High Blood Triglycerides

Patient-Centered Education From the National Lipid Association

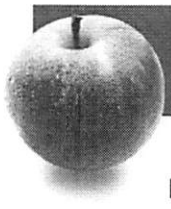
What Are High Triglycerides?

Triglycerides (TGs) are essential fats (also called "lipids") transported in our bloodstream with cholesterol. They are called *tri*glycerides because each molecule contains three fatty acids. TGs are the major source of energy used and stored by our bodies. They come from two sources—what we eat and what our liver makes. High blood TG levels can be genetic, or caused by diabetes, thyroid problems, kidney disease, or some medicines.

Blood TG levels are measured in laboratory tests along with cholesterol. Since neither of these fats can dissolve in the blood, they are transported together as 'passengers' in vehicles called "lipoproteins." When these vehicles contain many TG passengers, they are known as "triglyceride-rich lipoproteins." Those made by the liver are called 'very low-density lipoprotein,' or 'VLDL.' Those made by the intestine after eating are called 'chylomicrons.' Whenever TG-rich lipoproteins are present in the blood in high numbers, the TG level will be reported as increased. Conditions linked to high TGs, like diabetes, thyroid and kidney disease, are usually tested at the same time. Blood levels of TG (mg/dl) are shown below:

Normal – Less than 150	Borderline High – 151-199	High – 200 to 499	Very High – More than 500

High triglycerides are common, and linked to serious health risks. Almost 1 in 3 Americans have high TGs. High TG levels lower 'good' HDL-cholesterol. Further, when blood TGs and 'low density lipoprotein' or 'LDL' cholesterol are both elevated, heart disease and stroke risk are increased. Many experts believe that a very useful measure of heart disease risk is "non-HDL Cholesterol" calculated as Total cholesterol minus HDL-Cholesterol, which measures both VLDL and LDL-cholesterol. A blood TG level greater than 500mg/dl also increases the risk of inflammation of the pancreas, or 'pancreatitis,' another serious health condition.



Diet and Lifestyle Changes To Reduce High Triglycerides

Limit white breads, white rice, white potatoes, sweetened beverages, sugared cereals, cakes and cookies. Choose whole grain breads, cereals and pasta, brown and wild rice, and fresh fruit. Restrict alcohol use to 1 drink daily or less for women, and maximum of 2 drinks daily for men.

If your TGs are more than 500 mg/dl, also reduce your total dietary fat to less than 15 % of calories. See a Registered Dietitian Nutritionist for help.

Exercise regularly—perform moderate cardio exercise for at least 150 minutes per week.

If you are overweight, lose weight—a weight loss of just 5-10% of your body weight will lower TGs.

If you have diabetes, a hemoglobin A1C <7% is a good target for most patients.

Medications For Reducing High Triglycerides

Statins are the preferred lipid medication for lowering blood TGs up to 500 mg/dl, and some experts choose them for TGs up to 999mg/dl. Stronger statins like atorvastatin or rosuvastatin lower TG more than weaker statins, like simvastatin or pravastatin

Fenofibrate is often chosen as the lipid lowering medication when TG levels are more than 1,000 mg/dl, and can reduce TGs by up to 50%.

Prescription Fish Oils taken at 4 grams per day can be used instead of or in addition to fenofibrate.

Niacin alone can lower TG levels by up to 30%. New medications are also in development.

Many medications and medical conditions can raise blood TGs. Review these with your care provider.

For More Information

Triglycerides and Cardiovascular Disease—A Statement from the American Heart Association. Circulation 2011;123:2292.

Courtesy of the National Lipid Association And Your Provider

Triglycerides

What are triglycerides?

Triglycerides are a type of lipid (fat). Your body gets triglycerides from fats in the food you eat. When your body digests food, fats in the food change to triglycerides. Your liver also makes triglycerides. Your blood carries triglycerides to all parts of the body to be used as energy or stored as fat.

Triglycerides combine with protein in your blood to form substances called high-density and low-density lipoproteins. The lipoproteins contain cholesterol, which is one of the fats in blood that is related to heart disease.

Generally, it is good to have a triglyceride level less than 150 milligrams per deciliter (mg/dL) or lower. Triglycerides higher than this may increase your risk of health problems. For example:

- A high triglyceride level is one of the components of metabolic syndrome. Metabolic syndrome increases your risk for heart disease.
- A level above normal may be a risk factor for diabetes.
- Very high triglycerides may increase the risk for inflammation of the pancreas (pancreatitis).

What causes high triglyceride levels?

High triglyceride levels may have several causes:

- Weight gain. Triglyceride levels usually increase as your weight increases.
- Too many calories in your diet, especially from sugar and alcohol. Alcohol increases your liver's production of triglycerides. It also reduces the amount of fat cleared from your blood.
- Age. Triglyceride levels go up as you get older.
- Medicines. Some drugs, such as birth control pills, steroids, and diuretics (water pills), can cause triglyceride levels to rise.
- Illness. Medical conditions associated with high triglyceride levels are diabetes, hypothyroidism, kidney disease, and liver disease.
- Heredity. Some forms of high triglycerides run in families.

How are triglycerides measured?

Your healthcare provider can measure your triglyceride level with a simple blood test. You should not eat for 12 to 14 hours before the test. Your provider wants to know the amount of triglycerides being made by your liver rather than what is made from foods you have eaten.

How are high levels treated and prevented?

Here are things you can do to lower your triglyceride level:

- Lose weight if you are overweight.
- Get regular exercise.

- Eat less sugar and sugar-containing foods.
- Eat several small meals and healthy snacks throughout the day instead of 2 or 3 large meals.
- Drink less alcohol.
- Get no more than 20 to 35% of your total calories from fat.
- Eat 2 or 3 meals of fish, such as salmon or mackerel, each week. (Fish oil has been found to reduce triglycerides.)

If these lifestyle changes do not lower your triglyceride levels, your healthcare provider may prescribe a medicine. The medicine can decrease the liver's production of triglycerides and clear triglycerides from your blood. The medicine will helps lower cholesterol and your risk for heart disease.

HEALTHY DIET DO'S AND DON'TS TO HELP LOWER VERY HIGH TRIGLYCERIDES

	CHOOSE	LIMIT
Beverages	Water Fresh fruit juices Sugar Free or diet drinks	Regular soda Fruit drinks Sweet iced tea Alcohol
Breads, Grains, Pastas & Beans	Oats, whole wheat,quinoa, barley, millet & brown rice Black eyed peas, kidney & pinto beans	Refined grains White flour Bleached or enriched foods
Fruits & Vegetables	Spinach & Kale Cantaloupe, grapefruit, strawberries, peaches & bananas	Potatoes Corn Canned fruits Dried fruits
Dairy, Fats, Oils	Low Fat milk Low Fat yogurt Low Fat Margarine Olive & canola oil	Whole milk Flavored yogurt Butter Cream
Meat & Fish	Skinless chicken Turkey Salmon, mackerel, tuna & trout	Fatty meats Lunch meats Hot dogs