

CHOLESTEROL & ATHLETES

What is Cholesterol?

Cholesterol is a fat-like substance, made by the liver, that is found in most body tissues. Dietary cholesterol is found in animal-based foods. Cholesterol does not mix with the blood, but instead circulates in the body via lipoprotein carriers. Although active people usually have lower levels, it is not unheard of for some athletes to have elevated cholesterol levels. A lipid profile blood test assesses how well the body is processing and circulating cholesterol in the blood.

There are 3 types of lipoproteins that carry cholesterol in the blood:

High-Density Lipoprotein (HDL)

- "Good" cholesterol
- Clears cholesterol from blood vessels & removes it from the body

Low-Density Lipoprotein (LDL)

- "Bad" cholesterol
- Carries cholesterol throughout the body, causing plaque build-up in blood vessels

Very Low-Density Lipoprotein (VLDL)

- "Bad" cholesterol
- Carries triglycerides throughout the body, also contributing to plaque build up in the arteries

What are Triglycerides?

Triglycerides are the most common type of fat found in the body. When additional calories are consumed and not used as energy, they are converted to triglycerides and stored in fat cells.

Lipid Profile Blood Test

A lipid panel blood test is a simple, affordable way to assess cholesterol levels and coronary risk.

Reference Range

TC = < 200 mg/dl
HDL = > 40 mg/dl
LDL = < 100 mg/dl
TG = < 150 mg/dl
TC/HDL = < 5

What is Hyperlipidemia?

Hyperlipidemia, also known as elevated cholesterol, is defined by blood containing elevated amounts of lipids or fats. Elevated LDL and VLDL levels result in plaque formation in blood vessels that restricts blood flow, causing narrowing of the arteries, known as atherosclerosis. If left untreated, persistent hyperlipidemia raises the risk of heart disease and stroke, even in athletic populations. This is the leading cause of sudden death in athletes. High cholesterol often has no signs or symptoms, leaving hyperlipidemia untreated.

Elevated total cholesterol (TC) can be a result of elevated HDL, LDL, or a combination of the two. A total cholesterol to HDL Ratio or TC/HDL, is often calculated to determine risk of developing heart disease. Depending on the severity, a healthcare provider may suggest lifestyle and/or dietary changes to assist in managing LDL cholesterol levels.

Risk Factors for Developing High Cholesterol

Genetics

Familial high cholesterol is a predisposing factor for elevated cholesterol levels

Exercise

For sedentary + strength/power athletes, this may be a contributing factor

Diet

Low carb diets + high levels of training, high intakes of sat. fat and cholesterol, + low intakes of fiber can increase LDL levels

Stress

Chronic stress can increase LDL cholesterol and decrease HDL cholesterol

Alcohol

Excessive alcohol intake raises triglyceride and LDL levels in the blood

Smoking

Tobacco use and smoking lowers HDL cholesterol

CHOLESTEROL & ATHLETES

Tips & Tricks to Manage Cholesterol

- Regular aerobic exercise increases HDL & decreases LDL
- Manage stress levels
- Reduce intake of saturated and trans fats
- Eat oily fish & lean proteins (salmon, tuna, chicken, etc.)
- Incorporate "healthy" plant-fats (avocado, chia seeds, olive oil, etc.)
- Eat a wide variety of fruits & vegetables
- Choose foods high in soluble fiber (oats, bananas, apples, nuts, etc.)
- Choose whole grains (whole wheat bread, brown rice, barley, etc.)

| Eat MORE | Eat LESS |
|--|---|
| Oatmeal Whole wheat, quinoa, barley Beans and legumes (black beans, chickpeas, lentils, etc.) Nuts and seeds Liquid plant oils - canola, olive, safflower Apples, grapes, strawberries, citrus fruit Fish - salmon, tuna, mackerel | Red meat - higher fat cuts Processed meats - sausage/bacon Pastries - croissants, fried donuts Large amounts of cheese Solid saturated fats - palm oil, coconut oil, lard Margarine, hydrogenated oils Packaged cookies and cakes Fried foods - potato chips, french fries |

Myths about Cholesterol

Current public health recommendations suggest limiting full-fat dairy products based on early studies linking dietary saturated fat, elevated cholesterol and increased risk of cardiovascular disease.

There is increasing evidence to suggest full-fat dairy products do not impose detrimental effects on blood lipid profile and blood pressure.

Dairy products are nutrient dense foods that may protect against CVD.

Athlete Recommendations

| Meal Ideas | Snack Ideas |
|---|--|
| Toast topped with egg, avocado, tomato | Trail mix with nuts, seeds + dark chocolate |
| Ground chicken with broccoli, chickpeas, brown rice | Greek yogurt parfait with strawberries + whole grain granola |
| Whole wheat pita filled with tuna, cucumber, tahini | Grapes + cheese stick |
| Oatmeal made with protein powder topped with berries, almonds | Cottage cheese with apple, cinnamon, honey |
| Pesto chicken + green beans on whole wheat pasta | Whole grain crackers with smoked salmon, tomato |
| Salmon with sweet potato, brussel sprouts | Hummus + veggie sticks |