



communicating Food for Health

Factors Promoting Elevated Serum Triglycerides and Fatty Liver

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Elevated fasting and postprandial triglyceride (TG) levels are often associated with insulin resistance and are often an early warning sign that someone may be headed toward type 2 diabetes mellitus (DM) and have a heightened risk of developing more atherosclerosis and a fatty liver. In the USA and increasingly around the world we are seeing more people developing the metabolic syndrome, which frequently is a prelude to the development of type 2 DM and cardiovascular disease (CVD). There is a strong consensus that this growing epidemic of metabolic abnormalities (called the “metabolic syndrome”) is being driven in large part by excessive calorie intake coupled with inactivity and the increase in abdominal fat stores. As weight increases, especially in genetically-prone people, so too does insulin resistance and fasting and postprandial TG levels. The Diabetes Pri-

mary Prevention Trial clearly demonstrated the efficacy of a healthier diet, even modest weight loss, and regular aerobic exercise in preventing the progression of the metabolic syndrome to type 2 DM.

Numerous other metabolic disturbances are often associated with elevated TG levels, including elevated blood pressure (BP), reduced HDL-C and impaired reverse cholesterol transport (RCT), smaller but more numerous LDL-particles (-P), increased inflammatory substances (including CRP), elevated fasting and postprandial blood sugar (BS) levels, increased uric acid levels, and a fatty liver. In the longer term, these metabolic disturbances lead to more atherosclerotic plaques and more unstable plaques as well as beta-cell failure and type 2 DM. The majority of individuals who develop these metabolic disturbances eventually succumb to CVD morbidity and mortality. Aside from exercise and weight loss, what other dietary

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July '15

Professional Member Edition

Research

What Steps Can People Take in Order to Reduce Elevated Serum Triglycerides and Fatty Liver?

Practitioner Ideas

Motivate Your Clients with an Interactive MyPlate Challenge:

Client and Consumer Education

Handouts: Recipes and Cooking Tips

1. Rice Salad
2. Banana Cream Pie Rice Pudding

This Month's Handouts

1. Sport Drinks
2. Meals are Like Sonnets
3. Let's Talk About Tuna (2 Pages)

Online: Clipart, Calendar, Recipes, PDF Handouts, Articles, This Month, Newsletter Archive

The partial substitution of carbohydrate with either protein and/or unsaturated fat does lower fasting serum TG levels and CVD risk factors.

changes may reduce fat accumulation in the liver and lower serum TG levels?

Does Replacing Carbohydrate with Fat or Protein Calories Reduce TG Levels?

The answer is generally yes if calorie intake, saturated fat, cholesterol, fiber, and other dietary variables are held more or less constant. This is why most nutrition experts now recommend reducing the amount of dietary carbohydrate and replacing some of the carbohydrate with more unsaturated fat and/or protein as a way to even more effectively lower elevated TG levels and perhaps further reduce CVD risk, especially in those who have type 2 DM. Certainly, the evidence from the OmniHeart Trial demonstrated that the partial substitution of carbohydrate with either protein and/or unsaturated fat does lower fasting serum TG levels and other CVD risk factors. It is assumed that the lower TG levels and changes seen in other CVD risk factors would further reduce CVD events compared to the original higher-carbohydrate DASH diet. The OmniHeart's carbohydrate-rich diet was similar to the

original well-recognized DASH diet. The higher-protein OmniHeart diet appeared to be an even healthier alternative for those who wish to consume additional protein. The higher-unsaturated-fat OmniHeart diet was a sort of Mediterranean-style DASH diet. Although the three versions of OmniHeart diets had distinct features in their macro-nutrient profiles, each was designed to follow many of the principles of the original DASH diet, which likely accounts for a portion of the impressive CVD risk factor reduction from baseline in all three diets compared to a more typical American diet. Given the variety of eating patterns in the US population, the OmniHeart diet patterns offers more flexibility in macronutrient intake that should make it easier to eat a heart-healthy diet and reduce CVD risk. However, it should be noted that the amount of saturated fat, cholesterol, and fiber were the same on all three versions of the DASH-style diet used in OmniHeart clinical trial. The higher-protein diet did not replace beans, whole grains, and fruits with more lean meat and low-fat dairy and the higher-unsaturated-fat

diet did not displace the high-carbohydrate plant foods with more refined oils as those exchanges would have increased the saturated fat and cholesterol content of the OmniHeart diet and reduced the fiber content of the higher-protein diet. Likewise, the saturated fat content would have increased and the fiber content fallen on the OmniHeart higher-unsaturated-fat diet relative to the high-carbohydrate diet. So to keep the saturated fat (and cholesterol) content and fiber content and calorie intake the same on all three versions of the OmniHeart diets, the high-carbohydrate had them eat much larger desserts and more fruit juice on the high-carbohydrate OmniHeart diet compared to the higher protein and unsaturated fat versions of OmniHeart diet. This made it easier to keep the calorie intake (and body weight) the same on all three OmniHeart diets. Therefore, it would be a mistake to conclude that the OmniHeart study suggests people would be better off replacing whole plant foods with more lean meat, low-fat dairy products...
(Continued at <https://foodandhealth.com/elevated-serum-triglycerides/>).

Do a MyPlate Challenge!

The following activity ideas are excerpted from the *Holiday Challenge Contest and Toolkit* from *Food and Health Communications*. It's a great resource to have in your bag of tricks, year round.

The Challenge:

Get MyPlate's recommended dosage of fruits and vegetables, every day.

The Points:

Here's how participants can earn points...

- Met Weekly Goal: 15 points
- Attended Program Presentation: 10 points
- Posted to Social Media About Challenge: 2 points per post

Challenge Details:

This week is all about focus. Participants will not need to adjust their diet in any other way, but they should strive to get MyPlate's recommended servings of fruits and vegetables every day this week. Often, by making room for extra fruits and vegetables in their diets, people end up eating far fewer calorie-dense foods. It's a win-win!

Prize Ideas:

Capitalize on the enthusiasm for fresh fruits and vegetables by offering prizes that make fruit and vegetable preparation/storage easier. Peelers, colorful containers for precut fruit, knives and cutting boards, and fruit/vegetable scrubbers are all great options.

You can also offer fancy seasonal fruits and vegetables as prizes.

Fruit and Vegetable Activity Ideas:

1. A cooking demonstration can make this challenge more approachable. Try...
 - Ways to add greens: soups, potatoes, sides, stews
 - Fruit sautés: great toppings for cereal, yogurt, etc.
2. Discuss seasonal fruits and vegetables. What are special treats at this time of year? The markets should be bursting with seasonal vegetables and fruits. July is Berry Month, after all. It's also Blueberry Month, Watermelon Month, and Peach Month, so those foods may offer a great place to start.
3. Make a display with recipe ideas & colorful pictures.

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