Injection-site soreness is the most common side effect.	Lowers LDL by 50 to 60 percent ON TOP of statin. Cuts heart events further in high-risk patients (FOURIER, ODYSSEY).	Inclisiran (twice-yearly injection). Bempedoic acid. Higher statin dose plus ezetimibe.

Option	Risks	Benefits	Alternatives
Doing nothing	LDL keeps building plaque silently for years. First sign may be a heart attack, stroke, or sudden cardiac death.	No cost or side effects today.	Lifestyle change alone is the gentlest active option. Even small steps add up.

Common Misconceptions

Myth	Reality
"I feel fine, so my cholesterol must be OK."	High cholesterol has NO symptoms until it causes a heart attack, stroke, or leg-artery blockage. The blood test is the only way to know. Many patients are shocked by their first lipid panel.
"HDL is always good, so more is always better."	Most of the time, yes. But Lp(a) is an HDL-LIKE particle that is BAD — it raises heart and stroke risk. And very high HDL (over 80) has not been shown to help further.
"If I just eat right, I do not need medicine."	For some people, lifestyle is enough. For most with high LDL — especially familial cases or those with diabetes or ASCVD — diet alone does not get close to the target. Diet and statins WORK TOGETHER.
"Statins are dangerous — I will not take them."	Statins are among the most-studied medicines in history. Muscle aches happen in 5 to 10 percent and usually resolve by switching statins. Liver problems are rare. The proven benefit (fewer heart attacks and strokes) is far bigger than the small risk.
"Eggs and shrimp are full of cholesterol — I should avoid them."	Saturated fat in butter and fatty meat raises LDL much more than cholesterol in food. For most adults, 1 egg a day is fine — even with high LDL.
"Once my number is good, I can stop the statin."	Stopping the statin lets LDL climb right back up within weeks. The benefit (fewer heart attacks) only lasts as long as the LDL stays down.
"Coconut oil is plant-based, so it is heart-healthy."	Coconut oil is over 80 percent saturated fat — more than butter. It raises LDL. Use olive oil instead.

Myth	Reality
"My family all had high cholesterol and lived fine."	Familial hypercholesterolemia raises lifelong risk a LOT. Surviving family members often had unrecognized events. If a parent or sibling had a heart attack before 55 (men) or 65 (women), get checked early.

Possible Complications

Knowing what can go wrong helps you spot problems early. Most complications are uncommon, especially with treatment.

Where / What	What Can Happen
Heart attack	LDL plaque in a heart artery can crack open and form a clot that blocks blood flow. The most common cause of death in high-cholesterol patients.
Stroke	Plaque in the carotid (neck) and brain arteries can break off or block flow, causing a stroke. Same disease as a heart attack, different location.
Peripheral artery disease (PAD)	Plaque in the leg arteries causes pain when walking (claudication), wounds that will not heal, and — if untreated — limb loss.
Aortic plaque and aneurysm	Cholesterol plaque can weaken the wall of the aorta — the body's main artery — and lead to ballooning (aneurysm) or tearing (dissection).
Pancreatitis	Triglycerides over 500 mg/dL — and especially over 1,000 — can trigger sudden, severe inflammation of the pancreas. A medical emergency.
Tendon and skin deposits	In familial hypercholesterolemia, cholesterol deposits show up as yellow bumps on tendons (xanthomas) or around the eyes (xanthelasma). Treat the LDL aggressively.

Triglycerides: The Other Blood Fat

- Triglycerides are a different blood fat from cholesterol. They come from the fat and extra calories you eat — especially sugar, alcohol, and refined carbs.
- Normal is under 150 mg/dL. Borderline 150 to 199. High 200 to 499. Very high 500 or above.
- Most LDL medicines (statins, ezetimibe, PCSK9) also lower triglycerides a little — but not enough if they are very high.
- Very high triglycerides (over 500) can inflame the pancreas. Over 1,000 is a medical emergency.

- First-line treatment is lifestyle: cut sugar and alcohol, lose weight, exercise. Weight loss of 5 to 10 percent can drop triglycerides by 30 percent.
- If lifestyle is not enough, prescription omega-3 (Vascepa or Lovaza), fibrates (fenofibrate), or niacin may be added. Vascepa also cuts heart-event risk in high-risk patients (REDUCE-IT trial).
- Recheck triglycerides 8 to 12 weeks after any major diet change or new medicine.

Familial Hypercholesterolemia (FH): When LDL Is Inherited

- FH is an inherited cause of very high LDL — usually above 190 mg/dL — present from birth.
- About 1 in 250 people have it. Often missed for decades until a young heart attack happens in the family.
- Without treatment, heart attacks often start in the 30s and 40s for men, 40s and 50s for women.
- Clues: LDL above 190 in adults (or above 160 in children); yellow tendon bumps (xanthomas) on the Achilles or hands; a ring around the cornea before age 45; heart attack in a parent or sibling before 55 (men) / 65 (women).
- Treatment is aggressive and lifelong: high-intensity statin from age 8 to 10, often PLUS ezetimibe, often PLUS a PCSK9 inhibitor. The target is LDL under 70 (or under 55 if heart disease already present).
- All first-degree relatives (parents, siblings, children) should be screened — this is called cascade screening.

Public health note from Dr. Ali. Cholesterol is one of the few heart-disease risk factors we can measure cheaply, change effectively, and prove makes a difference. Every 40 mg/dL drop in LDL — by any means — cuts major heart events by about 20 to 25 percent. The longer you spend at a lower LDL, the more years of protected artery you get. The single biggest gap in care is that many high-risk patients are not on enough medicine to reach their target. Ask: "What is my LDL target, and am I there?"

Points to Know

If you remember nothing else, remember these key points.

- Cholesterol has no symptoms — the lipid panel is the only way to know your numbers.
- LDL is the BAD one. Lower is better. Your target depends on your risk tier (see the ladder).
- HDL is the GOOD one. Aim for men at least 40, women at least 50 mg/dL.
- Triglycerides under 150. Over 500 = risk of pancreatitis.
- Get a lipid panel by age 20, then every 4 to 6 years. Sooner and more often if you have risk factors.
- Lp(a) is an inherited risk — check it ONCE in a lifetime. About 1 in 5 people carry high levels.
- Lifestyle is step 1. Mediterranean / DASH eating, exercise, weight loss, and stop smoking lower LDL up to 15 percent.
- Statins lower LDL 30 to 50 percent and cut heart attack and stroke risk by a quarter to a third. They are safe for almost everyone who needs them.
- If a statin alone is not enough, ezetimibe, PCSK9 inhibitors, bempedoic acid, and inclisiran add big extra LDL reduction.
- Diet and medicine WORK TOGETHER — not one or the other. Each one adds to the other.

When to Call Us - and When to Call 911

If you are not sure, call. We would rather hear from you twice than miss a real problem.

- **Call 911** for sudden chest pressure or pain, shortness of breath, weakness on one side, trouble talking, sudden bad headache, or fainting. These are heart-attack and stroke warning signs.
- **Call our office (727-943-5200)** if you have new muscle aches, weakness, or dark urine after starting a statin — we may need to check a blood test.
- **Call us** if your last lipid panel was more than 1 year ago and you take cholesterol medicine. We aim to recheck 8 to 12 weeks after any dose change and once a year after that.
- **Call us** if you have a strong family history of early heart attack or very high cholesterol — your first lipid panel may need to happen earlier than age 20.
- **Call us** if your triglycerides are above 500 mg/dL. Very high triglycerides can inflame the pancreas — a separate emergency from heart disease.
- **Call us** to schedule your one-time Lp(a) check if you have never had it tested. Knowing the number changes how we treat everything else.
- **Ask us about a coronary calcium scan (CAC)** if you are at borderline risk and unsure about starting a statin. See go.riasalimd.com/cac-guide.

Office: (727) 943-5200

See also: our companion guides.
Statin Therapy · Statin-Associated Muscle Symptoms · Ezetimibe · PCSK9 Inhibitors · Bempedoic Acid · Lipoprotein(a) · Coronary Calcium Scan · Heart-Healthy Eating · Coronary Artery Disease.

Trusted Resources

The links below are the trusted resources Dr. Ali used to write this guide and that he recommends you visit for more information. Each is a clickable link in the digital version and a Short.io tracked URL on the printed version.

- AHA — Cholesterol Hub (heart.org) - Official AHA patient page with explanations of LDL, HDL, triglycerides, and how to read your lipid panel.
- Cleveland Clinic — Cholesterol Numbers - Plain-language overview of every number on the lipid panel and what to do about each.
- Mayo Clinic — Cholesterol Test - What to expect from a lipid panel — fasting or not, what each number means, and follow-up timing.
- NIH MedlinePlus — Cholesterol Levels - Federal patient resource with cholesterol basics, screening schedule, and links to free Spanish-language materials.
- Family Heart Foundation — FH and Lp(a) - Patient-focused nonprofit with screening tools, support groups, and resources for familial hypercholesterolemia and Lp(a).
- ASCVD Risk Estimator Plus (ACC) - Free, AHA/ACC-endorsed online tool that estimates your 10-year and lifetime heart-attack and stroke risk.
- U.S. Preventive Services Task Force — Statin Use - Independent federal review of when to start a statin for primary prevention. Useful for the borderline-risk patient.

Sources Used to Build This Guide

Every recommendation in this guide is grounded in one or more of the studies, guidelines, or trusted resources below. Short links are tracked so Dr. Ali can see which references patients are reading; nothing personally identifying is captured.

- 2018 AHA/ACC/Multisociety Guideline on the Management of Blood Cholesterol (Grundy et al., Circulation 2019; PMID 30586774) *[Guideline]*
  Cornerstone US guideline for LDL targets by risk tier (very high <55, high <70, intermediate <100, primary prevention <130), statin intensity selection, and shared decision making. Anchors the LDL-target ladder diagram.
- 2019 ESC/EAS Guidelines for the Management of Dyslipidaemias (Mach et al., Eur Heart J 2020; PMID 31504418) *[Guideline]*
  European guideline that sets even tighter LDL targets in very-high-risk patients (<55 mg/dL, often <40 after a second event). Used to validate the very-high-risk tier on the LDL ladder.
- 2022 ACC Expert Consensus on Non-Statin Therapies for LDL-C Lowering (Lloyd-Jones et al., JACC 2022; PMID 36207808) *[Expert Consensus]*
  Defines the role of ezetimibe, PCSK9 inhibitors, bempedoic acid, and inclisiran when statins alone do not reach LDL goal. Source for the drug-class comparison table.
- 2021 ACC/AHA Scientific Statement: Lipoprotein(a) — A Genetically Determined, Causal, and Prevalent Risk Factor (Reyes-Soffer et al., Arterioscler Thromb Vasc Biol 2022; PMID 34924446) *[Scientific Statement]*
  Source for the Lp(a) section: one-time lifetime measurement, ~20% of population affected, distinct from regular LDL, currently treated by managing all other risk factors aggressively.
- 2019 ACC/AHA Guideline on the Primary Prevention of Cardiovascular Disease (Arnett et al., JACC 2019; PMID 30894318) *[Guideline]*
  Frames lifestyle-first approach (Mediterranean/DASH, weight, exercise) before pharmacotherapy in low and borderline risk patients, and ASCVD 10-year risk for intermediate-risk decision-making.
- IMPROVE-IT Trial: Ezetimibe Added to Statin Therapy after Acute Coronary Syndromes (Cannon et al., NEJM 2015; PMID 26039521) *[Clinical Trial]*
  Showed adding ezetimibe to statin lowers LDL by ~24% and cuts cardiovascular events. Validates the second-line role of ezetimibe in the drug-class table.
- FOURIER Trial: Evolocumab and Clinical Outcomes in Patients with Cardiovascular Disease (Sabatine et al., NEJM 2017; PMID 28304224) *[Clinical Trial]*
  Pivotal PCSK9-inhibitor outcome trial: ~60% LDL drop on top of statin, with 15% relative risk reduction in major CV events. Source for PCSK9 row in the drug-class table.
- CLEAR Outcomes Trial: Bempedoic Acid and Cardiovascular Outcomes in Statin-Intolerant Patients (Nissen et al., NEJM 2023; PMID 36876740) *[Clinical Trial]*
  Established bempedoic acid as an effective option for statin-intolerant patients with ~13% relative risk reduction in major CV events. Source for the bempedoic acid row.
- Cleveland Clinic — Cholesterol: What You Need to Know *[Patient Education]*
  Patient-voice benchmark for plain-language framing of LDL, HDL, triglycerides, and non-HDL. Competitor source — guide adds Lp(a), ApoB, and specific tier targets.

- Mayo Clinic — Cholesterol Test and Results *[Patient Education]*
  Source for the lipid-panel cheat card framing: fasting vs non-fasting, what each number means, and how often to test by risk.
- AHA — Cholesterol (heart.org consumer hub) *[Patient Education]*
  Official AHA patient page used to ensure language matches what most patients read first. Source for HDL/LDL/triglyceride glosses and patient-friendly target language.
- NIH MedlinePlus — Cholesterol Levels *[Patient Education]*
  Federal patient resource used for plain-language framing of cholesterol basics and the role of diet vs medication. Public-domain.

About This Guide

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Reviewer note: Reviewed Cleveland Clinic, Mayo Clinic, AHA, and NIH MedlinePlus cholesterol pages. This guide adds: an LDL-target ladder by risk tier; a lipid-panel cheat-card covering LDL, HDL, triglycerides, non-HDL, ApoB, and Lp(a); a lifestyle-vs-medicine effect chart; and a full drug-class table with PCSK9 inhibitors, bempedoic acid, and inclisiran — newer options most patient pages skip.

Disclaimer

This guide is for educational purposes only and does not replace medical advice from your physician. Recommendations may not apply to every patient. Always follow the specific instructions of Dr. Ali and your care team. In an emergency call 911 or go to the nearest emergency department.

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