



ORIGINAL RESEARCH COMMUNICATION

Study of the effect of *trans* fatty acids from ruminants on blood lipids and other risk factors for cardiovascular disease^{1, 2, 3}

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Background: The intake of *trans* fatty acids (TFA) from industrially hydrogenated vegetable oils (iTFA) is known to have a deleterious effect on cardiovascular health, the effects of TFA from ruminants (rTFA) are virtually unknown.

Objective: The purpose of the present study was to compare the effects of rTFA and iTFA on plasma LDL concentrations and other cardiovascular disease risk factors in healthy subjects.

Design: In a double-blind, randomized crossover controlled study, 38 healthy men were fed each of 4 experimental isoenergetic diets lasting 4 wk each. The 4 diets were high in rTFA (10.2 g/2500 kcal), moderate in rTFA (4.2 g/2500 kcal), high in iTFA (10.2 g/2500 kcal), and low in TFA from any source (2.2 g/2500 kcal) (control diet).

Results: Plasma LDL-cholesterol concentrations were significantly higher after the high- rTFA diet than after the control ($P = 0.03$) or the moderate- rTFA ($P = 0.002$) diet. Plasma LDL-cholesterol concentrations also were significantly ($P = 0.02$) higher after the iTFA diet than after the moderate-rTFA diet. Plasma HDL-cholesterol concentrations were significantly ($P = 0.02$) lower after the high-rTFA diet than after the moderate-rTFA diet. Finally, all risk factors were comparable between the control and the moderate-rTFA diets.

Conclusions: These results suggest that, whereas a high dietary intake of TFA from ruminants may adversely affect cholesterol homeostasis, moderate intakes of rTFA that are well above the upper limit of current human consumption have neutral effects on plasma lipids and other cardiovascular disease risk factors.

Key Words: *trans* Fatty acids • ruminants • industrial sources • plasma lipids • lipoproteins • cardiovascular disease • healthy men

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