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1 Look for the icon at left throughout the information-packed pages of the magazine.
2 Download the free Digimarc Discover app available at iTunes App Store.
3 Open the app. Hold your device 4 to 7 inches away from the icon to scan it.
4 Your browser will open to display a Web page where you can access articles, videos, slideshows, and more.
On The Research Front

NUTRITION STUDIES AND OTHER INSIGHTS

By Sonya Collins

PEDAL PUSHERS
Cycling to work could help cut cholesterol. A Swedish study found that people in their 40s, 50s, and 60s who commuted by bike had a lower risk of high cholesterol than others who drove or used public transportation.

Source: Journal of the American Heart Association

GRAIN OF TRUTH
Here’s some advice that might go against the grain: Eat bread made with ancient grains, such as spelt, farro, chia and millet; it could help lower your cholesterol. In a small study, healthy adults ages 25 to 75 replaced their usual bread with breads made of ancient grains. They changed nothing else about their diet. After two months of the vintage grains, they saw a drop in their cholesterol levels.

Source: International Journal of Food Sciences and Nutrition

CHOLESTEROL ON THE BRAIN
A drop in LDL cholesterol (“bad” cholesterol) is good. But once it’s down, try to keep it down. Cholesterol levels that yo-yo could be bad for your brain.

In a study, more than 4,000 adults ages 70 to 82 had four cholesterol screenings in a two-year period. Those who showed the most fluctuation in LDL between screenings—regardless of their average cholesterol overall—scored lower on cognitive tests. They also had less blood flow to the brain, which could explain the results of the cognitive tests.

Source: Circulation

LET THEM EAT CHOCOLATE!
An occasional sweet treat can be part of a heart-healthy lifestyle. In a study of more than 20,000 people, those who ate about a half an ounce to 3.5 ounces of chocolate per day were the least likely to develop heart disease or have a heart attack or stroke during the 15-year study. More than 13% of those who never ate chocolate eventually developed heart disease. Less than 10% of the most avid chocoholics did.

Source: Heart

1 in 8
Number of Americans with high cholesterol
Source: CDC
QUESTION

I take a statin but I’m not sure the treatment works. What options do I have?

ANSWER

Statins can be highly effective at lowering cholesterol and reducing your risk for heart attack and stroke.

But statins are only part of the picture: Your daily habits play a crucial role. When a patient comes to me with high cholesterol, I take a detailed health history to determine her heart disease risk and to get a sense of her lifestyle. We work together to create a treatment plan that includes cholesterol-lowering habits, such as eating a Mediterranean diet or other heart-healthy meal plan, and getting regular physical activity. We’ll set some goals, like weight loss, or cutting back on cigarettes. You can make a big difference in LDL (“bad” cholesterol) levels with these kinds of lifestyle adjustments, especially in conjunction with medicine.

If a patient’s LDL cholesterol remains high after 3 months, I’ll check in to see if she’s making strides with diet and physical activity. I’ll also ask if she’s taking her statin regularly. Sometimes people stop taking statins due to unpleasant side effects such as muscle aches and weakness. Studies show that 5% to 20% of people who take statins have muscle symptoms. Reducing her dose may ease symptoms and still help lower LDL.

If LDL cholesterol fails to drop despite lifestyle changes and taking statins as prescribed, I would consider the possibility of a condition called familial hypercholesterolemia (FH). This is an inherited disorder that causes very high LDL cholesterol levels. Genetic testing can confirm that you have the condition.

In cases of FH, statins often don’t cut LDL levels enough, sometimes reducing them by only about half. If you have an LDL of 330 mg/dL, for example, a statin in combination with diet and exercise may not bring your LDL all the way down to 100 mg/dL, the level I like to see in my patients.

In that case, I may prescribe an additional drug such as ezetimibe, which blocks the absorption of cholesterol in your intestines, or a
ANSWER
Phytosterols are the non-medicine option with the best data to support them. Found in nuts, legumes, and whole grains, they block the absorption of cholesterol in your body. They naturally occur in amounts too small to reduce cholesterol, so they’re often added in greater amounts to margarine, juice, and milk. Phytosterols are also sold in capsule form.

Research shows that phytosterols can reduce cholesterol by 10% to 15%, a modest but useful amount. People with high cholesterol should get 2 grams of phytosterols daily. It’s easy to reach that level without taking a supplement: Eat a piece of whole-grain toast spread with phytosterol margarine, and drink 1 cup of phytosterol orange juice, for example. Be aware that phytosterols may cause gastrointestinal symptoms, like diarrhea.

If a patient has high cholesterol and a high risk of heart disease, phytosterols alone are unlikely to reduce cholesterol enough. But these compounds are safe to consume along with prescription statins. And for people with mildly elevated cholesterol, phytosterols may be enough—when paired with diet changes and exercise—to keep blood levels in check without other medications.

Phytosterols naturally occur in foods such as nuts, legumes, and whole grains, but in amounts too small to reduce your cholesterol levels.
What is Repatha®?
Repatha® is an injectable prescription medicine called a PCSK9 inhibitor. Repatha® is used:
• Along with diet and maximally tolerated statin therapy in adults with atherosclerotic heart or blood vessel problems, who need additional lowering of LDL cholesterol.

The effect of Repatha® on heart problems, such as heart attacks, stroke, or death, has not been determined.

Ask your doctor if Repatha® can get you on the path to further lowering your LDL
What is Repatha®?

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Important Safety Information

Do not use Repatha® if you are allergic to evolocumab or to any of the ingredients in Repatha®.

Before you start using Repatha®, tell your healthcare provider about all your medical conditions, including allergies, and if you are allergic to rubber or latex, are pregnant or plan to become pregnant, or are breastfeeding or plan to breastfeed.

Tell your healthcare provider or pharmacist about any prescription and over-the-counter medicines you are taking or plan to take, including natural or herbal remedies.

What are the possible side effects of Repatha®?

• Repatha® may cause allergic reactions. Call your healthcare provider or go to the nearest hospital emergency room right away if you have any symptoms of an allergic reaction including a severe rash, redness, severe itching, a swollen face, or trouble breathing.

• The most common side effects of Repatha® include: runny nose, sore throat, symptoms of the common cold, flu or flu-like symptoms, back pain, and redness, pain, or bruising at the injection site.

• Tell your healthcare provider if you have any side effect that bothers you or that does not go away.

• These are not all the possible side effects of Repatha®. Ask your healthcare provider or pharmacist for more information. Call your healthcare provider for medical advice about side effects.

You are encouraged to report negative side effects of prescription drugs to the FDA.

Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.
Talking with your doctor about further lowering your LDL (bad cholesterol)

You may have plaque-related heart or blood vessel problems and high LDL. You’re eating right and taking the highest dose statin you can. But, your LDL still isn’t where it should be. If so, Repatha® might be right for you. Find out during your next doctor’s visit and use these questions to help guide your conversation.

1. What is my LDL number?

2. What causes my LDL to be high?

3. Why do I need additional treatment to help lower my LDL?

4. How does Repatha® work differently than my current treatment?

5. What kind of results could I expect with Repatha®?

6. How do I take Repatha®?

7. What are the possible side effects of Repatha®?

8. If Repatha® is right for me, how can I get help paying for it?

Visit Repathafinancialinfo.com to see if you’re eligible for the Repatha® Copay Card.

Approved Use

Repatha® is an injectable prescription medicine called a PCSK9 inhibitor. Repatha® is used:

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Please see additional Important Safety Information on the next page.
Important Safety Information (continued)

Before you start using Repatha®, tell your healthcare provider about all your medical conditions, including allergies, and if you are allergic to rubber or latex, are pregnant or plan to become pregnant, or are breastfeeding or plan to breastfeed.

Tell your healthcare provider or pharmacist about any prescription and over-the-counter medicines you are taking or plan to take, including natural or herbal remedies.

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These are not all the possible side effects of Repatha®. Ask your healthcare provider or pharmacist for more information. Call your healthcare provider for medical advice about side effects.

You are encouraged to report negative side effects of prescription drugs to the FDA. Visit www.fda.gov/medwatch, or call 1-800-FDA-1088.

Please see Repatha Brief Summary of Patient Information on page 5 or at Repatha.com
BRIEF SUMMARY OF PATIENT INFORMATION

REPATHA® (ri-PATH-a) (evolocumab)
Injection, for Subcutaneous Use

What is REPATHA?
REPATHA is an injectable prescription medicine called a PCSK9 inhibitor. REPATHA is used:

• along with diet and maximally tolerated statin therapy in adults with heterozygous familial hypercholesterolemia (an inherited condition that causes high levels of LDL or atherosclerotic heart or blood vessel problems, who need additional lowering of LDL cholesterol).

• along with diet and other LDL-lowering therapies in people with homozygous familial hypercholesterolemia (an inherited condition that causes high levels of LDL), who need additional lowering of LDL cholesterol.

The effect of REPATHA on heart problems such as heart attacks, stroke, or death is not known.

It is not known if REPATHA is safe and effective in children with homozygous familial hypercholesterolemia (HoFH) who are younger than 13 years of age or in children who do not have HoFH.

Who should not use REPATHA?
Do not use REPATHA if you are allergic to evolocumab or to any of the ingredients in REPATHA. See the end of this leaflet for a complete list of ingredients in REPATHA.

What should I tell my healthcare provider before using REPATHA?
Before you start using REPATHA, tell your healthcare provider about all your medical conditions, including allergies, and if you:

• are allergic to rubber or latex. The needle covers on the single-use prefilled syringes and within the needle caps on the single-use prefilled SureClick® autoinjectors contain dry natural rubber. The single-use Pushtronex™ system (on-body infusion with prefilled cartridge) is not made with natural rubber latex.

• are pregnant or plan to become pregnant. It is not known if REPATHA will harm your unborn baby. Tell your healthcare provider if you become pregnant while taking REPATHA.

• are breastfeeding or plan to breastfeed. You and your healthcare provider should decide if you will take REPATHA or breastfeed. You can ask your pharmacist or healthcare provider for more information.

• have aseptic meningitis.

• have had an allergic reaction to REPATHA.

• have had an allergic reaction to another PCSK9 inhibitor.

• have a medical condition that makes it harder to get the best results from REPATHA.

• have or have had severe skin rash.

• have liver problems, who need additional lowering of LDL cholesterol.

• are allergic to rubber or latex. The needle covers on the single-use prefilled autoinjector, single-use prefilled syringe, or single-use on-body infusion with prefilled cartridge to make sure you have the correct medicine and the correct dose of REPATHA before each administration.

• if you forget to use REPATHA or are not able to take the dose at the regular time, administer your missed dose as soon as you remember, as long as there are more than 7 days until the next scheduled dose. If there are 7 days or less until your next scheduled dose, administer the next dose according to the original schedule. This will put you back on your original schedule. If you are not sure when to take REPATHA after a missed dose, ask your healthcare provider or pharmacist.

• if you use more REPATHA than you should, talk to your healthcare provider or pharmacist.

Do not stop using REPATHA without talking with your healthcare provider. If you stop using REPATHA, your cholesterol levels can increase.

What are possible side effects of REPATHA?
REPATHA can cause side effects including:

• allergic reactions. REPATHA may cause allergic reactions. Call your healthcare provider or go to the nearest hospital emergency room right away if you have any symptoms of an allergic reaction including a severe rash, redness, severe itching, a swollen face, or trouble breathing.

The most common side effects of REPATHA include: runny nose, sore throat, symptoms of the common cold, flu or flu-like symptoms, back pain, and redness, pain, or bruising at the injection site.

Tell your healthcare provider if you have any side effect that bothers you or that does not go away. These are not all the possible side effects of REPATHA. Ask your healthcare provider or pharmacist for more information.

Call your healthcare provider for medical advice about side effects. You may report side effects to FDA at 1-800-FDA-1088.

General information about the safe and effective use of REPATHA.
Medicines are sometimes prescribed for purposes other than those listed in Patient Information leaflets. Do not use REPATHA for a condition for which it was not prescribed. Do not give REPATHA to other people, even if they have the same symptoms that you have. It may harm them.

This Patient Information leaflet summarizes the most important information about REPATHA. If you would like more information, talk with your healthcare provider. You can ask your pharmacist or healthcare provider for information about REPATHA that is written for healthcare professionals.

For more information about REPATHA, go to www.REPATHA.com or call 1-844-REPATHA (1-844-737-2842).

What are the ingredients in REPATHA?
• Active Ingredient: evolocumab

• Inactive Ingredients: proline, glacial acetic acid, polysorbate 80, water for injection, and sodium hydroxide.

Manufactured by: Amgen Inc. One Amgen Center Drive, Thousand Oaks, California 91320-1799.

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If you already keep an eye on your cholesterol numbers, you know you want to boost HDL (“good” cholesterol) while keeping LDL (“bad” cholesterol) in check. But common wisdom around managing those numbers and how they affect your body can be confusing. Do you know about these facts and myths?

1. About one-third of your diet should come from healthy fats.
   ○ Myth ○ Fact

2. High cholesterol has no effect on your sex life.
   ○ Myth ○ Fact

3. You should avoid high-cholesterol foods if you’re watching your LDL.
   ○ Myth ○ Fact

4. LDL alone is not a good predictor of heart disease risk.
   ○ Myth ○ Fact

ANSWERS

1. Fact
   People aiming to lower their LDL can still eat fat. Limit fat to 30% to 35% of your diet, and choose mostly monounsaturated or polyunsaturated fats. Limit saturated fat to 5% of your calories and avoid trans fats.

2. Myth
   High cholesterol can lower sex drive in women and can partially or completely block the arteries leading to a man’s penis, which can cause erectile dysfunction.

3. Myth
   The mix of fat in your diet is more important than high cholesterol in individual foods, such as lobster or eggs. In moderation, foods high in cholesterol are OK for most people.

4. Fact
   Total cholesterol numbers, including LDL and HDL, give a more complete picture of your risk. Also, the ratio of triglycerides to HDL may be as important a predictor for heart disease as the ratio of LDL to HDL.

Reviewed by
James Beckerman, MD
WebMD Medical Reviewer
Trouble with Statins?

Consider These Seven Alternatives to First-Line Cholesterol-Lowering Medications

By Sonya Collins

Most people struggling with high cholesterol can benefit from cholesterol-lowering statins. Unfortunately, these medications don’t work so well for about 3% to 4% of those who try them. For some, the drugs don’t do anything. For others, rare but serious side effects, including severe muscle pain and liver damage, make it impossible to continue on the drug.

People who don’t respond to statins or those who develop rare side effects might benefit from other medications, says Stefanie Ferreri, PharmD, a professor at University of North Carolina’s Eshelman School of Pharmacy.

When you talk to your doctor about alternatives to statins, it matters which part of your cholesterol reading you need to change. Statins are the most effective drugs to lower LDL, or “bad,” cholesterol, but some medications can lower triglycerides—another type of fat in your bloodstream. Triglycerides, like LDL, can get too high and may raise your risk for heart disease. Lowering them can help bring down your total cholesterol, too.

Other drugs might counterbalance bad cholesterol. “Sometimes when people can’t get their bad cholesterol down, we try to get their good cholesterol—or HDL—up,” Ferreri says. “The higher the better.” If you’re on a statin now, talk to your doctor before stopping it or any medication. And before you start a new one, make sure it’s safe to take along with your other medications. Here are seven medications that could work for you if statins aren’t an option.

1. **Cholesterol Absorption Inhibitors**

A new type of drug called selective cholesterol absorption inhibitors keeps your intestines from absorbing cholesterol from food. “It’s the closest prescription alternative to a statin. There are fewer side effects and less concern about the liver,” Ferreri says. “But they’re not as effective as statins.”

2. **PCSK9 Inhibitors**

Also a new drug, PCSK9 inhibitors ramp up the cholesterol-clearing process. Certain cells in your liver help remove cholesterol from your blood. This drug, given as a shot once or twice a month, extends the life span of those cells.
ACID-BINDING RESINS
Resins eliminate cholesterol in a different way. Your liver uses cholesterol to make a digestive acid called bile. Resins latch onto bile and prevent the body from using it during digestion. This pushes the liver to make more of the acid, which requires it to burn more cholesterol and leave less in your blood. But, Ferreri says, these drugs typically come in a bad-tasting powder or large, hard-to-swallow tablets that you have to take several times a day. “It can be really difficult for some people to stick to this medication.”

FIBRATES
While fibrates are not as good as statins at reducing bad cholesterol, they may be better at lowering triglycerides and raising good cholesterol. “If triglycerides are the specific component that’s troublesome for you, these are going to be a good alternative,” Ferreri says.

FIBER SUPPLEMENTS
Just like a fiber-rich diet can help combat cholesterol, psyllium—a fiber supplement—can help, too. “Studies show that psyllium reduces cholesterol if it’s taken as a supplement to a diet that is already rich in soluble fibers,” Ferreri says. Other studies show that psyllium supplements can help increase the benefits of other drugs, including statins and cholesterol absorption inhibitors.

OMEGA-3 SUPPLEMENT
Omega-3 fatty acids are another option. “They won’t lower LDL, but they’re great for lowering triglycerides and raising good cholesterol,” Ferreri says. As with niacin, you need high doses of omega-3 supplements to improve your cholesterol, and that can trigger side effects. Talk to your doctor first.

NIACIN
Like fibrates, niacin lowers triglycerides and raises good cholesterol, too. Avoid over-the-counter niacin supplements, though. Because supplements aren’t regulated, you can get different amounts in every dose. The prescription form is the safer option, but it still brings risks. To have an effect on your cholesterol, you need to take high doses of niacin, which can lead to serious side effects.

When you talk to your doctor about alternatives to statins, it matters which part of your cholesterol reading you need to change.
Cholesterol

UNDERSTAND HOW CHOLESTEROL CAN DAMAGE YOUR HEART OVER TIME

By Sharon Liao

Many people think of cholesterol as a bad thing, but it’s actually an important building block in every cell. Your body uses cholesterol to make membranes, tissue, hormones, and more. But too much cholesterol in your blood is a problem, leading to heart disease and a higher risk of heart attack. About 1 in 8 Americans has high cholesterol.

What Is Cholesterol?
Cholesterol is a waxy, fat-like substance. “Your body, especially the liver, makes about 80% of your cholesterol,” says cardiologist Nieca Goldberg, MD, medical director of the Joan H. Tisch Center for Women’s Health at NYU Langone Medical Center. The rest comes from foods you eat. Because cholesterol doesn’t dissolve in the bloodstream, it’s shuttled around by molecules called lipoproteins: low-density lipoprotein (LDL) and high-density lipoprotein (HDL). These two forms play very different roles.

The LDL, or “bad,” cholesterol can clog blood vessels, while HDL, or “good,” cholesterol “acts as a garbage truck that carts off excess cholesterol,” says Robert H. Eckel, MD, professor of medicine at the University of Colorado, Denver. For heart health, lower LDL and higher HDL levels are better.

The amount of each type in your blood is determined in part
by your genes, age, and gender. Lifestyle habits, such as exercise and diet, also play a role. For example, if you eat saturated and trans fats, those will drive up your LDL, while fiber-rich foods, such as produce and whole grains, lower it.

**How Does Cholesterol Harden Your Arteries?**

At healthy levels, LDL cholesterol does its job for your body and then leaves the bloodstream. But any extra LDL enters artery walls and triggers low-grade inflammation. (High blood pressure, smoking, and other blood fats called triglycerides can also contribute to this problem.)

As a result, white blood cells gather in the area in an attempt to fix the damage. “They try to gobble up the cholesterol, but aren’t successful,” Eckel says. Calcium and other cell materials get stuck in this white blood cell-cholesterol mixture, forming a plaque inside or on the surface of the artery wall.

These plaques don’t go away. Over time, they build, harden, and narrow the artery—a condition called atherosclerosis. Like gunk clogging a drainpipe, this slows blood flow to the organs. If your heart doesn’t receive enough oxygen-rich blood, you can develop angina. That’s chest pain or discomfort, especially during exercise and times of stress.

**How Plaque Harms the Heart**

The real danger occurs when these plaques break open. Stress in your blood vessels, such as the kind brought on by high blood pressure, cause these plaques to crack or split. The contents leak into the bloodstream, signaling platelets, which stop bleeding by clumping together, to flock to the scene. This creates a blood clot.

A clot can mostly or completely block an artery, preventing enough blood from reaching the heart. A piece of plaque itself can also break off. It can travel to a smaller blood vessel and clog it. When the heart doesn’t receive the oxygen and nutrients it needs, a heart attack happens: Part of your heart muscle becomes damaged or dies off and is replaced with scar tissue. “This damage is permanent,” Eckel says. Your heart may be weaker because it can’t pump as much blood.

**A Risk That Builds for Years**

This journey from high cholesterol to heart attack is a long one. It can take decades for cholesterol to accumulate in artery walls, Goldberg says. “This may begin as early as childhood.” But most people don’t realize that their health is in jeopardy until it’s too late since very few symptoms are obvious.

That’s a problem, because the longer you have high levels, the greater your odds of heart disease. One study found that people who had high cholesterol for 11 years or more were twice as likely to develop heart disease as those who had it for 10 years or less—even if their levels were the same.

While research proves this cholesterol/heart disease link, your personal risk can depend on your genes, age, gender, and lifestyle. Some people don’t develop as much plaque buildup, so high cholesterol has less of an effect. Others develop clots more easily, so they’re more vulnerable to a heart attack, Eckel says.

The bottom line: Cholesterol is one factor of many that determines the picture of your heart health.
EXERCISE SMAR T S

The Right Moves

HOW EXERCISE CAN HELP CONTROL CHOLESTEROL

By Jodi Helmer

When you’re diagnosed with high cholesterol, don’t be surprised if your doctor prescribes exercise along with cholesterol-lowering medications.

The combination is more effective for lowering cholesterol than either intervention on its own. Experts aren’t sure why, but research shows that exercise works.

Exercise has the biggest impact on lowering triglycerides and raising HDL (“good” cholesterol). It can also help lower LDL (“bad” cholesterol) an average of 10%, says Tina M. Kaufman, PhD, assistant professor of preventive cardiology at Oregon Health & Science University.

How much is enough?
The standard recommendation for overall health is to exercise at least 150 minutes per week, but to get a cholesterol-lowering effect, you’ll need to do at least 200 minutes of cardio per week—about 40 minutes a day, most days of the week.

“You don’t have to exercise for 40 minutes all at once,” Kaufman says. “Ten minutes four times a day will still allow you to achieve results.”

GET STARTED

NEW TO EXERCISE? HAVEN’T HIT THE GYM IN A WHILE? TO START—AND STAY ON TRACK—TINA M. KAUFMAN, PHD, AN EXPERT IN PREVENTIVE CARDIOLOGY, OFFERS THESE TIPS:
For maximum cholesterol-lowering benefits, aim for a moderate intensity. Walking briskly, jogging, swimming, or bicycling are all great heart-pumping options.

If you’re not sure what “moderate intensity” means, use the talk test: You should be slightly breathless but still able to carry on a conversation—with a little huffing and puffing.

Moderate intensity looks different for everyone. You might feel breathless during a slow walk around the block—and that’s OK. Go at your own pace.

**Do some heavy lifting, too.**
Although cardio should be your priority, muscle-building moves like weight lifting or body weight resistance training are important, too. Research shows that a regular strength-training routine can improve HDL.

**When to expect results.**
You won’t have to wait long to see the effects of exercise on cholesterol levels.

The impact on triglycerides is almost immediate. In just a few weeks, you can reduce the amount of these fats in your blood.

It takes a little longer to see an impact on LDL. Exercise will start to lower bad cholesterol in a few weeks to a month; cholesterol-lowering medication needs six to eight weeks to start working.

Cholesterol is influenced by a number of factors, including your age, weight, gender, and genes.

For that reason, Kaufman says, “exercise alone won’t guarantee lower cholesterol, but your odds are better if you incorporate fitness into your wellness plan.” Plus, you’ll reap other benefits like lower risk of heart disease and diabetes, stronger bones, and an improved mood.

**Get the green light**
Talk to your doctor before starting a new fitness routine.

**Go slow**
As your fitness level improves, increase your speed and distance.

**Mix it up**
Instead of committing to a single exercise, play the field. Do several activities like tennis, group exercise classes, and online workout videos to keep exercise interesting.

**Set a schedule**
Exercise should be part of your routine; add it to your schedule and honor the appointments.

**Gather a group**
You don’t have to walk on a treadmill solo. Sign up for a fitness class or join a walking group to make exercise more social.

**Embrace technology**
Fitness trackers are a great way to follow your progress. You’ll get reminders to keep moving and earn virtual encouragement for hitting your goals.
You take the statin drug your doctor prescribed faithfully, but your LDL or “bad” cholesterol still hovers in an unhealthy range. The solution? To make the most of your medication, you have to do your part by making smart food choices.

Focus on “functional foods,” says Sonya Angelone, MS, RDN, a registered dietitian and specialist in cardiovascular nutrition. Those are heart-healthy foods that have a beneficial effect above and beyond just basic nutrition. “And I recommend eating the food itself, rather than getting the nutrient through a supplement,” she says. When making your low-LDL shopping list, Angelone says, add plenty of these:

**APPLES**

Apples contain a particular kind of soluble fiber called pectin that research shows can lower LDL cholesterol levels. In one study, healthy middle-aged people who ate one apple per day for four weeks lowered their LDL cholesterol levels by 40%.

**ARTICHOKE**

“Artichoke leaf extract has been found to lower LDL cholesterol by 23% over a six-week period,” Angelone says.

**BEANS**

“Beans are good sources of both soluble fiber, which binds to cholesterol to help your body get rid of it, and insoluble fiber, which nourishes a healthy balance of bacteria in your gut to metabolize cholesterol,” she says. Eat at least half a cup of beans per day. Navy, kidney, fava, pinto—they’re all good.

**NUTS**

Nuts help clear LDL cholesterol from the bloodstream. “They have a lot of calories, so don’t overdo it, but if you add 1 to 2 ounces of nuts per day to your diet, they help lower your cholesterol without weight gain,” Angelone says. An ounce of nuts is about 23 almonds, for example.

**OATS**

Oats have the highest amount of soluble fiber, which helps block the absorption of cholesterol, of any whole grain. Steel-cut oats, the least-processed kind, also contain a
kind of insoluble fiber called beta-glucan that improves cholesterol levels and blood sugar as well. You’d need 3 cups of Cheerios to get the same fiber benefit as from 1 cup of steel-cut oats.

**BARLEY**
Barley also has plenty of beta-glucan. Substitute it for rice in your soups.

**FATTY FISH**
Choose healthy fats—particularly the kind that increase your levels of omega-3 fatty acids. Stock up on salmon, sardines, halibut, and albacore tuna, and bake or broil fish—don’t fry it.

**GREEN AND BLACK TEAS**
These teas are rich in polyphenols. “Studies have found that LDL cholesterol levels are lowered by about 16% after people take a tea extract,” Angelone says. Dark berries like grapes, blueberries, and cranberries are also packed with polyphenols.

To make the most of your medication, you have to do your part by making smart food choices.

One eating plan that combines many of these heart-healthy foods is called the Portfolio diet. Studies show that this Mediterranean-style eating plan can lower LDL by between 13% and 30%. The four key points:

1. Substitute soy-based foods for meat whenever possible.
2. Get at least 20 grams of soluble fiber (oats, barley, psyllium, and certain fruits and vegetables) every day.
3. Replace butter and margarine with plant sterol spreads like Benecol or Take Control.
4. Eat a handful of nuts daily.

“Overall, a heart-healthy diet is one that decreases inflammation: whole foods, lots of soluble fiber, fresh and plant-based foods, with limited amounts of red meat and oil,” Angelone says. “Of course, a diet like this is also likely to help many people lose weight, which in turn has its own benefits for your cholesterol levels. Weight loss lowers your LDL and raises your healthy HDL cholesterol levels.”

And you don’t need to strive for perfection, she adds: “Studies show that the greatest cardiac benefit from weight loss comes in that first 10% loss.”

**KITCHEN DOs TO LOWER CHOLESTEROL**

**DO Use a slow cooker.**
Make steel-cut oatmeal overnight and have it ready in the morning, or have a hearty chicken, barley, and bean soup waiting after work.

**DO Use polyunsaturated fats when cooking.**
This means oils like corn, cottonseed, safflower, and sunflower oil. They’re rich in omega-3 fatty acids.

**DO Eat fresh.**
The longer your fresh veggies sit in your fridge or on the counter, the more their nutrients degrade.

**DO Plan your meals.**
Take 10 minutes before heading to the grocery store to think about how you’ll fit LDL-lowering foods into the week’s meals. “If you don’t plan to eat well, it won’t happen,” Angelone says.
**Quinoa Black Bean Burrito Bowls**

This easy-to-assemble dish features several cholesterol-busting ingredients that double as pantry staples. Black beans and quinoa are rich in soluble fiber, canola oil has LDL (“bad” cholesterol)-lowering monounsaturated fats, and kale has lutein, which may also help lower LDL.

**INGREDIENTS**
1. cup quinoa
2. tbsp canola oil
3. cups kale, ribs removed, chopped
4. large bell peppers (any color), diced
5. large cloves garlic, minced
6. tsp cumin
7. tsp coriander
8. tsp oregano
9. tsp salt (or to taste)
10. 15-oz can black beans (ideally no- or low-salt), drained and rinsed
11. cilantro, minced (optional)
12. avocado, diced (optional)
13. grated cheddar cheese (optional)

**MAKE IT (SERVES 4)**

Rinse quinoa in a fine-mesh sieve. Put rinsed quinoa and 2 cups water in a small saucepan and bring to a boil. Cook like pasta until quinoa unfurls—about 12 minutes. Drain in sieve and shake out excess water. Return to pot (off heat) and cover a few minutes. Meanwhile, heat canola oil over medium-high heat in a large frying pan. Add kale and peppers and cook several minutes, until kale starts to wilt and peppers begin to soften. Add garlic, spices, and salt, and cook a couple more minutes. Add beans and heat through. To serve, divide quinoa and veggie-bean mixture between bowls and top with cilantro, avocado, and cheese, if using.

**PER SERVING** (without optional toppings) 381 calories, 16 g protein, 58 g carbohydrate, 11 g fat (2 g saturated fat), 13 g fiber, 4 g sugar, 114 mg sodium. Calories from fat: 25%
Cholesterol

Grilled Fish Tacos With Avocado Crema

Grilled fish instantly gives these tacos a heart-healthy boost. The flavorful crema has two more cholesterol-fighting secret weapons: avocado, loaded with fiber and monounsaturated fats, and nonfat plain Greek yogurt, which stands in for sour cream.

INGREDIENTS

FISH TACOS
1 lb firm white fish, such as cod
1 tbsp olive oil
1 tsp ground cumin
1 tsp ground coriander
½ tsp smoked paprika
1 tsp oregano
½ tsp garlic powder
½ tsp salt
1 tbsp lime juice

AVOCADO CREMA
1 avocado
½ cup fat-free plain Greek yogurt
2 tbsp lime juice
½ cup cilantro
4 corn-whole wheat tortillas

TOPPINGS
½ head of cabbage, shredded
cucumber slices (optional)
radish slices (optional)
cilantro (optional)
hot sauce (optional)
limes (optional)

MAKE IT (SERVES 4)
Marinate fish in olive oil, spices, salt, and lime juice at least one hour and up to overnight. Prepare avocado crema: Blend avocado, yogurt, lime juice, and cilantro in a mini food processor or blender. Brush grill with oil and light grill to a medium-high flame. Remove fish from marinade, shaking off and discarding excess. Grill fish about 3 minutes on each side (should be able to flake it with a fork when done). Warm tortillas on the grill. Assemble tacos: divide fish among tortillas and serve with crema, cabbage, and optional toppings.

PER SERVING 398 calories, 35 g protein,
31 g carbohydrate, 17 g fat (4 g saturated fat), 64 mg cholesterol,
9 g fiber, 6 g sugar, 672 mg sodium. Calories from fat: 39%
Beef & Broccoli Stir-Fry

Red meat doesn’t have to be off the table when you’re eating to lower your cholesterol. Just choose lean cuts and healthy preparations, such as this stir-fried flank steak. Broccoli and red bell peppers are both loaded with fiber, which may also help lower cholesterol. Serve with brown rice for a well-rounded, heart-healthy meal.

**INGREDIENTS**
- 12 oz flank steak, trimmed and cut into ¼” wide, 1” long strips
- 1 tbsp fresh ginger, finely diced or grated
- 2 large cloves garlic, peeled and minced
- 1½ tbsp low-sodium soy sauce
- ¼ cup orange juice
- ¼ cup chicken stock or low-sodium chicken broth
- 4 cup broccoli florets
- 2 tbsp + 1 tsp canola oil
- 1 red bell pepper, cut into ¼” wide strips
- black pepper to taste

**MAKE IT (SERVES 4)**

Combine steak with ginger, garlic, soy sauce, orange juice and 2 tbsp chicken stock. Set aside (steak can marinate several hours ahead of time). Steam broccoli until bright green (about 3 minutes) and remove from heat. In a wok or large sauté pan, heat 1 tbsp canola oil over medium high heat. Remove steak pieces from marinade, brushing off garlic and ginger and reserving marinade. Add steak to pan and cook until starting to brown (about 3 minutes). Remove steak from the pan and set aside. Add 1 tbsp canola oil to pan, heat, and add pepper strips. Cook for 1 minute. Add steamed broccoli florets and another teaspoon of oil if it starts to get dry. Cook for another 30 seconds. Add marinade, along with remaining 2 tbsp of chicken stock and cooked steak (if it looks like it needs more sauce, add additional chicken stock). Stir and continue to cook for another 1–2 minutes, until peppers and broccoli are tender.

**PER SERVING** (does not include rice)
- 304 calories, 29 g protein, 11 g carbohydrate, 16 g fat (4 g saturated fat), 47 mg cholesterol, 3 g fiber, 5 grams sugar, 479 mg sodium. Calories from fat: 46%
Smoky Mediterranean Beet Burgers

These smoky veggie burgers are so flavorful even meat-lovers will swoon. Walnuts, oats, lentils, and brown rice provide lean protein, lots of fiber, and LDL-lowering monounsaturated oils.

INGREDIENTS

6 100% whole wheat burger buns
(140 calories or less)

BURGERS

1 tbsp canola oil
1 small onion, peeled and thinly sliced
3 cloves garlic, minced
1 medium beet, peeled
1 tsp smoked paprika
¼ tsp mustard powder
¼ tsp coriander seeds
½ tsp kosher salt
1 cup cooked short-grain brown rice
1 cup cooked green lentils
1 cup walnuts
2 tbsp golden raisins
1 egg
¼ cup oats

YOGURT TOPPING

½ cup fat-free plain Greek yogurt
3 oz feta cheese
1 tbsp fresh mint, chopped

MAKE IT (SERVES 6)

Preheat oven to 375°F. In a small sauté pan, heat oil and cook onion over medium-low heat until soft and golden. Add garlic, and cook two more minutes. Grate beet using box grater or the grater attachment in a food processor. To a food processor fitted with a blade attachment, add grated beet, onion/garlic mixture, spices, rice, lentils, nuts, and raisins. Pulse until combined. Add egg and pulse again. Add oats and pulse a couple times. Let sit in the fridge 10 minutes to set. Meanwhile, prepare yogurt topping by combining ingredients and set aside. Form beet mixture into six patties, approximately ¾ cup each (kitchen gloves are helpful here) and place on prepared pan. Bake until heated through (about 10–12 minutes). Then, turn on the broiler and broil for two minutes on each side. Place burgers on toasted buns and divide yogurt topping among burgers.

PER SERVING 538 calories, 25 g protein, 65 g carbohydrate, 21 g fat (3 g saturated fat), 41 mg cholesterol, 17 g fiber, 9 g sugar, 665 mg sodium. Calories from fat: 36%

Reviewed by
Kathleen Zelman, RD
WebMD Medical Reviewer
Cholesterol

BY THE NUMBERS

Facts and stats about its effects on health

By Heather Hatfield

31 million
Number of Americans with total cholesterol levels greater than 240 mg/dL

2,100
Number of Americans who die from heart disease each day

5%–55%
Percentage that cholesterol medications can lower LDL levels

20%–30%
Percentage by which lifestyle changes—healthy diet, weight, and exercise—can lower LDL levels

73.5 million
Number of Americans with high LDL

Every 4 to 6 years
How often you should get your cholesterol checked—and more often if your risk of heart disease is high

48%
Percentage of people getting treatment for high LDL

#1
LDL is the No. 1 source of cholesterol buildup and blockage in arteries

2X
Increased risk of heart disease if total cholesterol (the measure of LDL, HDL cholesterol, and triglycerides) is high

Reviewed by James Beckerman, MD
WebMD Medical Reviewer

Sources: CDC, NIH

Fewer than 1 in 3
Number of adults with high LDL who have the condition under control