Understanding High Cholesterol
By Andreas Moritz

Cholesterol is an essential building block of every cell in the body, required for all metabolic processes. It is particularly important in the production of nerve tissue, bile and certain hormones. On average, our body produces about half of a gram to one gram of cholesterol per day, depending on how much of it the body needs at the time. By and large, our body is able to produce 400 times more cholesterol per day than what we would obtain from eating 3,5 ounces (100 grams) of butter. The main cholesterol producers are the liver and the small intestine, in that order. Normally, they are able to release cholesterol directly into the blood stream, where it is instantly tied to blood proteins. These proteins, which are called lipoproteins, are in charge of transporting the cholesterol to its numerous destinations. There are three main types of lipoproteins in charge of transporting cholesterol: *Low Density Lipoprotein* (LDL), *Very Low Density Lipoprotein* (VLDL), and *High Density Lipoprotein* (HDL). In comparison to HDL, which has been privileged with the name 'good' cholesterol, LDL and VLDL are relatively large cholesterol molecules; in fact, they are the richest in cholesterol. There is good reason for their large size. Unlike their smaller cousin, which easily passes through blood vessel walls, the LDL and VLDL versions of cholesterol are meant to take a different pathway; they leave the blood stream in the liver.

The blood vessels supplying the liver have a very different structure from the ones supplying other parts of the body. They are known as *sinusoids*. Their unique, grid-like structure permits the liver cells to receive the entire blood content, including the large cholesterol molecules. The liver cells rebuild the cholesterol and excrete it along with bile into the intestines. Once the cholesterol enters the intestines, it combines with fats, is absorbed by the lymph and enters the blood, in that order. Gallstones in the bile ducts of the liver inhibit the bile flow and partially, or even fully, block the cholesterol's escape route. Due to back-up pressure on the liver cells, bile production drops. Typically, a healthy liver produces over a quart of bile per day. When the major bile ducts are blocked, barely a cup of bile, or even less, will find its way to the intestines. This prevents much of the VLDL and LDL cholesterol from being excreted with the bile.

Gallstones in the liver bile ducts distort the structural framework of the liver lobules, which damages and congests the sinusoids. Deposits of excessive protein also close the grid holes of these blood vessels (see the discussion of this subject in the previous section). Whereas the 'good' cholesterol HDL has small enough molecules to leave the bloodstream through ordinary capillaries, the larger LDL and VLDL molecules are more or less trapped in the blood. The result is that LDL and VLDL concentrations begin to rise in the blood to levels that seem potentially harmful to the body. Yet even this scenario is merely part of the body's survival attempts. It needs the extra cholesterol to patch up the increasing number of cracks and wounds that are formed as a result of the accumulation of excessive protein in the blood vessel walls. Eventually, though, the life-saving cholesterol begins to occlude the blood vessels and cut off the oxygen supply to the heart.

In addition to this complication, reduced bile flow impairs the digestion of food, particularly fats. Therefore, there is not enough cholesterol made available to the cells of the body and their basic metabolic processes. Since the liver cells no longer receive sufficient amounts of LDL and VLDL molecules, they (the liver cells) assume that the blood is deficient in these types of cholesterol.

This stimulates the liver cells to increase the production of cholesterol, further raising the levels of LDL and VLDL cholesterol in the blood.

The ‘bad’ cholesterol is trapped in the circulatory system because its escape routes, the bile ducts and the liver sinusoids, are blocked or damaged. The capillary network and arteries attach as much of the ‘bad’ cholesterol to their walls as they possibly can. Consequently, the arteries become rigid and hard.

Coronary heart disease, regardless of whether it is caused by smoking, drinking excessive amounts of alcohol, overeating protein foods, stress, or any other factor, usually does not occur unless gallstones have impacted the bile ducts of the liver. Removing gallstones from the liver and gallbladder can not only prevent a heart attack or stroke, but also reverse coronary heart disease and heart muscle damage. The body’s response to stressful situations becomes less damaging, and cholesterol levels begin to normalize as the distorted and damaged liver lobules are regenerated. Cholesterol lowering drugs don’t do that. They artificially reduce blood cholesterol, which coerces the liver to produce even more cholesterol. But when extra cholesterol is passed into the bile ducts, it remains in its crystalline state (versus soluble state) and, thereby, turns into gallstones. People who regularly use cholesterol-lowering drugs usually develop an excessively large number of gallstones. This sets them up for major side effects, including cancer and heart disease. Cholesterol is essential for normal functioning of the immune system, particularly for the body’s response to the millions of cancer cells that every person makes in his body each day. For all the health problems associated with cholesterol, this important substance is not something we should try to eliminate from our bodies. Cholesterol does far more good than harm. The harm is generally symptomatic of other problems. I wish to emphasize, once again, that ‘bad’ cholesterol only attaches itself to the walls of arteries to avert immediate heart trouble, not to create it.

This is confirmed by the fact that cholesterol never attaches itself to the walls of veins. When a doctor tests your cholesterol levels, he takes the blood sample from a vein, not from an artery. Although blood flow is much slower in veins than in arteries, cholesterol should obstruct veins much more readily than arteries, but it never does. There simply is no need for that. Why? Because there are no abrasions and tears in the lining of the vein that require patching up. Cholesterol only affixes itself to arteries in order to coat and cover up the abrasions and protect the underlying tissue like a waterproof bandage. Veins do not absorb proteins in their basements membranes like capillaries and arteries do and, therefore, are not prone to this type of injury.

‘Bad’ cholesterol *saves* lives; it does *not* take lives. LDL allows the blood to flow through injured blood vessels without causing a life endangering situation. The theory of high LDL being a principal cause of coronary heart disease is not only unproved and unscientific. It has misled the population to believe that cholesterol is an enemy that has to be fought and destroyed at all costs. Human studies have not shown a cause-and-effect relationship between cholesterol and heart disease. The hundreds of studies so far conducted on such a relationship have only shown that there is a statistical correlation between the two. And there should be, because if there were no ‘bad’ cholesterol molecules attaching themselves to injured arteries we would have millions of more deaths from heart attack than we already have. On the other hand, dozens of conclusive studies have shown that risk of heart disease increases significantly in people whose HDL levels

decrease. Elevated LDL cholesterol is not a *cause* of heart disease; rather, it is a *consequence* of an unbalanced liver and congested, dehydrated circulatory system.

If your doctor has told you that lowering your cholesterol with medical drugs protects you against heart attacks, you have been grossly misled. The #1 prescribed cholesterol-lowering medicine is Lipitor. I suggest that you read the following warning statement, issued on the official Lipitor web site:

"LIPITOR∨ (atorvastatin calcium) tablets is a prescription drug used with diet to lower cholesterol. LIPITOR is not for everyone, including those with liver disease or possible liver problems, and women who are nursing, pregnant, or may become pregnant. LIPITOR has not been shown to prevent heart disease or heart attacks.

"If you take LIPITOR, tell your doctor about any unusual muscle pain or weakness. This could be a sign of serious side effects. It is important to tell your doctor about any medications you are currently taking to avoid possible serious drug interactions…" My question is, "Why risk a person's health or life by giving him/her a drug that has no effect, whatsoever, in preventing the problem for which it is being prescribed?" The reason why the lowering of cholesterol levels cannot *prevent* heart disease is because cholesterol does not *cause* heart disease.

The most important issue is how efficiently a person's body uses cholesterol and other fats. The body's ability to digest, process and utilize these fats depends on how clear and unobstructed the bile ducts of the liver are. When bile flow is unrestricted and balanced, both the LDL and HDL levels are balanced as well. Therefore, keeping the bile ducts open is the best prevention of coronary heart disease.