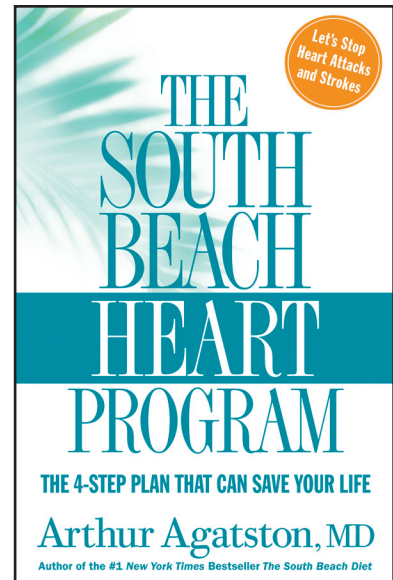


WHAT SIZE IS YOUR CHOLESTEROL?

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You may think that the title of this article is a mistake and that I meant to say, “What *Number* Is Your Cholesterol?” But the fact is that the *size* of your cholesterol is just as important as the total number. If that surprises you, there is a good chance that much of what you *think* you know about cholesterol is wrong and that what you *don't* know about cholesterol could be killing you.

Luckily, there are now tests that can determine the size of your cholesterol and whether it is a problem. And there are steps you can take to do something about it if it is. As I explain in *The South Beach Heart Program*, the earlier you know where you stand in terms of your risk for heart disease, the greater your chance of preventing a heart attack or stroke in the future.

Before I go into how you can find out the size of your cholesterol, let me give you a little background on cholesterol in general.

THE LOWDOWN ON CHOLESTEROL

You may wonder why, if cholesterol is so bad for you, it is present in your body in the first place. The answer is that cholesterol is not all bad and is, in fact, necessary for life.

Your liver manufactures cholesterol for a reason: It is essential for the production of cell membranes and sex hormones, such as estrogen and testosterone. We also obtain cholesterol from animal food sources, such as dairy and meat. (Plant foods like fruits, vegetables, and legumes contain no cholesterol.) Although cholesterol is essential to life, we don't need very much of it to keep our bodies running well. Our cells take whatever cholesterol is necessary for maintenance and cell repair and store the excess for future use. The problem is that many of us eat a diet that is too high in saturated fat and trans fats, and this can stimulate the liver to produce more cholesterol than the body needs.

A patient recently asked me, “What’s the difference between good and bad cholesterol? Isn’t it all the same when it’s building up in my arteries?” The answer is that it’s not the cholesterol itself that is good or bad, but the particles that carry it. These particles are called *lipoproteins* (the *lipo* is short for *lipid*, which means *fat*). High-density lipoprotein (HDL) and low-density lipoprotein (LDL) are two of them. It’s the protein part of the lipoprotein particle that acts like a shuttle bus, transporting the cholesterol (and other fats like triglycerides) through your bloodstream to where they are used, stored, or excreted by the body.

Lipoproteins are necessary for transporting fats because fat is not soluble in water or in blood. As it turns out, it’s LDL, the so-called “bad” cholesterol, that is doing a lot of the shuttle bus driving. You’d think that this job would make LDL “good.” But what makes LDL “bad” is that in excess it can cause us trouble. All cells have special receptors, or binders, that latch onto LDL, pulling it into the cells, where it is used as needed. When these cells have had their fill of cholesterol, they stop making receptors, which allows the rest of the LDL to stay in the bloodstream. Some of this excess LDL deposits its cholesterol “baggage” in our artery walls—including those of the heart—resulting in the formation of soft atherosclerotic plaques.

The job of clearing the blood vessels of this excess LDL falls to the HDL particles, which is why HDL is often referred to as “good” cholesterol. The makeup of the cholesterol itself in both LDL and HDL particles is the same; it is the direction in which the lipoprotein shuttle bus is driving that determines whether the particle is considered good or bad. HDL is good because it serves as a scavenger, removing LDL cholesterol from the cells and plaques and carrying it back to the liver for excretion in the bile, which empties into the intestine so it can be flushed out of our bodies in our stool.

SIZE MATTERS

The rate at which cholesterol gets into your vessel walls depends on the number and size of your LDL cholesterol particles. Small LDL particles containing less cholesterol per particle move into vessel walls more easily than larger particles. The smaller the particle, the more easily it moves in. That’s why people who have low total cholesterol levels and even low total LDL levels can still be at high risk for a heart attack if they have lots of small LDL.

Like small LDL, small HDL also has less cholesterol per particle. People with predominantly small HDL particles do not clear cholesterol from vessel walls as well as those with larger HDL particles. Small HDL also reduces the total cholesterol number, and this is another reason people with low total cholesterol may still be at risk for coronary disease. *It is important to know not just your total cholesterol and LDL numbers, but also the size of your particles.*

So why do some people have an unhealthier mix of cholesterol than others? Heredity certainly plays a major role. If you have parents or siblings who had cardiovascular disease at an early age, you are likely to have more of the artery-clogging types of cholesterol. However, eating the wrong foods and being sedentary can also give you unhealthy cholesterol patterns, especially if you are one of the 41 million Americans between the ages of 40 and 74 with prediabetes.

GET THE RIGHT TEST

Unfortunately, the Standard Lipid Profile, the basic lab test done in doctors' offices around the country to measure the levels of your blood fats—HDL, LDL, and triglycerides—cannot measure cholesterol particle size. However, if your Standard Lipid Profile shows that you have a high triglyceride level (more than 150 mg/dL) and a low level of HDL (less than 40 mg/dL for a man and 50 mg/dL for a woman), it is a good indicator that you may have high amounts of small LDL and/or HDL. This is when you need another test.

In such cases, I recommend getting an advanced blood test called the **Lipoprotein Subfraction Test**. It divides your cholesterol into a variety of subparticles based on their size and density. People who are found to have small, dense LDL and small, dense HDL along with high triglycerides have what is called the *atherogenic lipid profile* and must be treated aggressively (see below).

Talk with your physician or a preventive cardiologist about whether you are a good candidate for this test and the other advanced blood tests I recommend in my book. Because advanced blood testing requires more sophisticated equipment than doing the Standard Lipid Profile, it may not be available in all laboratories. However, more labs are performing these advanced blood tests all the time. And even if your insurance plan does not pay for this important test, I urge you to have it. *Remember, when it comes to heart disease, it's what you don't know that can kill you.*

ADOPT A TREATMENT PROGRAM THAT CAN SAVE YOUR LIFE

Is there anything you can do if you find out that you have high levels of small, dense LDL; high levels of small, dense HDL; or both? Yes! Losing weight, getting regular exercise, and taking the right medications (including a prescription version of the B vitamin niacin) can increase the size and density of your LDL and HDL particles. I outline each step in detail in *The South Beach Heart Program*, and I urge you to talk with your doctor about establishing the treatment program that's best for you.

FIND A DOCTOR WHO WILL LISTEN

If you already have a good relationship with a doctor, have a discussion with him or her about what you've learned from this article. If you don't have a communicative relationship with a doctor, I suggest that you contact a major hospital or medical center in your area for a referral to a prevention-oriented internist or cardiologist.