

THE IMPORTANCE OF CHOLESTEROL IN THE BODY

DEFINITION: Cholesterol is a high molecular weight sterol. Cholesterol is not a fat. (*It is fat soluble.*)

FUNCTIONS

1. Cholesterol is an important component of the cell membranes, including organelle membranes inside the cell. (*The body contains billions of cells.*)
2. The right proportion of phospholipids, fatty acids, and cholesterol in cell membranes allows them to be flexible while still holding their shape
3. “Cholesterol is used by the body as raw material for the healing process. This is the reason the injured areas in the arteries (*as in atherosclerosis*)...have cholesterol along with several other components (*such as calcium and collagen*) in the ‘scar’ tissue that is formed to heal the ‘wound’.”¹
4. Cholesterol is found in large amount in brain tissue where it is needed for normal brain function. Research has shown that cholesterol in eggs is helpful to older people whose memory is declining.²
5. Cholesterol often elevates as part of a protective immune system response to chronic infection.
6. Infants need plenty of cholesterol for proper brain development and cholesterol is normally found in large amounts in human breast milk. (*Infant formulas usually contain little to no cholesterol because of the widespread lack of understanding about cholesterol.*)
7. Adrenal and gonadal hormones are made from cholesterol. These are the stress handling, energy producing and reproductive hormones. (*This is why serum cholesterol normally elevates with excessive or prolonged stress.*)
8. Cholesterol is vital for proper nerve function. Three quarters of the myelin membrane is made from fat and of that nearly one quarter is cholesterol.
9. Vitamin D is made from cholesterol in the skin.
10. Cholesterol is converted into bile salts in the liver which are needed to break down and emulsify fats.
11. Cholesterol is needed in large amounts in the skin where it is vital for skin health and strength.
12. Although lowering serum cholesterol does seem to decrease deaths from heart disease, it “does not, in the least, improve overall mortality rates. People who achieved the lowest cholesterol levels—160 units or less—had unexpectedly higher rates of death from other causes, such as liver cancer, stroke, lung disease, alcoholism, and suicide...”³
13. “Brain synapses. Synapses, the vital connections between nerve cells in the brain, and elsewhere, are made almost entirely of cholesterol.”⁴

CHOLESTEROL TRANSPORT

1. To perform its many important functions in the body, cholesterol is transported from the liver to the cells, tissues, and glands on low density lipoprotein carriers (*LDL's*).
2. Reverse cholesterol transport (*from the cells and tissues to the liver*) is via high density lipoprotein carriers (*HDL's*).

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REPORTED SIDE EFFECTS OF STATIN AND CHOLESTEROL-LOWERING MEDICATIONS

1. Chronic aches and pains (*especially in muscles and joints*)
2. Progressive cognition and memory problems, confusion, mood problems, depression, dementia
3. Impaired (*slowed*) wound healing
4. Numbness, tingling, swelling, weakness
5. Impaired immune function
6. Increasing fatigue, decreased stress-handling ability, impotence
7. De-myelination disorders such as ALS and MS
8. Liver problems
9. Shortness of breath
10. Increased incidence of Heart Failure, increased susceptibility to degenerative processes

Note: *Currently, most of these commonly reported issues are routinely denied by prescribing practitioners and the pharmaceutical industry. Patients reporting these side effects are often told things like “Everybody has aches and pains,” or “What do you expect? You’re getting old!” If this has happened to you, please review the further sources of information about common cholesterol drug side effects at the end of this handout.*

SOURCES OF CHOLESTEROL

1. The body makes most of the cholesterol needed in a day (*especially in the liver*).
2. Since it is not possible for humans to eat enough cholesterol-containing foods to supply our daily needs, the practice of avoiding foods with cholesterol is not an effective way to control serum cholesterol.⁵ Not eating cholesterol simply makes the body work harder to produce enough.
3. Cholesterol is found only in animal tissues where it is a component of membranes. “That is why there is more cholesterol in the lean tissue than there is in the adipose tissue.”⁶
4. “The synthesis of cholesterol is increased more from the consumption of polyunsaturated fatty acids than from the consumption of saturated fatty acids.”⁷ The reason for this is that polyunsaturated fatty acids are deposited into the cell membranes and the body then needs to put more cholesterol into these membranes to stabilize them and maintain their correct fluidity (*melting point*).⁸
5. Only about 50% of the cholesterol in food is absorbed.

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FURTHER INFORMATION

For other sources of information about the importance of cholesterol in health and commonly reported side effects of cholesterol lowering drugs see:

- ***The Cholesterol Myths: Exposing the Fallacy that Saturated Fat and Cholesterol Cause Heart Disease*** by Uffe Ravnskov, M.D., PhD., New Trends Publishing. (2000)
- ***Statin Drugs Side Effects and the Misguided War on Cholesterol*** by Duane Graveline, MD. Also visit his website at www.spacedoc.net (2005)
- ***The Great Cholesterol Con: The Truth about What really Causes Heart Disease and How to Avoid It.*** By Dr. Malcom Kendrick, John Blake Publishing Ltd. (2007)
- ***Know Your Fats: The Complete Primer for Understanding the Nutrition of Fats, Oils and Cholesterol*** by Mary Enig, PhD, Bethesda Press. One of the best books explaining the issues about fats in easy to understand terms. (2000)
- ***Eat Fat, Lose Fat*** by Sally Fallon and Mary Enig, PhD, Hudson Publishing. A patient aimed, straightforward summary of the debate surrounding fats and the evidence of its necessity in health. Recommend to patients for recipes that will incorporate healthy fats into their meals. (2005)
- ***Cholesterol Facts & Fantasies*** by Judith A. DeCava, CNC, LNC, Selene River Press, Inc. (2005)
- www.cholesterol-and-health.com - A private site developed to offer a patient friendly, yet detailed look at cholesterol's chemistry, synthesis, and function.
- www.thincks.org - The International Network of Cholesterol Skeptics website. An organization of international health professionals aimed at defusing the campaign against cholesterol. A great compilation of books, publications and research, both published and unpublished, as well as a discussion group.
- www.price-pottenger.org - Price-Pottenger Nutritional Foundation is a non-profit educational resource offering a library of over 10,000 books and publications on health and nutrition. This site contains volumes of journal archives on fat and health (*a few are available online*).

¹ Enig, Mary G., Ph.D., *Know Your Fats: The Complete Primer for Understanding the Nutrition of Fats, Oils and Cholesterol*, Bethesda Press, (2000) p57

² Singer, M. 1995, University of California at Berkeley.

³ Rudin, Donald, M.D. and Felix, Clar, *Omerga-3 Oils: A Practical Guide*, Avery Publishing Group (1996) p18

⁴ Kendrick, Dr. Malcom, *The Great Cholesterol Con: The Truth About What Really Causes Heart Disease and How to Avoid It*, John Blake Publishing Ltd. (2007), p13

⁵ Enig, Mary G., Ph.D., *Know Your Fats: The Complete Primer for Understanding the Nutrition of Fats, Oils and Cholesterol*, Bethesda Press, (2000) p50

⁶ Ibid. p50

⁷ Ibid. p57

⁸ Ibid. p104