



THE RIGHT STUFF

When vegetables and fruit, omega-3-rich fish, and whole grains and legumes funnel through your system, your cholesterol levels are more likely to stay balanced.

take charge of your

cholesterol

What you don't know about this heart-disease risk factor can indeed hurt you. Find out the latest news—and discover what you can do to protect your health

A MAN LOUNGES ON A FLOAT in a swimming pool, drink in hand—oblivious to the shark fin right behind him. “Living with high cholesterol,” reads the ad, “you could be surprised by what’s lurking beneath.”

When you want to motivate people, it helps to scare them. It also helps to simplify the solution. For years now, pharmaceutical companies have done just that: hyped up and dumbed down the cholesterol problem to boost their bottom line. To be sure, the general message that high cholesterol is bad has raised the public’s awareness about cardiovascular health. Many of us know our numbers; even if we don’t, we’re aware that we should know them. Yet despite strong messages and powerful drugs, cardiovascular disease remains the number one killer of U.S. adults. Why? Among other factors, cholesterol is a vastly more com-

plex issue than the commercials let on. “The public thinks that if their LDL cholesterol is not high, they’ll be fine in regards to heart disease,” says Robert Superko, M.D., chair of molecular, genetic, and preventive cardiology at the Fuqua Heart Center of Atlanta. “And that is a great misconception.”

To bring you up to date on recent developments, we talked with four renowned cardiologists and asked them to give us the best and latest information on “good” and “bad” cholesterol, other lipoproteins, and related testing—as well as natural methods for helping to keep your lipids in balance. Though cholesterol has proven more complicated than most of us realize, one fact hasn’t changed: Healthy living remains your best defense against heart disease—and there is no time like the present to get on track.

BY CAROLYN EDY

PHOTOGRAPHY BY JAMES WORRELL

THE LATEST NEWS

Several developments have emerged in the evolving world of cholesterol research. Here's what you need to know.

Spotlight on HDL

Produced by our bodies and absorbed from the food we eat, cholesterol is a waxy, fat-like substance that's vital for our brain function, hormone production, cellular activity—every aspect of life.

When it comes to heart health, cholesterol is a double-edged sword. Most of us know by now that there are two main cholesterol carriers with very different roles. Low-density lipoproteins (LDL) transport cholesterol to the body's tissues and arteries. At high levels, LDL leads to plaque buildup in the arteries; this can lead to a sudden blockage or narrowing in an artery that may slow or stop blood flow to the heart (hence LDL's reputation as “bad” cholesterol). High-density lipoproteins (HDL), which carry cholesterol back to the liver to be removed from the body, protect against heart disease (and are thus called “good” cholesterol). “It's kind of the yin and the yang of atherosclerosis,” says Superko. “Cholesterol is always being deposited in the artery and always being taken out.”

Despite the fact that HDL's importance has been known for two decades, it's still upstaged by “bad” cholesterol. This isn't surprising, notes Superko, since drugs to lower LDL are effective, and they bring in upwards of \$20 billion to pharmaceutical companies each year—creating a large incentive for further research and development, not to mention the ad campaigns. Drugs for raising HDL, on the other hand, have largely proven unsuccessful; clinical trials of one such drug, torcetrapib, were halted last year because it seemed to increase the risk of death.

Whereas until now the majority of data has revolved around LDL, that's changing, says Elsa-Grace Giardina, M.D., a cardiologist and director of the Center for Women's Health at Columbia University. “Recently we've seen that there are populations who have low ‘good’ cholesterol, and if you raise the good cholesterol in that population, you can actually make them live longer.” Every 1-mg increase in HDL appears to correlate with a 2 to 3 percent drop in risk of heart disease—similar to the results seen for every 1-mg decrease in LDL.

THE BOTTOM LINE Both LDL and HDL are critically important for heart health. Your LDL to HDL ratio should be about 3.5 to 1, ideally, with an HDL level above 60 mg. And lifestyle is essential to both levels. While dietary changes can help lower LDL, exercise and maintaining a healthy weight are key for raising HDL. (See “Healthy Heart Action Plan,” page 116.) In general, women tend to have higher HDL numbers than men, but postmenopausal women need to stay especially vigilant. “After you've

gone through menopause, good cholesterol decreases,” says Giardina. If you smoke, you can raise your HDL significantly just by quitting.

Rather than another prescription, the best pill for boosting HDL may be a vitamin. “Niacin (vitamin B3) is the most effective treatment at raising HDL,” says Stephen Devries, M.D., preventive cardiologist at the Center for Integrative Medicine at Northwestern Memorial Hospital. Studies show that taking large doses (1 to 2 grams) of niacin daily can raise HDL by up to 30 percent. Due to potential side effects—flushing, in which your skin turns red and you feel very warm, and liver problems—it's essential to work closely with a doctor.

Size Matters

If only cholesterol were as simple as one hero and one villain. In fact, scientists have identified several types of LDL and HDL particles, along with other lipoproteins, like lipoprotein-a, or Lp(a). Physicians don't generally look this closely at their patients' cholesterol makeup, says Superko; due to a lack of standardization in labs, the tests aren't always reliable and aren't yet recommended for routine screening. But for high-risk individuals, especially those with a family history of heart disease, preventive cardiologists often recommend them.

LDL and HDL particles come in different sizes, from small, dense particles to lighter, larger particles (think marbles versus ping pong balls), with bigger particles being the healthiest. “Your cholesterol numbers can look good, but if your cholesterol is made up of the small particles, you could still be at risk,” notes Devries. As for Lp(a), a 2006 study found that women who had very high levels as well as high LDL levels were at greater risk for heart disease than women with high LDL and low Lp(a).

THE BOTTOM LINE For now, the take-away for most of us is the same as for any other aspect of cholesterol: Good numbers could belie hidden problems and are no excuse for neglecting other aspects of your health. If you have a family history of heart disease, talk to your doctor to identify your risks and determine whether you should consider additional lipid tests.

Statins in Perspective

Among the most widely prescribed drugs in the world, statins are used by 10 to 15 percent of American adults over age 20. While they have a good record for reducing heart attack and stroke risk, Devries notes that “they're never a complete solution.” What's more, people with a lower risk of heart disease can often be treated with natural approaches, including diet, exercise, and, under a doctor's supervision, supplements. *continued on page 118*

CATCHING HEART DISEASE EARLY

Cholesterol's importance shouldn't take your focus off other risk factors for heart disease, say experts. Some, like obesity and family history, can be readily identified. You can track others, listed below, with the help of your doctor.

RISK FACTOR **Inflammation**

WHAT TO KNOW Chronic, low-level inflammation can lead to atherosclerosis (and other conditions).

CONSIDER THIS Ask your doctor if a C-reactive protein test, which reveals inflammation levels, is right for you.

RISK FACTOR **Homocysteine**

WHAT TO KNOW Too much homocysteine, an amino acid found in the blood, may increase risk.

CONSIDER THIS A blood test can measure homocysteine levels. If yours is high, adding B vitamins to your diet may help. Discuss with your doctor.

RISK FACTOR **High blood pressure**

WHAT TO KNOW A third of adults have high blood pressure (above 120/80 mm Hg). Even small decreases can reduce heart-disease risk by more than 10 percent.

CONSIDER THIS Keep track of your blood pressure. Limit sodium and alcohol, exercise regularly, and maintain a healthy weight.

RISK FACTOR **Insulin resistance**

WHAT TO KNOW People with this pre-diabetic condition, marked by elevated blood sugar levels, face a greater risk of heart disease.

CONSIDER THIS Ask your physician which blood sugar tests make sense for you. Control your blood-sugar levels through diet and exercise.

RISK FACTOR **Triglycerides**

WHAT TO KNOW The latest news is that elevated *nonfasting* levels of these fats may best assess risk.

CONSIDER THIS A standard lipid test measures triglyceride levels. Limit alcohol, sugar, and unhealthy fats; exercise regularly; and maintain a healthy weight.

HEART SMARTS

Absence may make the heart grow fonder, but exercise—like jumping rope—makes it stronger.



Healthy Heart ACTION PLAN

It takes a whole-life approach to maintain optimal cholesterol levels—and a strong heart. Start by following these steps.

Know your numbers

Most experts agree on the following levels for the general population; your doctor can help you interpret your numbers, taking any added risk factors into account.

TOTAL CHOLESTEROL

Too High	Above 240 mg/dL
Ideal	Below 200 mg/dL

LDL CHOLESTEROL

Too High	Above 160 mg/dL
Ideal	Below 100 mg/dL

HDL CHOLESTEROL

Too Low	Below 50 mg/dL (women) Below 40 mg/dL (men)
Ideal	Above 60 mg/dL

TRIGLYCERIDES

Too High	Above 200 mg/dL
Ideal	Below 150 mg/dL

Eat a rainbow

“Colorful vegetables and fruits are where the majority of antioxidants, isoflavones, and other phytochemicals exist,” says Linda Van Horn, Ph.D., a clinical nutrition epidemiologist at Northwestern University Feinberg School of Medicine. They have vast benefits for the heart, so aim for eight servings daily. Avocados, artichokes, and grapefruit may particularly benefit heart health. Many herbs and spices—garlic, ginger, turmeric—also have anti-inflammatory, heart-healthy benefits.

Drink up

Alcohol has been associated with higher HDL cholesterol levels—“and red wine contributes antioxi-

dants,” Van Horn says. Limit yourself to a glass of wine a day, or grab a handful of grapes instead—that way you get the soluble fiber, too. Green tea seems to lower cholesterol and triglyceride levels and raise HDL levels; aim for at least a cup a day.

Get your fiber

Soluble fiber reduces the risk of heart disease by blocking cholesterol and fats from being absorbed through the wall of the intestines into the bloodstream. Increasing daily soluble fiber intake can reduce LDL cholesterol by 5 to 10 percent. Good bets include psyllium seeds, oatmeal, barley, citrus fruits, Brussels sprouts, and legumes like lima and kidney beans.

Find the best fats

Monounsaturated fats, such as olive and canola oils, rank among the heart-healthiest fats. Among the polyunsaturated fats, walnuts and almonds are good sources of healthy fats and seem to benefit cholesterol levels as well. Additionally, aim for two servings of fish a week, especially fatty fish such as wild-caught salmon, mackerel, or herring, which are high in omega-3 fatty acids and may have anti-inflammatory and LDL-lowering properties.

It's just as important to avoid the wrong fats. Limiting red meat, poultry skin, and full-fat dairy products will lower the amount of saturated fat and cholesterol you consume, helping to keep your LDL levels in check. And since

trans fats, found in many processed and fried foods, can up your risk of heart disease even at low levels, avoid them altogether.

Limit refined carbs

High in calories and low in nutrients, refined carbohydrates can raise blood sugar levels. Avoid sugary foods and favor whole grains over processed foods to help lower your risk of diabetes, your levels of triglycerides, and the inflammation in your body.

Maintain a healthy weight

Nearly two-thirds of U.S. adults are overweight or obese. For optimal health, keep your body mass index, or BMI, between 18.5 and 24.9. (Visit cdc.gov/bmi.) Losing extra weight, even a few pounds, helps to raise HDL levels and lower triglycerides and LDL. Combining healthful eating with increased physical activity is the most effective way to lose weight.

Keep moving

The current recommendation for exercising for overall health—at least 60 minutes a day of moderate activity—should also help you improve your HDL levels. Besides maintaining healthy cholesterol levels, regular exercise helps you maintain a healthy weight while lowering your blood sugar, blood pressure, triglycerides, inflammation, and stress levels.

If an hour a day sounds daunting, remember that any increase in physical activity can improve your health. In a recent study, a group of sedentary, obese postmenopausal women cut their risk of heart disease in half by walking 72 minutes per week. “You don’t have to go to the gym; you don’t need to break into a heavy sweat. What you need to do is to walk,” says Elsa Grace Giardina, M.D.

Relax—and laugh

We know ongoing stress raises blood pressure, but it can also

raise cholesterol levels—both immediately after a stressful event and over the long term. “There’s a direct link between stress and lipid abnormalities,” notes Mimi Guarneri, M.D. One British study found that those more susceptible to stress had increased levels of cholesterol. To improve the way your mind and body respond to stress, try exercise as well as relaxation techniques, such as meditation and yoga. For a really quick fix, watch a comedy. In one study, people who watched a funny movie had a 22 percent average increase in blood flow while those who watched a stressful movie had an average decrease in blood flow of 35 percent.

Consider supplements

Supplements can play a role in lowering cholesterol, says Stephen Devries, M.D., but it’s impor-

tant to talk with your doctor before taking one. Special risks exist for anyone taking medication or undergoing surgery. Taking 1 gram or more of fish oil daily can lower your triglyceride levels, reduce inflammation, and act as a mild blood thinner. High doses of niacin, used only under physician supervision, can have dramatic effects on cholesterol levels. Plant sterols and stanols, which can help reduce LDL and total cholesterol but have little effect on HDL, are available in pill form or are often added to foods. As for red yeast rice, a natural statin, Devries says it may be “the most potent but least well known of the over-the-counter products for lowering cholesterol.” But he stresses the importance of talking to your doctor before considering it, as it can cause liver and muscle problems for some people.

If an hour a day sounds daunting, remember that any increase in physical activity can improve your heart health.

GOOD MEDICINE

Yoga, fiber-rich foods, and even laughter can help your heart.



Superko points out that the glowing statistics on statins can be misleading. When you hear that in a study of 4,000 people, there was a 25 percent reduction in heart attacks due to statins, you might assume that 1,000 people were saved. But the 25 percent is actually a *relative* risk reduction, says Superko, meaning that of the patients who would have had a heart attack, 25 percent won't. If, for example, 400 people had heart attacks in the placebo group, then 300 had a heart attack in the statin group. In other words, 100 people—not 1,000—were saved. “A 25 percent relative risk reduction with cholesterol-lowering alone helps a few people, but it misleads an awfully large number of people into thinking they're safe when they're not,” he says.

The latest controversy surrounding statins is the new ultra-low levels recommended for people at high-risk for heart disease—levels difficult to attain without the use of prescription drugs. Whereas an LDL level below 100 was once considered optimal for those at high-risk, the new level to shoot for is 70. “However, you can't extrapolate that to everyone,” notes Devries. “It doesn't mean that everyone should be at that level.”

THE BOTTOM LINE If you take statins, remember that they're no substitute for a healthy lifestyle. And talk to your doctor about a combination approach: Recent studies indicate that the relative risk reduction goes up to 90 percent when physicians combine statins that lower LDL levels with high doses of niacin, which raises HDL levels.

BEYOND CHOLESTEROL

As research continues to develop, experts agree that heart health—and heart disease—encompass far more than cholesterol. Too often, people think if they control their cholesterol they have nothing else to worry about, stresses Mimi Guarneri, M.D., founder and medical director of the Scripps Center for Integrative Medicine. “But cholesterol is just a piece of the puzzle,” she notes.

The past decade has seen a number of studies showing the importance of conditions such as inflammation and insulin resistance, both of which increase your risk of heart disease, even independently of cholesterol levels. (Check out “Catching Heart Disease Early” on page 115.)

Here, too, there's good news. The lifestyle “prescription” for healthy cholesterol levels—to eat well, move often, and reduce stress—improves many other heart-disease risk factors, too. And the benefits go on. A heart-healthy lifestyle “will not only help you live longer,” says Devries. “It will help you lead a fuller, richer life.”

Take a Bite Out of Your Cholesterol

Eating the right foods—and omitting the wrong ones—can help lower LDL and total cholesterol. To that end, we created a day's worth of meals that incorporate foods high in soluble fiber and omega-3 fatty acids, and low in saturated fat. And did we mention they taste great, too?

RECIPES BY SANDRA GLUCK

Warm Barley Cereal With Dried Cherries

SERVES 4

PREP TIME: 5 MINUTES TOTAL TIME: 25 MINUTES

Look for omega-3-rich flax meal alongside the flaxseeds in your natural-foods store—or grind your own. Once opened, store flax in the refrigerator. Since milk contains saturated fat, we chose to cook the high-fiber barley with almond milk instead.

- 1 quart unsweetened almond milk
- 1¼ cups quick-cooking barley
- 2 tablespoons ground flax meal
- ¼ teaspoon salt
- ½ cup dried cherries or cranberries
- ¼ teaspoon ground cinnamon
- 2 to 3 tablespoons turbinado or brown sugar, plus more for serving (optional)
- 1 cup fresh raspberries

1. In a large saucepan, stir together 3½ cups almond milk, barley, flax meal, and salt over medium heat. Bring to a simmer and cook 10 minutes, stirring frequently. Stir in dried cherries and cinnamon and continue cooking, stirring frequently, until cereal is tender and creamy, about 5 minutes more.
2. Remove from heat and add sugar to taste. Divide among bowls and drizzle remaining ½ cup almond milk over top. Serve topped with raspberries and, if desired, additional sugar.

PER SERVING: 320 calories; 8 g protein; 5 g fat; 63 g carb; 10 g fiber.

RISE AND SHINE
For a heart-healthy
breakfast, add
flax meal, berries,
and cinnamon to
warm barley cereal.





BREAKFAST
Warm Barley Cereal With Dried Cherries



LUNCH
Two-Bean Vegetarian Chili

Two-Bean Vegetarian Chili

SERVES 4

PREP TIME: 20 MINUTES TOTAL TIME: 45 MINUTES

Because they're high in soluble fiber, beans are a cholesterol fighter's best friend. We like the black bean and chickpea combination, but feel free to use your favorites.

- 1** tablespoon olive oil
- 1** large onion, coarsely chopped
- 3** cloves garlic, minced
- 1** pound butternut squash, peeled, seeded, and cut into ½-inch chunks
- 1** red bell pepper, ribs and seeds removed, cut into 1-inch chunks
- ¼** teaspoon chipotle chile powder
- Coarse salt and ground pepper**
- 1** can (14.5 ounces) stewed tomatoes in juice
- 1** can (19 ounces) chickpeas, drained and rinsed
- 1** can (19 ounces) black beans, drained and rinsed
- ½** cup chopped cilantro
- Lime wedges for serving**

1. In a Dutch oven or 5-quart saucepan with a lid, heat oil over medium. Add onion and garlic and cook, stirring occasionally, until tender, 5 to 7 minutes. Add squash, bell

pepper, and chile powder; season with salt and pepper and cook, stirring 1 minute. Add ½ cup water. Cover and simmer until vegetables are crisp-tender, about 7 minutes.

2. Stir in tomatoes and their juice, breaking them up with a spoon; add chickpeas, black beans, ¼ cup cilantro, and ½ cup water. Bring to a boil. Reduce to a simmer, partially cover, and cook until lightly thickened, about 20 minutes.

3. Season with salt and pepper. Stir in remaining cilantro and spoon into serving bowls. Serve with lime wedges.

PER SERVING: 448 calories; 21 g protein; 7 g fat; 80 g carb; 19 g fiber.

Granola-Almond Pear Crunch

SERVES 1

PREP TIME: 5 MINUTES TOTAL TIME: 5 MINUTES

This dish proves that snacks don't need tons of sugar to be satisfying and taste great. The pear provides heart-healthy antioxidants, the almond butter has "good" mono-unsaturated fats, and the granola adds fiber.

- 1** tablespoon fresh lemon juice
- 1** ripe Bartlett (red or regular) pear, cored and sliced lengthwise into 8 wedges
- 2** tablespoons almond butter
- ¼** cup granola



SNACK

Granola-Almond Pear Crunch

Drizzle lemon juice over sliced pear. Spread one side of each wide bottom of pear wedge with almond butter. Place granola in a bowl and nestle pears, almond-butter-side down, in the granola.

PER SERVING: 385 calories; 7 g protein; 21 g fat; 50 g carb; 8 g fiber.

Hoisin-Glazed Black Cod With Bok Choy

SERVES 4

PREP TIME: 15 MINUTES TOTAL TIME: 30 MINUTES

Black cod, also known as sablefish, offers a delicious helping of heart-friendly omega-3 fatty acids. Bok choy, celery, and scallions bring antioxidants and fiber to the table. The hoisin mixture, essentially a quick barbecue sauce, complements the richness of the fish.

2 tablespoons olive oil

1 piece fresh ginger (3 inches), peeled, thinly sliced, then cut into very thin matchsticks

3 cloves garlic, thinly sliced

1 head bok choy (1½ pounds), sliced crosswise into 1-inch wide pieces, greens and stalks separated

2 celery stalks, quartered lengthwise and cut into 2-inch lengths

Coarse salt and ground pepper

1 bunch scallions, trimmed, cut into 2-inch lengths

3 tablespoons hoisin sauce

1 tablespoon ketchup

1½ teaspoons Dijon mustard

1 teaspoon fresh lemon juice

4 skinless black cod fillets (5 ounces each)

1. In a Dutch oven or 5-quart saucepan, heat oil over medium. Add ginger and garlic; cook 1 minute until fragrant. Add bok choy stalks and celery; season with salt and pepper and cook, stirring frequently, until crisp-tender, 5 to 7 minutes. Add scallions and cook until wilted, about 3 minutes more.

2. Heat broiler with rack 4 inches from heat. In a small bowl stir together hoisin, ketchup, mustard, and ½ teaspoon lemon juice. Place fish on a broiler pan or broiler-proof rimmed baking sheet. Season with salt and pepper. Brush tops with hoisin mixture. Broil until fish is glazed and opaque throughout, 5 to 7 minutes.

3. Add remaining lemon juice to greens. Spoon vegetables on four plates and top with fish fillets. Serve immediately.

PER SERVING: 228 calories; 26 g protein; 8 g fat; 13 g carb; 3 g fiber.



DINNER

Hoisin-Glazed Black Cod With Bok Choy