

READE'S REVIEW

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CHOLESTEROL - WHAT'S THE STORY?

Special points of interest:

- Cholesterol - What's the Story
- Cholesterol 101
- Atherosclerosis
- Risk of Atherosclerosis
- Statins
- Natural Treatments

Inside this issue:

| | |
|-------------------------------------|---|
| Cholesterol - What's the Story? | 1 |
| Cholesterol 101 | 2 |
| Atherosclerosis | 2 |
| Test to Reveal Atherosclerosis Risk | 3 |
| Statins - Cholesterol Reducing Meds | 3 |
| Natural Approaches to Cholesterol | 4 |

Most of the time when we hear the word "cholesterol" we often think of fatty globules choking our arteries and causing heart attacks. However, there is another side of cholesterol that we often do not hear much about. Often we hear only the negative and none of the positive aspects of cholesterol.

To begin with about 70-75% of the cholesterol in your body is manufactured in your liver and another 10-15% from your small intestine, adrenals and sexual organs. The rest comes directly from our diet. So, essentially a "cholesterol problem" is primarily a "liver problem" and from direct consumption of cholesterol from the diet. So, controlling cholesterol by avoiding foods that contain it is not very effective.

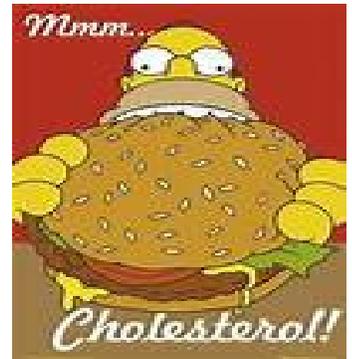
Cholesterol is an important and vital component of all cellular membranes. Cholesterol and saturated fats make the membranes firmer. Without them they would be more fluid and flabby. Different cells use different amounts of cholesterol in their mem-

branes, some up to 50%! Cells that form a protective barrier (like the lining in the sinuses) must be strong, sturdy and resistant to invasion by other organisms. Organelles inside the cell may have to be soft and fluid so they may contain less cholesterol.

The ability to firm up and strengthen the cellular membranes is used in our blood vessels. This helps to resist the pressure, pounding and turbulence within the blood vessels. This is especially important in areas that the blood vessels bend or twist particularly in large to medium arteries. Sometimes "fatty streaks" of cholesterol are found in these areas and are totally normal. It is only with excessive deposits of fat that they become known as atherosclerosis or hardening of the arteries.

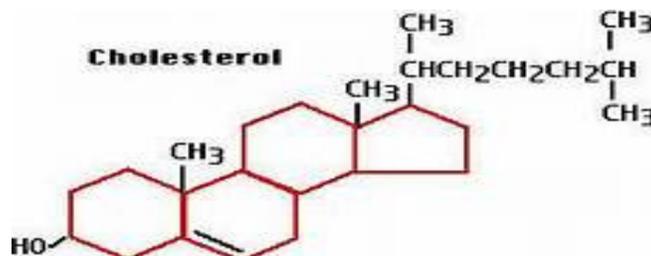
Cholesterol helps cells to communicate with one another via proteins found in the cellular membrane. Cholesterol and saturated fats allow these proteins to operate properly.

A fatty substance made up of 20% cholesterol that sur-



rounds most nerves is called myelin. Myelin acts as an insulator, protector, a source of nourishment and especially allows proper conduction of nerve impulses. Without proper levels of myelin, nerve degeneration along with memory loss can occur. Other cognitive function can also suffer. About 25% of all cholesterol is found in the brain and spinal cord.

Cholesterol is also essential for the production of adrenal and other steroid hormones such as estrogen, testosterone, aldosterone, and cortisol. It is an important component of bile which helps in the absorption of Vitamin A, D, E and K. Cholesterol also has a direct involvement with the synthesis of Vitamin D in the body. It is a vital substance that the immune system uses as well to help fight infections and to heal. Cholesterol also acts as an antioxidant and is important in wound healing.



CHOLESTEROL 101



Cholesterol is a waxy rigid molecule that does not mix well with blood. So, in order to transport cholesterol in the blood more effectively it is “packaged” or “wrapped” in protein and are called lipoproteins. These lipoproteins vary in size and density. You may have already heard of them they are, HDL, IDL, LDL, VLDL and chylomicrons. The largest molecules are chylomicrons and come from the intestinal tract directly. They are broken down mostly in the

liver, but some of the fats are absorbed by muscle and other tissues. In the liver they are converted into low density lipoprotein (LDL). LDL's primarily deliver cholesterol to all tissues of the body. High density lipoproteins or HDL's act as scavengers and pick up cholesterol from other tissues, but particularly remove cholesterol from blood vessel walls. It is believed that HDL's also deliver antioxidants and probably also decrease the formation of plaque

in the walls of arteries leading to arteriosclerosis.

The liver also processes the cholesterol into bile acids that are secreted by the gall bladder into the intestines. The bile acids allow absorption of fats in our diet and absorption of fatty vitamins such as A, D, E and K. Bile acids also act as a means of removing toxins from the liver, excessive hormones and acts as a nutrient for the beneficial bacterial in the gut.

This process would not be complete unless LDLs in the blood stream enter the intima lining of the arteries and become oxidized

There are a few mechanisms by which atherosclerosis can occur. Atherosclerosis is a type of arteriosclerosis and is characterized by fatty inflexible plaques that form within the lining of arteries. Sometimes these plaques can rupture and result in clots. This type of blood vessel degeneration is particularly important and life threatening if it takes place in arteries of the heart that are known as the coronary arteries.

The first mechanism that can initiate atherosclerosis is due to mechanical irritation. Abnormal or uneven blood flow at bends in the arteries and increased blood pressures may cause some inflammation.

The next mechanism involves a white blood cell called a monocyte. The monocyte enters the lining of the blood vessel and is converted into a

macrophage. This macrophage can absorb fats and also release inflammatory compounds leading to fatty streaks and possible plaque formation. This process would not be complete unless LDLs in the blood stream enter the intima lining of the arteries and become oxidized. The oxidized LDLs are absorbed by the macrophages. The macrophages then turn into “foam cells” which are characteristic of atherosclerosis.

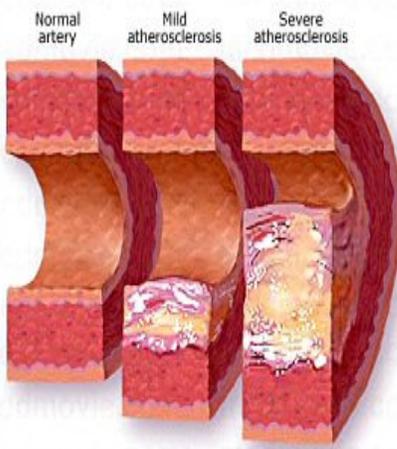
These foam cells along with other macrophages release other chemicals such as cytokines that increase inflammation, oxidation of LDLs, and attracts more monocytes and macrophages. The process of plaque formation in a sense begins to “snowball”.

Some of the chemicals produced causes calcium deposition, they also result in a

breakdown of collagen fibers that provide some strength and shape to the blood vessels.

Eventually the plaques enlarge and block blood flow. These are called stable plaques. However, there are others that weaken and rupture into the lumen of the blood vessel and these are called unstable plaques. The material inside the blood vessel can completely choke the blood flow and can also result in a blood clot. This blood clot can loosen and travel to other areas. This clot can get stuck and lead to damage to the brain, heart or other organs.

Atherosclerosis is really a chronic inflammatory process. Proper levels of antioxidants, a balanced immune system, proper cholesterol levels, normal blood pressure are all important factors in reducing the atherosclerosis.



TESTS TO REVEAL ATHEROSCLEROSIS RISK

I want to make this very clear that cholesterol levels alone are not a reliable measure that you will develop heart disease or atherosclerosis. They are other markers such as HDL levels and the ratio between the “good” cholesterol and total cholesterol. Even though you may have a slightly elevated cholesterol, but have a higher HDL level you are at lower risk. Since atherosclerosis is largely due to inflammation it is important to consider other blood markers. Some of them are, oxidized LDLs, triglycerides, homocysteine,

C-reactive protein, and the proteins released by immune cells called cytokines like IL-4. Other compounds released by monocytes (remember the white blood cell that initially enters the lining of the blood vessel), macrophages and the cells lining the lumen of the blood vessel called endothelial cells are being evaluated to determine if they help reveal the risk of atherosclerosis.

Another test is called the VAP test or vertical autoprofile. This test actually measures variations of lipoprotein sizes.

This gives a more detailed evaluation of LDL, HDL and other lipoproteins.

Having diabetes and/or insulin resistance puts you at higher risk. Therefore, measuring your fasting blood sugar or hemoglobin A1c is also a good test to run.

Ultrasound studies of the carotid arteries for plaque changes can evaluate a patient's current status of their arteries. Another ultrasound study called lateral displacement may detect earlier signs of inflexibility of the arteries.



"That number has nothing to do with the lottery or the stock market. That's your cholesterol level."

STATINS - CHOLESTEROL REDUCING MEDS

Today about 1 out of 4 Americans over the age of 45 take statin medication. 36% of women and 50% of men between the ages of 65-74 take statins. Statins are about the second most prescribed group of medications in the United States. Yet the average cholesterol level in the 1960's was 222 and currently it is 200mg/dl. Statins were widely introduced in the 1980's and the prescription rate continues to rapidly escalate. Statins were initially targeted to prevent a second heart attack and were approved by the FDA for that purpose. However, absolute deaths from cardiovascular disease is about 750,00/yr and has not significantly changed in the last 25 years.

Compactin was the first statin isolated from penicillium citrinus by a Japanese biochemist in the late 1970's. It was later refined and derived from an

other fungal organism Aspergillus terreus. This was later known as Mevacor or lovastatin.

The mechanism behind all statins is to block the production of cholesterol in the liver. They are known as HMG - CoA reductase inhibitors. This category of medications does reduce total cholesterol, LDL, triglycerides, marginally increases HDL and is supposed to reduce C-reactive protein an inflammation marker. This sounds all good. However, there is another side of statins that must be considered.

Cholesterol is an essential compound in the body it is required for the production of sex and adrenal gland hormones. It is important for proper cell membranes, brain and nervous system function, helps calcium absorption from the intestines (calcitrol) and Vitamin D production. Statins

potentially can lead to hormonal imbalances, poor cell membrane activity and decreased vitamin D levels. This list does not include the common side effect of muscle pain and weakness. Recently the FDA required all of the statins to list mental confusion, memory loss and elevation of blood sugar as other side effects. It is well documented that they can cause muscle damage, but particularly liver damage. To find out more about statins I suggest a website: space-doc.com, by former astronaut and flight surgeon, Duane Graveline M.D. This website is very informative.

Lastly, several years ago I had a conversation with a retired pharmacist. We talked about different meds. His comment about statins was, "I would not give that s*##* to my dog! I can say that now I'm retired."

Wow, he meant it too!

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Our mission is to help inform and educate the public about alternative treatments that are less invasive and employ more natural therapeutics. We in no way are suggesting that regular medical treatments should not be sought and with some conditions we will suggest a referral to the appropriate specialist.

We wish to provide hope to those people suffering and especially to those with chronic conditions. It is our purpose to provide you with knowledge that is helpful and can provide better health.

Bringing you Natural Healthcare Information

NATURAL APPROACHES TO CHOLESTEROL

Here are some helpful suggestions to reduce cholesterol levels:

1. Consume more raw and unprocessed foods. Avoid consumption of refined carbohydrates.
2. Eat plenty of foods rich in omega 3 fats, avoid trans fats and avoid consumption of too many polyunsaturated fats.
3. Eat heart healthy foods like olive oil, coconut oil, raw dairy, eggs, avocado, raw nuts/seeds and organic grass fed meats.
4. Exercise daily

5. Decrease stress levels
6. Avoid smoking and excessive alcohol consumption.
7. Get proper levels of sleep

Another two important metabolic problems that lead to increased inflammation and increased “bad” cholesterol levels are hypothyroidism and insulin resistance. These two problems need to be balanced naturally or else cholesterol reduction is impossible. You may refer to prior newsletters on these topics.

Atherosclerosis is primarily a problem with inflammation within the medium to large

sized arteries in the body. Therefore, taking certain compounds to reduce inflammation is vitally important such as, curcumin, alpha and gamma tocopherols, vitamin B,C,D and K2. Folic acid, selenium, zinc, SOD, raw coca, green tea, grape seed extract, resveratrol and pure pomegranate juice will reduce inflammation in the arteries. If you are taking statins, always take the reduced form of Coenzyme Q10 called Ubiquinol.

Red yeast rice is sold as a “natural” way of reducing cholesterol. Be aware that this product has the same effects as statins. Not recommended.

