



NUTRITION AND CHOLESTEROL

Heart Healthy Eating

What's inside this Special Wellness Newsletter:

WHAT IS CHOLESTEROL AND WHY IS IT IMPORTANT?

WHAT DO MY LAB VALUES MEAN?

WHAT CAUSES HIGH CHOLESTEROL LEVELS?

HOW CAN DIET HELP MY CHOLESTEROL LEVELS?



What To Expect in this Newsletter

High cholesterol is a common health issue that many individuals deal with. It is also a health issue that is directly correlated with high stress, something we all are experiencing the school year!

And, while common, the subject of cholesterol can be confusing. What is the difference between "good" cholesterol and "bad" cholesterol? How can we utilize nutrition to improve our cholesterol levels?

One of the first things you can do is take steps to lower stress - meditate, make sure you are getting enough sleep, and spend quality time with your family. Aside from that, you can also utilize food and nutrition for healthy cholesterol levels. This newsletter contains information and tips to utilize for healthy cholesterol levels!

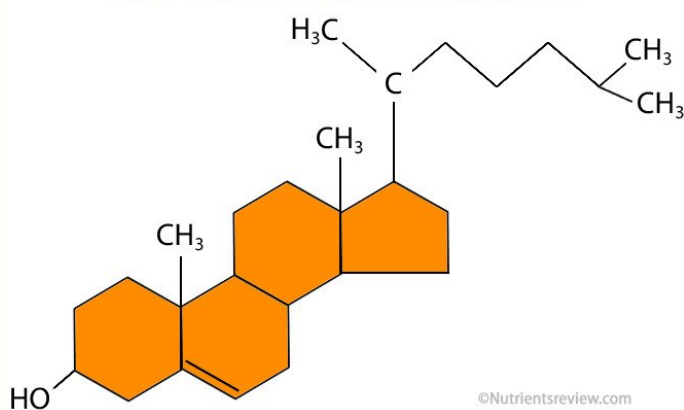
First, What is Cholesterol?

AND WHY IS IT IMPORTANT?

Cholesterol is a type of steroid which is one of the classes of lipids or fats. It is a waxy substance that is known for its four ring chemical structure (see below).

Although we often think of cholesterol being a bad substance, cholesterol is actually essential to life. It is a primary component to the membrane of every cell in the body and it acts to keep cell walls rigid and firm. It is also the starting compound that the body uses to make steroid hormones, bile acids for digestion, and vitamin D. In short, we need cholesterol!

CHOLESTEROL



However, as with most things, there are problems when there is too much. High levels of cholesterol in the blood can be a risk factor for the build up of plaque on the walls of arteries, a condition referred to as atherosclerosis. Atherosclerosis can prevent the heart from getting enough blood and can lead to heart attacks and strokes.

So how does the build up of cholesterol in the blood happen in the first place? First, cholesterol in the human body comes from two sources. The majority is made in the liver and then is released into the blood.

We also obtain cholesterol from the animal foods that we eat (it is not found in plant foods). Dietary cholesterol is absorbed in the small intestine and then circulates into the blood. It is important to note that in healthy individuals, the liver will lower the amount of cholesterol that it makes in response to levels of dietary intake.

After being made in the liver or coming from food, cholesterol then enters the blood. It actually does not travel as cholesterol alone. It needs a transporter.

Because cholesterol is a type of lipid, it does not dissolve in the blood, which is mostly composed of water. The body uses special carrier proteins to transport cholesterol through the bloodstream. These special carriers are called lipoproteins. Lipoproteins are spherical particles that pack cholesterol on the inside while surrounded by water-friendly components on the outside so that they can travel freely in the blood.

WHAT DO MY LAB VALUES MEAN?

AND WHAT IS THE DIFFERENCE BETWEEN BAD AND GOOD CHOLESTEROL?

The terms "cholesterol levels" or "blood cholesterol" or "good and bad cholesterol" can be misleading as cholesterol levels and lipid panels refer to the levels of lipoproteins in the blood. As was mentioned on the last page, because cholesterol is a type of fat, it does not dissolve in the blood.

Therefore, cholesterol is carried throughout the body by different types of lipoproteins. Therefore, the different types of cholesterol levels actually show the type of lipoprotein that are carrying cholesterol throughout the body. The different types of lipoproteins either take cholesterol to parts of the body to be used or back to the liver to be taken apart and digested. Here are the types of lipoproteins that will show up on your lipid panel.

Total Cholesterol: The sum of HDL, HDL, and VLDL cholesterol levels.

HDL Cholesterol: High-Density Lipoprotein. This lipoprotein picks up cholesterol from the body's arteries and tissues and transports it back to the liver to be broken down and excreted from the body.

LDL Cholesterol: Low-Density Lipoprotein. This lipoprotein transports cholesterol from the liver to the body's tissues for use in the body. LDL lipoproteins also deliver cholesterol in the arteries, leading to plaque build up. This raises the risk for cardiovascular disease and stroke.

VLDL Cholesterol: Very-Low Density Lipoprotein. This lipoprotein is released into the blood by the liver and is converted to LDL as it loses triglycerides.

Triglycerides: A type of fat found in the blood. While not a type of lipoprotein that carries cholesterol, triglyceride levels are often included on lipid panels. High levels can also indicate risk for cardiovascular disease.

Generally, cardiovascular risk has been assessed using two lab values: total cholesterol and high LDL. Both are well-established risk factors.

Type of Cholesterol:	Healthy Levels	Borderline High	High
Total Cholesterol	100- 200mg/dL	200-239mg/dL	At or above 240 mg/dL
VLDL	5-40mg/dL	40mg/dL or higher	
LDL	Less than 100mg/dL	100mg - 159mg/dL	160-189 mg/dL; Very High = At or Above 190 mg/dL
HDL	40mg/dL or Higher	For HDL Cholesterol, higher levels are associated with a lower risk of heart disease. Levels lower than 40mg/dL are considered worrisome	
Triglycerides*	0mg/dL - 149 mg/DL	150-199 mg/dL	200-499 mg/dL

WHAT CAUSES HIGH CHOLESTEROL LEVELS?

AND HOW MUCH IS GENETICS?

Cholesterol levels are impacted by multiple factors, including the quantity and quality of fats in the diet, the quantity and quality of carbohydrates, the level of fat in recent meals, and the amount of stored fat in the body. Many factors outside of diet also contribute. Here is a brief list:

- Unhealthy diet
- Lack of exercise and movement
- Smoking or exposure to tobacco
- Excessive alcohol consumption
- Stress!!!
- Weight. It is important to note that while weight loss has been shown to improve cholesterol levels, often non-weight centered approaches can be more effective at improving risk factors. In such approaches, body weight is not considered the primary goal (although you certainly may lose weight through the process), rather the focus is on eating nutritious foods based on your body's hunger cues, physical activity, and other behaviors.
- Genetics & family history. Don't forget that your liver makes cholesterol and that this accounts for much of the cholesterol in your body. In healthy individuals, the liver also adjusts how much it makes based on how much you are consuming. For some, this system may not work very well and cholesterol levels may rise regardless of dietary intake. Those with genetic pre-dispositions to unhealthy cholesterol levels should work with a medical doctor to determine if medication is necessary.

HOW DOES DIET AFFECT CHOLESTEROL LEVELS?

Diet can positively or negatively affect your cholesterol levels. Remember, we want to increase HDL cholesterol if it is low, decrease LDL cholesterol if it is high, and decrease total cholesterol if it is high.

Foods/Nutrients that have a positive effect:

- Fiber, especially soluble fiber
- Essential Fatty Acids: Omega-3s and Omega-6s!
- Foods high in polyunsaturated and monounsaturated fats: avocados, nuts, olive oil, avocado oil, sa
- Nuts
- Legumes
- Vitamins: Niacin (Vitamin B3), Pantothenic Acid (Vitamin B5)

Foods/Nutrients that have a negative effect:

(Note that the foods on this list exert negative effects when consumed in excess)

- Saturated Fat
 - Foods high in cholesterol
 - Processed meats
 - Added sugar - i.e. soda, processed desserts
 - Coffee - 6 cups or more per day
-

SO WHAT SHOULD I EAT?:

STRATEGIES FOR HEALTHY LIPID PANELS

Deciding what to eat to improve cholesterol levels can be an overwhelming endeavor! There is a lot of information out there. Below is a brief outline of a step-by-step approach you can take to slowly change your eating habits.



Ask yourself the following questions to optimize your diet for heart health. Use a food journal to track what you eat for three to five days to answer these questions!

What is the quality of fat in your diet like?

Do a review of the types of fat you normally consume. If you find you have a high Intake of saturated fats, try to add In more:

- Polyunsaturated fats: walnuts, pine nuts, flaxseed, pumpkin seeds and sesame seeds.
- Monounsaturated fats: olive oil, avocados, peanut butter and most nuts.
- Omega-3 fatty acids: try to eat fatty fish, like salmon, at least once per week!

Also, don't cut out saturated fat completely!

What types of carbohydrates do you eat?

Do a review of the types of carbohydrates you consume on a day to day basis. If you find that a large amount of the carbohydrate content In your diet comes from foods and drinks with sugars or added sugars, try to decrease consumption of these foods and add In the following:

- Potatoes
- Sweet potatoes, butternut squash, acorn squash
- Grains like rice, quinoa, oatmeal
- Fruit
- Snacks without added sugar such as pretzels, popcorn and

Do I eat enough vegetables and fruit everyday?

Make sure you are eating 3-5 servings of vegetables per day! And 2-3 of fruit!
