

may be one of the driving forces behind elevated triglyceride levels. In fact, insulin resistance may be the culprit in many of the problems observed in high-triglyceride states.^{4,5}

Since only 3 macronutrient components are available for any diet, a low-fat diet automatically entails increases in the protein and carbohydrate fractions. Most people eat a fixed amount of protein, so the majority of the calories would be shifted to carbohydrates. The problem occurs when the person consumes grains with a high glycemic index, rather than vegetables, as an alternative to fat. The grains are rapidly metabolized to simple sugars, which are clearly associated with elevated triglyceride levels.⁶

An alternative therapeutic approach is to radically reduce consumption of all grains and simple sugars. In contrast to the pharmacologic options that are traditionally applied, it is simple and inexpensive to substitute green leafy vegetables, which have a low glycemic index, for grains and sugars, and there are no toxic effects.

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[The authors respond:]

We thank Kristen MacEachern and Joseph Mercola for their

comments. We apologize for the error in our original article¹ suggesting that hypertriglyceridemia be treated with a 10% fat diet (see correction in the Jan. 7, 2003, issue of *CMAJ*). The recommendation of a 10% fat diet was intended for treatment of chylomicronemia.

Mercola makes the valid point that low-fat diets generally lead to increases in fasting serum triglyceride levels. This issue has been extensively reviewed by Anderson and colleagues,² who, using a formula developed by Mensink and Katan,³ calculated that depending on the presence or absence of fibre in a low-fat diet, there may be an increase of between 0.5 and 0.8 mmol/L in fasting serum triglycerides.

However, measured changes in fasting serum triglyceride levels, although small (less than 0.1 mmol/L), were in the opposite direction.⁴⁻⁶ Postprandial triglycerides decline with low-fat diets but increase with lower-carbohydrate, high-protein diets, which are higher in fat content.⁷ Postprandial remnant particles, particularly the triglyceride-rich particles, are the most atherogenic. This finding suggests that despite somewhat higher fasting serum triglyceride levels, the lower-fat diets may be preferable. In addition, if the sources of carbohydrates are foods with a low glycemic index (e.g., whole-wheat breads, cereals, grains and legumes) and if the amount of fibre in the diet is increased, these changes in triglyceride levels appear to have little clinical significance.

Another argument in favour of lower-fat diets is the epidemiologic data on the relation between diets higher in animal fats and risk of coronary artery disease. Lower-fat diets have been associated with a reduction in nonfatal cardiovascular events.⁸ Furthermore, there are indications that higher-fat diets may be associated with insulin resistance.^{9,10}

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Which way is up?

Why would you put a picture that is upside down on the front cover of *CMAJ* (168[2]:1)?

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[Editor's note:]

We usually turn ourselves inside out trying to get things right, but this time we stood on our heads.