[IMAGE]

Cholesterol: Know the Facts

By Peter W. Crownfield

It’s in the news on a near-weekly basis. Research studies address various aspects of it. National organizations and expert panels issue recommendations on it. "It" is **CHOLESTEROL.** Here are the answers to frequently asked questions about this strange substance that can have a profound effect on your health.

Do you know the causes of high cholesterol and the steps you can take to reduce your risk of serious disease? Do you know the different types, and how each type can affect your health? What you know is vital to your longevity: According to the American Heart Association (AHA), an estimated 70 million Americans suffer from one or more forms of cardiovascular disease (CVD). These diseases claimed 927,448 lives in the U.S. in 2002 - more than the total lives claimed by cancer, accidents and HIV combined. And in case you view CVD as a condition exclusive to the elderly population, take note that more than 150,000 of those killed by CVD in 2002 were *under* the age of 65.

The major type of cardiovascular disease, coronary heart disease (CHD), is caused by arteriosclerosis: the thickening or hardening of the coronary arteries. Here’s where cholesterol enters the picture. Findings from the massive Framingham Heart Study, which began in 1948 under the direction of the National Heart Institute (now known as the National Heart, Lung and Blood Institute), show that blood cholesterol is a risk factor for coronary heart disease, and that the higher the cholesterol level, the greater the CHD risk.

Woman in scrubs holding a paper heart. - Copyright â Stock Photo / Register Mark **THE BASICS**
Cholesterol is a soft, wax-like lipid that occurs naturally in the bloodstream and in cell walls and membranes. It is a normal and important part of a healthy body because of the essential role it plays in cell membrane, hormone, and vitamin D production, as well as the digestive process.

The liver produces approximately 1,000 milligrams (mg) of cholesterol daily from other fats, which is all the cholesterol the body needs. In other words, you don’t need to consume cholesterol from dietary sources to stay healthy. (Infants are the exception: During the growth process, their bodies make new cell membranes so rapidly that they require a certain amount of dietary cholesterol.)

Because the body doesn’t need dietary cholesterol, particularly not cholesterol with "no place to go," it means that consumption of cholesterol-laden foods can cause plaque formation/buildup and resulting cardiovascular problems.

LDL, HDL AND TRIGLYCERIDES First, a little technical background: Dietary fat is absorbed by the intestine and transported to the liver. The liver then converts fat into cholesterol and releases it into the bloodstream. Because cholesterol isn’t water-soluble, cholesterol and triglycerides (a blood lipid) combine with proteins to form *lipoproteins*, which then transport cholesterol through the watery blood system.

Low-density lipoprotein (LDL) and high-density lipoprotein (HDL) are the two main types of lipoproteins; they differ markedly from one another in their ratio of cholesterol and triglycerides to protein, and thus, in their effect on blood levels of cholesterol.

Check Mark. - Copyright â Stock Photo / Register Mark **LDL:** the "bad" cholesterol. LDLs carry a great deal of cholesterol, because they help transport it from the liver to the rest of the body. Too much LDL cholesterol circulating in the blood can cause buildup on the inner walls of the arteries that feed the heart and brain. Over time, LDL cholesterol can contribute to the formation of plaque - a thick, hard deposit that clogs arteries, resulting in atherosclerosis. As arteries narrow, the oxygen supply to the heart is gradually compromised, and the risk for a heart attack grows.

Check Mark. - Copyright â Stock Photo / Register Mark **HDL:** the "good" cholesterol. HDLs carry relatively little cholesterol - they actually circulate in the bloodstream, helping remove excess cholesterol from blood and tissues. Specifically, evidence suggests that HDLs tend to carry cholesterol away from the arteries and back to the liver, where it is then eliminated from the body; and that HDLs also remove excess cholesterol from plaque in the arteries, resulting in a slower potential buildup of plaque.

Check Mark. - Copyright â Stock Photo / Register Mark **TRIGLYCERIDES** transport and store fat in the body. It’s clear that high triglyceride levels aren’t good for the body and can be particularly problematic when combined with excess levels of LDL cholesterol. People with high triglycerides often have high total cholesterol, high LDL cholesterol, and low HDL cholesterol. And some lipoproteins are rich in triglycerides that also contain cholesterol.

The National Cholesterol Education Program, developed by the National Heart, Lung and Blood Institute of the National Institutes of Health, has set the "safe" total cholesterol level at 200 mg/dL. A score of 200 or

higher signifies increased risk for developing heart disease; over 240 puts you in the high-risk category.

An LDL cholesterol level of less than 130 mg/dL is acceptable for most people; less than 100 mg/dL is ideal. The desirable level of LDL cholesterol depends on whether an individual has risk factors for coronary artery disease, or a pre-existing health condition caused by atherosclerosis or diabetes.

The AHA and the American Diabetes Association currently recommend HDL levels of at least 40 mg/dL for men and at least 50 mg/dL for women. A blood level of 60 mg/dL or above is ideal.

The HDL:LDL ratio is crucial - perhaps more so than the total cholesterol score. For example, if you have a total cholesterol score of less than 200 mg/dL, you could still be at risk for developing cholesterol-related atherosclerosis - if your LDL level constitutes a large percentage of that score. By comparison, if your total cholesterol is higher than 200 mg/dL, you may actually be at less risk, if your HDL score is high.

Double-decker hamburger. - Copyright â Stock Photo / Register Mark **THE FOOD FACTOR: SATURATED VS. UNSATURATED** Way back in 1984, the Coronary Primary Prevention Trial provided some of the first evidence that reducing total and LDL cholesterol levels significantly reduces the incidence of CHD; more recent investigations have affirmed this association. Dietary habits play a major role in determining your total blood cholesterol level, as well as the relative distribution of HDL and LDL cholesterol. Consumption of foods high in saturated fat and LDL cholesterol are a major reason for out-of-control cholesterol levels and rising heart attack rates in the United States.

Small glass bowl of Almonds. - Copyright â Stock Photo / Register Mark All foods that contain fat have different distributions of saturated and unsaturated fats. *Saturated fat* is found primarily in foods that come from animals - red meat (particularly fatty cuts), poultry with the skin on, whole-milk dairy products (whole milk, butter, cheese, ice cream), and tropical oils (coconut, palm kernel, etc.). Consumption of saturated fat increases LDL and total cholesterol in the bloodstream.

On the other hand, *unsaturated fats* do just the opposite: They increase HDL cholesterol and reduce LDL cholesterol and triglycerides. Good sources of monounsaturated fat are canola, peanut and olive oil; olives; avocados; and most nuts. Polyunsaturated fat can be found in corn, soybean, safflower, and cottonseed oils, as well as in fish. And let’s not forget omega-3 fatty acids, a type of polyunsaturated fat. Evidence suggests omega-3s, good sources of which are fatty fish, such as mackerel, salmon, sardines or swordfish, may help prevent heart disease. That’s one reason why the American Heart Association currently recommends that

everyone eat at least two servings of fish on a weekly basis.

THE HOT TOPIC: TRANS FATS *Trans fats* are liquid vegetable oils that are transformed via a process called "hydrogenation" into solids at room temperature. This chemical process transforms healthy vegetable oils into unhealthy fats that have been shown to raise LDL cholesterol.

Large order of french fries. - Copyright â Stock Photo / Register Mark In today's world of processed foods, more and more non-animal products contain hydrogenated fats/oils, a source of trans fats - which actually cause your body to make more cholesterol. Foods that contain trans fats include margarines, vegetable shortening, partially hydrogenated vegetable oil, countless fast foods (especially French fries), and most commercial baked goods (crackers, donuts, potato chips, etc.).

The good news, if there is any, regarding trans fats is that as of 2006, the Food and Drug Administration requires that food manufacturers list amounts of trans fats on the nutrition information labels of products. You've probably also noticed that increasing numbers of manufacturers now make it clear that their products contain no trans fats.

A chicken egg. - Copyright â Stock Photo / Register Mark **THE EGG "CONTROVERSY"** The egg is perhaps the ultimate cholesterol question mark. On the one hand, eggs are a great source of important nutrients, including vitamin D, vitamin B_{12}, riboflavin and folate, that may help reduce the risk of heart disease. They also provide high levels of protein, iron and phosphorus.

However, since the 1960s, when the connection between cholesterol and heart disease first became a public health concern, it was recommended that egg consumption be restricted to only one egg per week. Why? Because one large egg contains a whopping 213 milligrams of dietary cholesterol. (The American Heart Association recommends limiting dietary cholesterol to 300 mg per day.)

But studies conducted at Harvard University found that people who ate one egg per day were actually no more likely to develop heart disease or suffer a stroke than people who ate one egg per week or less. The egg yolk contains all the cholesterol (and fat), so limiting consumption of egg yolks (to no more than four per week, according to the AHA's current recommendation), and products that contain egg yolks, may be an important aspect of managing cholesterol.

THE BOTTOM LINE When it comes to cholesterol, particularly with respect to your diet, moderation is probably the best approach, whether it's eggs or any other food that can affect cholesterol. Finding a healthy balance of diet, exercise, weight management and stress reduction are vital steps in winning the battle against high cholesterol.

Check Mark. - Copyright â Stock Photo / Register Mark **Winning the Fight Against High Cholesterol**

KNOW YOUR CHOLESTEROL SCORE. A simple blood cholesterol test will let you (and your doctor) know your HDL, LDL and total cholesterol scores. If your scores are good, you're on the right track; if they're not so good, your doctor can help you get started on the road to better health.

KNOW WHAT YOU'RE EATING. Consume foods low in saturated fat and trans fats, and high in omega-3 fatty acids and "good" fats (such as lean meats, whole grains, and fruits and vegetables). Avoid processed foods and limit your portion sizes.

KNOW YOUR FAMILY HISTORY. A genetic history of high cholesterol, high blood pressure or heart disease can increase the risk of health problems. It means you'll have to monitor your cholesterol more closely than the average person.

EXERCISE DAILY. Just 30 minutes of physical activity a day can have a positive impact on your cholesterol levels. By the way, it also helps with weight control, prevention of numerous diseases, and can improve your overall sense of well-being and health.

TALK TO YOUR DOCTOR. In extreme high-risk cases, your doctor may prescribe cholesterol-lowering drugs in addition to lifestyle changes. But your doctor should always pursue natural interventions, particularly diet and exercise, before prescribing any type of medication.

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