

Tricky triglycerides



Cholesterol always gets a bad rap, but few medical consumers—and even health professionals—finger triglycerides as a more likely suspect in heart disease causation.

Triglycerides are circulating fats in the bloodstream. That fact was memorably brought home to me in medical school when I first drew blood on an overweight patient. The blood came out pink, as opposed to the usual dark crimson; it reminded me of borscht, which starts out beet red, but assumes a lighter shade when you stir in liberal amounts of full-fat sour cream. As the blood sample sat in its test tube awaiting a trip to the lab, it separated out with a cream layer on top, like a bottle of oil & vinegar salad dressing that's been sitting in the fridge.

Trick question: If triglycerides represent fats in the blood, what dietary intervention is *most* likely to lower them? If you answered “a low-fat diet”, don't feel bad, because that's the way the medical profession has addressed this problem since forever. It's only recently that the crucial role of excess dietary *carbohydrates* in boosting triglycerides has been acknowledged.

A 2021 WebMD article about triglycerides advises:

“Try to lower the saturated fat, trans fat, and cholesterol in your diet . . . [Avoid] foods high in saturated fat, such as red meat. Butter and cheese contain

these same triglyceride-boosting fats. Choose lean meats or protein alternatives, such as chicken and unprocessed turkey, that are lower in saturated fat. Another healthy option: Make meatless meals. Vegetarian pastas, chilis, and stir-fries are a delicious alternative to meat dishes."

They do allow, however, that, *"Cutting back on carbohydrates will help, too."*

In tandem with the Cholesterol Hypothesis which launched the low-fat diet craze, there's a mechanistic assumption that dietary fat enters the bloodstream, gets absorbed, and then "gunks up the arteries". It's an appealing theory, and to anyone who's clogged their kitchen drain with too much bacon grease, it seems intuitive.

But the body is not a passive receptacle for dietary macronutrients. If it were, bodybuilders would attain Schwarzenegger physiques merely by quaffing vats of protein powder; egg eaters would all die young of accumulated arterial cholesterol, and there would be no vegans with high triglycerides.

Such is not the case. Rather, the human body is like a medieval alchemist, with an uncanny ability to convert dross to gold—if we treat it right.

Cracks in the dietary fat/triglyceride connection began to appear in the 2000s. A 2013 review found:

"Consumption of foods rich in saturated fatty acids (SFA) has often been associated with elevated blood lipid levels and consequently with risk for chronic diseases, including coronary heart disease. However, epidemiological and interventional studies on this topic are contradictory. While some studies have established a positive link, other studies have failed to show a significant association between saturated fat consumption and blood lipid levels, and others have even found an inverse association."

In a 2009 study entitled "Carbohydrate restriction has a more favorable impact on the metabolic syndrome than a low fat diet", a relatively high fat/low carbohydrate diet produced a 51% decrease in triglycerides after 12 weeks. This was notwithstanding a *nearly threefold higher intake of dietary saturated fat.*

And in a study comparing a moderate-fat/low carbohydrate Mediterranean diet to a standard low-fat weight loss diet, the former yielded triglyceride reductions, on average, of 25 mg/dL.

What do triglyceride blood levels have to do with your cholesterol numbers? There's a direct mathematical correlation. One-fifth of your triglycerides adds to your burden of "bad" non-HDL cholesterol in the form of very-low density lipoprotein (VLDL). That means that if you manage to lower your triglycerides by 100 points—say, from 180 to 80—you'll automatically shave 20 points off your total cholesterol without lowering your beneficial HDL.

What are optimal triglyceride levels? Labs establish 150 mg/dL or less as normal, but that's not stringent enough (Overall, 31% of the adult US population have a triglyceride level 150 mg/dL or greater). I strive to get my patients' triglycerides below 80. A double-digit triglyceride level is a sure sign that you're adequately restricting carbohydrates.

Weight matters, too. 43% of Americans have a BMI greater than 30. Many overweight individuals are insulin resistant. Excess insulin—which afflicts the estimated 40% of US adults with metabolic syndrome—is known to drive the liver synthesis of triglycerides. So weight optimization by any means is likely to lower your

triglycerides, but especially with a low-carb diet.

The kinds of carbs you consume make a difference. Fructose, a ubiquitous sweetener in soda, cookies, candies, juices, iced teas, and condiments, is especially likely to drive up triglycerides. Even excess fruit can impact it in susceptible individuals. But a small serving of berries or an apple are likely to have minimal effects.

Studies show that the glycemic index (GI) of foods impacts triglycerides. High-fiber foods are less likely to make triglycerides soar than processed foods. Slowly-released carbs in a fiber matrix trigger a more moderate triglyceride response.

As for medications, statins can lower cholesterol, but have little impact on triglycerides. The temptation is to use fibrate drugs (e.g. Lopid, Tricor, and Fibracor). Among their side effects are:

- Abdominal pain
- Constipation
- Diarrhea
- Dizziness
- Headaches
- Leg cramps
- Muscle weakness
- Jaundice

While fibrate drugs can reduce triglycerides by as much as 50%, a 2011 ABC News exposé concluded that “doctors push fibrate drugs despite scant evidence of effectiveness” and that “two major studies found fenofibrate failed to reduce heart disease risks among diabetic men and women.” They quote one prominent heart authority: “This is a classical example of marketing triumphing over science.”

Counterintuitively, consuming certain fats can *lower* your triglycerides: Namely omega-3s. It’s become part of the marketing push for prescription EPA, which has gained a **coveted FDA approval** for a claim to lower triglycerides. 4 grams a day of prescription omega-3 can lower triglyceride levels by 20% to 30% in most people.

When testing for triglycerides, some authorities adhere to traditional advice to come in fasting. But I prefer non-fasting sampling because, as with blood sugar, a post-meal lipid panel that includes triglycerides can reveal the body’s capacity for handling a dietary challenge. A fatty meal will cause transient “lipemia”—a surge in fat particles in the blood. But metabolically healthy individuals will undergo a smaller uptick than those with heart risk. Studies reveal that **non-fasting triglycerides are better for predicting cardiovascular risk.**

Exercise, too, is a good way to optimize triglycerides. Physical activity can lower triglycerides by as much as 30%—even without diet change or weight loss. It seems to “burn” circulating fats much as it does blood sugar. But exercise also optimizes the body’s response to foods, and dials down liver synthesis of triglycerides from carbs.

So, let’s give triglycerides their due when assessing cardiovascular risk!