

The Many Vital Roles of Cholesterol

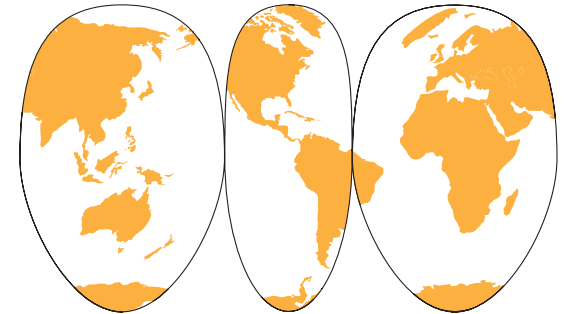
- ♦ Cholesterol is produced by almost every cell in the body.
- ♦ Cholesterol in cell membranes makes cells waterproof so there can be a different chemistry on the inside and the outside of the cell.
- ♦ Cholesterol is nature's repair substance, used to repair wounds, including tears and irritations in the arteries.
- ♦ Many important hormones are made of cholesterol, including hormones that regulate mineral metabolism and blood sugar, hormones that help us deal with stress, and all the sex hormones, such as testosterone, estrogen and progesterone.
- ♦ Cholesterol is vital to the function of the brain and nervous system.
- ♦ Cholesterol protects us against depression; it plays a role in the utilization of serotonin, the body's "feel-good" chemical.
- ♦ The bile salts, needed for the digestion of fats, are made from cholesterol.
- ♦ Cholesterol is the precursor of vitamin D, which is formed by the action of ultra-violet (UV-B) light on cholesterol in the skin.
- ♦ Cholesterol is a powerful antioxidant that protects us against free radicals and therefore against cancer.
- ♦ Cholesterol, especially LDL-cholesterol (the so-called bad cholesterol), helps fight infection.

How to Avoid Heart Disease

- ♦ Don't worry about your cholesterol—the stress of unnecessary worry can contribute to heart disease.
- ♦ Do not take cholesterol-lowering drugs—they contribute to heart failure.
- ♦ Avoid processed food, especially foods containing processed vegetable oils and *trans* fats.
- ♦ Eat the meat, fat and organ meats of grass-fed animals.
- ♦ Eat plenty of wild-caught seafood.
- ♦ Do not consume protein powders, lean meat, egg whites without the yolks or skim milk. High-protein diets lacking the nutrients supplied by animal fats can deplete vitamin A, leading to heart disease.
- ♦ Eat liver at least once a week to ensure adequate levels of vitamin B₁₂, vitamin B₆, folic acid, iron and copper.
- ♦ Take cod liver oil and consume plenty of butter from grass-fed cows to ensure adequate levels of vitamins A and D.
- ♦ Maintain a healthy weight—neither too heavy nor too thin.
- ♦ Engage in moderate exercise in the out of doors.
- ♦ Do not smoke; avoid exposure to environmental toxins.

SOURCES AND FURTHER INFORMATION
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www.westonaprice.org/moderndiseases

Myths & Truths about Cholesterol



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Myths & Truths

MYTH: People with high cholesterol are more prone to heart attacks.

TRUTH: Young and middle-aged men with cholesterol levels over 350 are slightly more at risk for heart attacks. Those who have cholesterol levels just below 350 are at no greater risk than those whose cholesterol is very low. For elderly men and for women of all ages, high cholesterol is associated with a longer lifespan.

MYTH: Cholesterol & saturated fat clog arteries.

TRUTH: There is very little cholesterol or saturated fat in the arterial plaque or clogs. Most of the material is a calcium deposit akin to lime and most of the fatty acids are unsaturated.

MYTH: Eating saturated fat and cholesterol-rich foods will cause cholesterol levels to rise and make people more susceptible to heart disease.

TRUTH: Many studies show no relationship between diet and cholesterol levels; there is no evidence that saturated fat and cholesterol-rich food contribute to heart disease. As Americans have cut back on saturated fat and cholesterol-rich foods, rates of heart disease have gone up.

MYTH: Cholesterol-lowering drugs have saved many lives.

TRUTH: In the two most recent trials, involving over 10,000 subjects, cholesterol-lowering did not result in any improvement in outcome.

MYTH: Countries that have a high consumption of animal fat and cholesterol have higher rates of heart disease.

TRUTH: There are many exceptions to this observation, such as France and Spain. Furthermore, an association (called a "risk factor") is not the same as a cause. In wealthy countries where people eat a lot of animal foods, many other factors exist that can contribute to heart disease.

Dangers of Statin Drugs

Modern cholesterol-lowering drugs act by inhibiting an enzyme (HMG-CoA reductase) needed for the formation of cholesterol in the liver. These HMG-CoA reductase inhibitors, called statins, are sold as Lipitor, Mevacor, Pravacol, Zocor, etc.

WEAKNESS and MUSCLE WASTING: This is the most common side effect of statin drugs, occurring in as many as one in three users. Muscle aches and pains, back pain, heel pain, weakness and slurring of speech result from statin interference with the production of Coenzyme Q₁₀ (Co-Q₁₀), needed for the muscles to function. These side effects are more common in active people and may not show up until three years after commencement of treatment.

HEART FAILURE: Rates of heart failure have doubled since the advent of statin drugs. The heart is a muscle that depends on a plentiful supply of Co-Q₁₀.

POLYNEUROPATHY: Tingling and pain in the hands and feet as well as difficulty walking occur frequently in those taking statins, conditions often blamed on "old age" rather than on the drug.

COGNITIVE IMPAIRMENT: Many patients have reported memory loss and brain fog, including total global amnesia (episodes of complete memory loss). The implications for pilots and those driving cars and trucks are profound.

CANCER: In every study with rodents to date, statins have caused cancer. Most human trials are not carried out long enough to detect any increase in cancer rates, but in one trial, breast cancer rates of those taking a statin were 1500 percent higher than those of controls.

DEPRESSION: Numerous studies have linked low cholesterol with depression.

If It Isn't Cholesterol, What Causes Heart Disease?

Many scientists have put forth valid theories for the epidemic of heart disease in western societies. They include:

DEFICIENCY OF VITAMINS A and D: Back in the 1930s, Weston A. Price, DDS, observed that rates of heart attack rose during periods of the year when levels of these fat-soluble vitamins in local butter went down.

DEFICIENCIES OF VITAMINS B₆, B₁₂ and FOLIC ACID: Kilmer McCully, MD, PhD, demonstrated that these deficiencies lead to elevated levels of homocysteine, a marker for heart disease.

TRANS FATTY ACIDS: Fred Kummerow, PhD, and many others have linked heart disease to the replacement of saturated fats with *trans* fatty acids; saturated fats actually protect against heart disease in many ways.

MINERAL DEFICIENCIES: Deficiencies of magnesium, copper and vanadium have been linked to heart disease.

MILK PASTEURIZATION: J.C. Annand, a British researcher, observed an increase in heart disease in districts that implemented pasteurization compared to those where milk was still sold unpasteurized.

STRESS: Heart attacks often occur after a period of stress, which depletes the body of many nutrients.

Unfortunately, little research money is available for researchers to study these theories; most research on heart disease is funded through the National Heart, Lung, and Blood Institute, which is firmly committed to the flawed hypothesis that cholesterol and saturated fat cause heart disease.



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Cholesterol: Friend Or Foe?

By **Natasha Campbell-McBride, MD**

The art of medicine consists in amusing the patient while nature cures the disease. --Voltaire

In our modern world, cholesterol has become almost a swear word. Thanks to the promoters of the diet-heart hypothesis, everybody "knows" that cholesterol is "evil" and has to be fought at every turn. If you believe the popular media, you would think that there is simply no level of cholesterol low enough. If you are over a certain age, you are likely to be tested for how much cholesterol you have in your blood. If it is higher than about 200 mg/100ml (5.1 mol/l), you may be prescribed a "cholesterol pill." Millions of people around the world take these pills, thinking that this way they are taking good care of their health. What these people don't realize is just how far from the truth they are. The truth is that we humans cannot live without cholesterol. Let us see why.

Our bodies are made out of billions of cells. Almost every cell produces cholesterol all the time during all of our lives. Why? Because every cell of every organ has cholesterol as a part of its structure. Cholesterol is an integral and very important part of our cell membranes, the membranes that enclose each of our cells, and also of the membranes surrounding all the organelles inside the cell. What is cholesterol doing there? A number of things.

Structural Integrity

First of all, saturated fats and cholesterol make the membranes of the cells firm—without them the cells would become flabby and fluid. If we humans didn't have cholesterol and saturated fats in the membranes of our cells, we would look like giant worms or slugs. And we are not talking about a few molecules of cholesterol

here and there. In many cells, almost half of the cell membrane is made from cholesterol. Different kinds of cells in the body need different amounts of cholesterol, depending on their function and purpose. If the cell is part of a protective barrier, it will have a lot of cholesterol in it to make it strong, sturdy and resistant to any invasion. If a cell or an organelle inside the cell needs to be soft and fluid, it will have less cholesterol in its structure.

This ability of cholesterol and saturated fats to firm up and reinforce the tissues in the body is used by our blood vessels, particularly those that have to withstand the high pressure and turbulence of the blood flow. These are usually large or medium arteries in places where they divide or bend. The flow of blood pounding through these arteries forces them to incorporate a layer of cholesterol and saturated fat in the membranes, which makes it stronger, tougher and more rigid. These layers of cholesterol and fat are called fatty streaks. They are completely normal and form in all of us, starting from birth and sometimes even before we are born. Various indigenous populations around the world, who never suffer from heart disease, have plenty of fatty streaks in their blood vessels in old and young, including children. Fatty streaks are not indicative of the disease called atherosclerosis.

Lipid Lifesavers

All the cells in our bodies have to communicate with each other. How do they do that? They use proteins embedded into the membrane of the cell. How are these proteins fixed to the membrane? With the help of cholesterol and saturated fats! Cholesterol and stiff saturated fatty acids form so-called lipid rafts, which make little homes for every protein in the membrane and allow it to perform its functions. Without cholesterol and saturated fats, our cells would not be able to communicate with each other or to transport various molecules into and out of the cell. As a result, our bodies would not be able to function the way they do. The human brain is particularly rich in cholesterol: around 25 percent of all body cholesterol is accounted for by the brain. Every cell and every structure in the brain and the rest of our nervous system needs cholesterol, not only to build itself but also to accomplish its many functions. The developing brain and eyes of the fetus and a newborn infant require large amounts of cholesterol. If the fetus doesn't get enough cholesterol during development, the child may be born with a congenital abnormality called cyclopean eye.¹

Human breast milk provides a lot of cholesterol. Not only that, mother's milk provides a specific enzyme to allow the baby's digestive tract to absorb almost 100 percent of that cholesterol, because the developing brain and eyes of an infant require large amounts of it. Children deprived of cholesterol in infancy may end up with poor eyesight and brain function. Manufacturers of infant formulas are aware of this fact, but following the anti-cholesterol dogma, they produce formulas with virtually no cholesterol in them.

Vital Brain Matter

One of the most abundant materials in the brain and the rest of our nervous system is a fatty substance called myelin. Myelin coats every nerve cell and every nerve fiber like the insulating cover around electric wires. Apart from insulation, it provides nourishment and protection for every tiny structure in our brain and the rest of the nervous system. People who start losing their myelin develop a condition called multiple sclerosis. Well, 20 percent of myelin is cholesterol. If you start interfering with the body's ability to produce cholesterol, you put the very structure of the brain and the rest of the nervous system under threat.

The synthesis of myelin in the brain is tightly connected with the synthesis of cholesterol. In my clinical experience, foods with high cholesterol and high animal fat content are an essential medicine for a person with multiple sclerosis. One of the most wonderful abilities we humans are blessed with is the ability to remember things—our human memory. How do we form memories? By our brain cells establishing connections with each other, called synapses. The more healthy synapses a person's brain can make, the more mentally able and intelligent that person is. Scientists have discovered that synapse formation is almost entirely dependent on cholesterol, which is produced by the brain cells in a form called apolipoprotein E. Without the presence of this factor we cannot form synapses, and hence we would not be able to learn or remember anything. Memory loss is one of the side effects of cholesterol-lowering drugs.

In my clinic, I see growing numbers of people with memory loss who have been taking cholesterol-lowering pills. Dr Duane Graveline, MD, former NASA scientist and astronaut, suffered such memory loss while taking his cholesterol pill. He managed to save his memory by stopping the pill and eating lots of cholesterol-rich foods. Since then he has described his experience in his book, *Lipitor: Thief of Memory, Statin Drugs and the Misguided War on Cholesterol*. Dietary cholesterol in fresh eggs and other cholesterol-rich foods has been shown in scientific trials to improve memory in the elderly. In my clinical experience, any person with memory loss or learning problems needs to have plenty of these foods every single day in order to recover.

Necessary Product Of The Body

These foods give the body a hand in supplying cholesterol so it does not have to work as hard to produce its own. What a lot of people don't realize is that most cholesterol in the body does not come from food! The body produces cholesterol as it is needed. Scientific studies have conclusively demonstrated that cholesterol from food has no effect whatsoever on the level of our blood cholesterol. Why? Because cholesterol is such an essential part of our human physiology that the body has very efficient mechanisms to keep blood cholesterol at a certain level.

When we eat more cholesterol, the body produces less; when we eat less cholesterol, the body produces more. As a raw material for making cholesterol the

body can use carbohydrates, proteins and fats, which means that your pasta and bread can be used for making cholesterol in the body. It has been estimated that, in an average person, about 85 percent of blood cholesterol is produced by the body, while only 15 percent comes from food. So, even if you religiously follow a completely cholesterol-free diet, you will still have a lot of cholesterol in your body. However, cholesterol-lowering drugs are a completely different matter! They interfere with the body's ability to produce cholesterol, and hence they do reduce the amount of cholesterol available for the body to use.

Dangers Of Low Cholesterol

If we do not take cholesterol-lowering drugs, most of us don't have to worry about cholesterol. However, there are people whose bodies, for whatever reason, are unable to produce enough cholesterol. These people are prone to emotional instability and behavioral problems. Low blood cholesterol has been routinely recorded in criminals who have committed murder and other violent crimes, people with aggressive and violent personalities, people prone to suicide and people with aggressive social behavior and low self-control.

I would like to repeat what the late Oxford professor David Horrobin warned us about: "Reducing cholesterol in the population on a large scale could lead to a general shift to more violent patterns of behavior. Most of this increased violence would not result in death but in more aggression at work and in the family, more child abuse, more wife-beating and generally more unhappiness."

People whose bodies are unable to produce enough cholesterol do need to have plenty of foods rich in cholesterol in order to provide their organs with this essential-to-life substance.

What else does our body need all that cholesterol for?

Endocrine System

After the brain, the organs hungriest for cholesterol are our endocrine glands: adrenals and sex glands. They produce steroid hormones. Steroid hormones in the body are made from cholesterol: testosterone, progesterone, pregnenolone, androsterone, estrone, estradiol, corticosterone, aldosterone and others. These hormones accomplish a myriad of functions in the body, from regulation of our metabolism, energy production, mineral assimilation, brain, muscle and bone formation to behavior, emotions and reproduction. In our stressful modern lives we consume a lot of these hormones, leading to a condition called "adrenal exhaustion." This condition is diagnosed very often by naturopaths and other health practitioners. There are many herbal preparations on the market for adrenal exhaustion. However, the most important therapeutic measure is to provide your adrenal glands with plenty of dietary cholesterol.

Without cholesterol we would not be able to have children because every sex hormone in our bodies is made from cholesterol. A fair percentage of our infertility epidemic can be laid at the doorstep of the diet-heart hypothesis. The more eager we became to fight animal fats and cholesterol, the more problems with normal sexual development, fertility and reproduction we started to face. About a third of western men and women are infertile, and increasing numbers of our youngsters are growing up with abnormalities in their sex hormones. These abnormalities lead to many physical problems.

Recent research has "discovered" that eating full-cream dairy products cures infertility in women.² Researchers found that women who drink whole milk and eat high-fat dairy products are more fertile than those who stick to low-fat products. Study leader Dr Jorge Chavarro, of the Harvard School of Public Health, emphasized: "Women wanting to conceive should examine their diet. They should consider changing low-fat dairy foods for high-fat dairy foods, for instance by swapping skimmed milk for whole milk and eating cream, not low-fat yoghurt."

The Liver And Vitamin Regulation

One of the busiest organs in terms of cholesterol production in our bodies is the liver, which regulates the level of our blood cholesterol. The liver also puts a lot of cholesterol into bile production. Yes, bile is made out of cholesterol. Without bile we would not be able to digest and absorb fats and fat-soluble vitamins. Bile emulsifies fats; in other words, it mixes them with water, so that digestive enzymes can get to them. After it completes its mission, most of the bile gets reabsorbed in the digestive system and brought back to the liver for recycling. In fact, 95 percent of our bile is recycled because the building blocks of bile, one of which is cholesterol, are too precious for the body to waste. Nature doesn't do anything without good reason. This example of the careful recycling of cholesterol alone should have given us a good idea about its importance for the body!

Bile is essential for absorbing fat-soluble vitamins: vitamin A, vitamin D, vitamin K and vitamin E. We cannot live without these vitamins. Apart from ensuring that fat-soluble vitamins get digested and absorbed properly, cholesterol is the major building block of one of these vitamins: vitamin D. Vitamin D is made from the cholesterol in our skin when it is exposed to sunlight. In those times of the year when there isn't much sunlight, we can get this vitamin from cholesterol-rich foods: cod liver oil, fish, shellfish, butter, lard and egg yolks. Our recent misguided fears of the sun and avoidance of cholesterol-rich foods have created an epidemic of vitamin D deficiency in the Western world.

Unfortunately, apart from sunlight and cholesterol-rich foods there is no other appropriate way to get vitamin D. Of course, there are supplements, but most of them contain vitamin D₂, which is made by irradiating mushrooms and other plants. This vitamin is not the same as the natural vitamin D. It does not work as effectively

and it is easy to get a toxic level of it. In fact, almost all cases of vitamin D toxicity ever recorded were cases where this synthetic vitamin D₂ had been used. Toxicity is almost impossible with natural vitamin D obtained from sunlight or cholesterol-rich foods because the body knows how to deal with an excess of natural substances. What the body does not know how to deal with is an excess of synthetic vitamin D₂.

Vitamin D has been designed to work as a team with another fat-soluble vitamin: vitamin A. That is why foods rich in one tend to be rich in the other. So, by taking cod liver oil, for example, we can obtain both vitamins at the same time. As we grow older, our ability to produce vitamin D in the skin under sunlight is considerably diminished. Taking foods rich in vitamin D is therefore particularly important for older people. For the rest of us, sensible sunbathing is a wonderful, healthy and enjoyable way of getting a good supply of vitamin D.

Skin cancer, blamed on sunshine, is not caused by the sun. It is caused by trans fats from vegetable oils and margarine and other toxins stored in the skin. In addition, some of the sunscreens that people use contain chemicals that have been proven to cause skin cancer³.

Immune System Health

Cholesterol is essential for our immune system to function properly. Animal experiments and human studies have demonstrated that immune cells rely on cholesterol in fighting infections and repairing themselves after the fight. In addition, LDL-cholesterol (low-density lipoprotein cholesterol), the so-called "bad" cholesterol, directly binds and inactivates dangerous bacterial toxins, preventing them from doing any damage in the body. One of the most lethal toxins is produced by a widely spread bacterium, *Staphylococcus aureus*, which is the cause of MRSA (Methicillin-resistant *Staphylococcus aureus*), a common hospital infection. This toxin can literally dissolve red blood cells. However, it does not work in the presence of LDL-cholesterol. People who fall prey to this toxin have low blood cholesterol. It has been recorded that people with high levels of cholesterol are protected from infections; they are four times less likely to contract AIDS, they rarely get common colds and they recover from infections more quickly than people with "normal" or low blood cholesterol.

People with low blood cholesterol are prone to various infections, suffer from them longer and are more likely to die from an infection. A diet rich in cholesterol has been demonstrated to improve these people's ability to recover from infections. So, any person suffering from an acute or chronic infection needs to eat high-cholesterol foods to recover. Cod liver oil, the richest source of cholesterol (after caviar), has long been prized as the best remedy for the immune system. Those familiar with old medical literature will tell you that until the discovery of antibiotics, a common cure for tuberculosis was a daily mixture of raw egg yolks and fresh cream.

Varying Blood Cholesterol Levels

The question is, why do some people have more cholesterol in their blood than others, and why can the same person have different levels of cholesterol at different times of the day? Why is our level of cholesterol different in different seasons of the year? In winter it goes up and in the summer it goes down. Why is it that blood cholesterol goes through the roof in people after any surgery? Why does blood cholesterol go up when we have an infection? Why does it go up after dental treatment? Why does it go up when we are under stress? And why does it become normal when we are relaxed and feel well? The answer to all these questions is this: cholesterol is a healing agent in the body. When the body has some healing jobs to do, it produces cholesterol and sends it to the site of the damage. Depending on the time of day, the weather, the season and our exposure to various environmental agents, the damage to various tissues in the body varies. As a result, the production of cholesterol in the body also varies.

Since cholesterol is usually discussed in the context of disease and atherosclerosis, let us look at the blood vessels. Their inside walls are covered by a layer of cells called the endothelium. Any damaging agent we are exposed to will finish up in our bloodstream, whether it is a toxic chemical, an infectious organism, a free radical or anything else. Once such an agent is in the blood, what is it going to attack first? The endothelium, of course. The endothelium immediately sends a message to the liver. Whenever our liver receives a signal that a wound has been inflicted upon the endothelium somewhere in our vascular system, it gets into gear and sends cholesterol to the site of the damage in a shuttle, called LDL-cholesterol. Because this cholesterol travels from the liver to the wound in the form of LDL, our "science," in its wisdom calls LDL "bad" cholesterol. When the wound heals and the cholesterol is removed, it travels back to the liver in the form of HDLcholesterol (high-density lipoprotein cholesterol). Because this cholesterol travels away from the artery back to the liver, our misguided "science" calls it "good" cholesterol. This is like calling an ambulance travelling from the hospital to the patient a "bad ambulance," and the one travelling from the patient back to the hospital a "good ambulance."

But the situation has gotten even more ridiculous. The latest thing that our science has "discovered" is that not all LDL-cholesterol is so bad. Most of it is actually good. So, now we are told to call that part of LDL the "good bad cholesterol" and the rest of it the "bad bad cholesterol."

Marvelous Healing Agent

Why does the liver send cholesterol to the site of the injury? Because the body cannot clear the infection, remove toxic elements or heal the wound without cholesterol and fats. Any healing involves the birth, growth and functioning of thousands of cells: immune cells, endothelial cells and many others. As these cells, to a considerable degree, are made out of cholesterol and fats, they cannot form and grow without a good supply of these substances. When the cells are damaged, they

require cholesterol and fats to repair themselves. It is a scientific fact that any scar tissue in the body contains good amounts of cholesterol.⁴

Another scientific fact is that cholesterol acts as an antioxidant in the body, dealing with free radical damage.⁵ Any wound in the body contains plenty of free radicals because the immune cells use these highly reactive molecules for destroying microbes and toxins. Excess free radicals have to be neutralized, and cholesterol is one of the natural substances that accomplishes this function.

When we have surgery, our tissues are cut and many small arteries, veins and capillaries get damaged. The liver receives a very strong signal from this damage, so it floods the body with LDL-cholesterol to clean and heal every little wound in our blood vessels. That is why blood cholesterol goes high after any surgical procedure. After dental treatment, in addition to the damage to the tissues, a lot of bacteria from the tooth and the gums finish up in the blood, attacking the inside walls of our blood vessels. Once again, the liver gets a strong signal from that damage and produces lots of healing cholesterol to deal with it, so the blood cholesterol goes up.

The same thing happens when we have an infection: LDL-cholesterol goes up to deal with the bacterial or viral attack.

Apart from the endothelium, our immune cells need cholesterol to function and to heal themselves after the fight with the infection.

Our stress hormones are made out of cholesterol in the body. Stressful situations increase our blood cholesterol levels because cholesterol is being sent to the adrenal glands for stress hormone production. Apart from that, when we are under stress, a storm of free radicals and other damaging biochemical reactions occur in the blood. So the liver works hard to produce and send out as much cholesterol as possible to deal with the free radical attack. In situations like this, your blood cholesterol will test high. In short, when we have a high blood cholesterol level, it means that the body is dealing with some kind of damage. The last thing we should do is interfere with this process! When the damage has been dealt with, the blood cholesterol will naturally go down. If we have an ongoing disease in the body that constantly inflicts damage, then the blood cholesterol will be permanently high. So, when a doctor finds high cholesterol in a patient, what this doctor should do is to look for the reason. The doctor should ask, "What is damaging the body so that the liver has to produce all that cholesterol to deal with the damage?" Unfortunately, instead of this sensible procedure, our doctors are trained to attack the cholesterol.

Many natural herbs, antioxidants and vitamins have an ability to reduce our blood cholesterol. How do they do that? By helping the body remove the damaging agents, be they free radicals, bacteria, viruses or toxins. As a result, the liver does not have to produce so much cholesterol to deal with the damage. At the same time, vitamins, minerals, antioxidants, herbs and other natural remedies help to heal the wound. When the wound heals there is no need for high levels of cholesterol anymore, so the body removes it in the form of HDL-cholesterol or so-called "good" cholesterol.

That is why herbs, vitamins, antioxidants and other natural remedies increase the level of HDL-cholesterol in the blood.

In conclusion, cholesterol is one of the most important substances in the body. We cannot live without it, let alone function well. The pernicious diet-heart hypothesis has vilified this essential substance. Unfortunately, this hypothesis has served many commercial and political interests far too well, so they ensure its long survival. However, the life of the diet-heart hypothesis is coming to an end as we become aware that cholesterol has been mistakenly blamed for the crime just because it was found at the scene.

Sidebars

Dietary Sources Of Cholesterol

1. Caviar is the richest source; it provides 588 mg of cholesterol per 100 grams. Obviously, this is not a common food for the majority of us, so let us have a look at the next item on the list.
2. Cod liver oil follows closely with 570 mg of cholesterol per 100 grams. There is no doubt that the cholesterol element of cod liver oil plays an important role in all the well-known health benefits of this time-honored health food.
3. Fresh egg yolk takes third place, with 424 mg of cholesterol per 100 gram. I would like to repeat: fresh egg yolk, not chemically mutilated egg powders (they contain chemically mutilated cholesterol)!
4. Butter provides a good 218 mg of cholesterol per 100 gram. We are talking about natural butter, not butter substitutes.
5. Cold-water fish and shellfish, such as salmon, sardines, mackerel and shrimps, provide good amounts of cholesterol, ranging from 173 mg to 81 mg per 100 gram. The proponents of low-cholesterol diets tell you to replace meats with fish. Obviously, they are not aware of the fact that fish is almost twice as rich in cholesterol as meat.
6. Lard provides 94 mg of cholesterol per 100 gram. Other animal fats follow.

Vitamin D Deficiency

What does it mean for our bodies to be deficient in vitamin D? A long list of suffering:

- Diabetes, as vitamin D is essential for blood sugar control
- Heart disease
- Mental illness
- Auto-immune illness, such as rheumatoid arthritis, lupus, inflammatory bowel disease and multiple sclerosis
- Obesity
- Osteoarthritis
- Rickets and osteomalacia
- Muscle weakness and poor neuro-muscular coordination

- High blood pressure
- Cancer
- Chronic pain
- Poor immunity and susceptibility to infections
- Hyperparathyroidism, which manifests itself as osteoporosis, kidney stones, depression, aches and pains, chronic fatigue, muscle weakness and digestive abnormalities

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Dr. Campbell-McBride runs the Cambridge Nutrition Clinic where she specializes in using nutritional approaches as a treatment for learning disabilities and other mental disorders. She is recognized as one of the world's leading experts in treating children and adults with these conditions, as well as children and adults with digestive and immune disorders. She is the author of Gut And Psychology Syndrome (reviewed on page 58). This article is a chapter from her new book, Put Your Heart in Your Mouth! What Really is Heart Disease and What We Can Do to Prevent and Even Reverse It, to be released October 2007. Dr Campbell-McBride will be a keynote speaker at Wise Traditions, 2007.

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