Replace Saturated With Unsaturated Fats to Reduce CHD Risk, Says Cohort Study

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BOSTON, MA — New research suggests it's important for patients' cardiovascular health not only to cut saturated fats from their diets but to trade them out for high-quality carbohydrates and/or unsaturated fats—especially polyunsaturated fatty acids (PUFAs)[1].

Investigation of more than 127,000 cohort participants from the Nurses' Health Study and Health Professionals Follow-up Study showed that replacing 5% of energy intake from saturated fats with an equivalent intake from PUFAs was associated with a 25% decreased risk of developing CHD; replacing with the equivalent intake from monounsaturated fats (MUFAs) was associated with a 15% lower risk.

Although replacing with whole-grain carbs was associated with a 9% lower CHD risk, there was no risk decrease from replacing saturated fats with carbs from refined sugars.

"This shows that the replacement really matters. It's not enough to remove something from your plate and think you're doing yourself a favor," co–lead author Dr Adela Hruby (Chan School of Public Health at Harvard, Boston, MA) told **heart*wire*** from Medscape.

The findings were published in the October 6, 2015 issue of the *Journal of the American College of Cardiology.*

PUFAs, Whole-Grain Carbs Best

The investigators examined data on 84,628 women from the Nurses' Health Study, 1980–2010 and 42,908 men from the Health Professionals Follow-up Study, 1986–2010. All had no history at baseline of CV disease or diabetes.

A food frequency questionnaire was mailed to the participants at baseline and every subsequent 4 years to measure diet patterns. Medical records were also reviewed. At the end of follow-up, there were 7667 incidents of CHD.

The participants who consumed the most PUFAs had a significantly lower risk of CHD compared with those who consumed the least amount (hazard ratio [HR] 0.80, 95% CI 0.73–0.88; *P* for trend <0.0001), which was similarly found in those who consumed the most vs the least whole-grain carbohydrates (HR 0.90, 95% CI 0.83–0.98; *P*=0.003).

On the other hand, there was an increased risk of CHD for the highest consumption of carbs from refined starches and/or added sugars (HR 1.10, 95% CI 1.0–1.21; *P*=0.04).

The HR for CHD was 0.75 after replacing 5% of saturated-fat energy with that of PUFAs (95%% CI 0.67–0.84; *P*<0.0001), 0.85 with MUFAs (95% CI 0.74–0.97; *P*=0.02), and 0.91 with carbs from whole grains (95% CI 0.85 –0.98; *P*=0.01).

In addition, there was a 17% lower risk of CHD after replacing 5% of the saturated-fat energy with equivalent energy from MUFAs and PUFAs together (HR 0.83, 95% CI 0.75–0.91; *P*=0.0001).

Replacing 5% of starches/added-sugar carbohydrates with PUFAs or with carbs from whole grains was also associated with decreased CHD risk (HR 0.78 and 0.89, respectively; *P*<0.0001 for both).

"Our observations, together with evidence-based, population-level and individual-level indicate that recommendations to reduce [saturated fatty acid] SFA consumption should specify replacing SFAs with unsaturated

fats and/or high-quality carbohydrates," write the investigators. "Further . . . research is needed to optimize dietary scoring schemes and optimal substitution ratios."

Hruby noted that the upper-limit recommendation from national dietary guidelines for SFA is 10% of calorie intake. Although physicians are likely to continue suggesting that patients stay below that number, "it's important to let people know what they should replace that energy with. People aren't going to just drop 10% of their intake and not replace it with something," she said.

"Slightly Clearer Message"

"It is time to set aside the low-fat vs low-carbohydrate diet debate. Healthfulness clearly lies in the quality or type of both fat and carbohydrate," writes Dr Robert A Vogel (Department of Veterans Affairs Medical Center, Denver, CO) in an accompanying editorial[2].

The challenge will be to convince an increasingly wary public that we know what we are talking about.

"We have been rightly demonizing saturated and trans fats but ignoring the adverse impact of refined starches and added sugars on CHD," he writes. "The current study also reports that neither low total fat nor low total carbohydrate diets were associated with reduced CHD risk."

Study limitations cited included that "all SFAs do not have the same association with CHD," the unreliability of self-reports, the study's observational nature, and the exclusion of fruits, vegetables, and legumes.

"What we are left with is a slightly clearer message about food as heart medicine," writes Vogel, noting that it's important for patients that healthcare professionals become better informed about nutrition.

"The challenge will be to convince an increasingly wary public that we know what we are talking about."

Trans-Fatty Acids and Outcomes

In other dietary news, investigators led by Dr Marcus E Kleber (Heidelberg University, Germany) looked at the role of trans-fatty acids (TFAs) and mortality in German patients from the Ludwigshafen Risk and Cardiovascular Health (LURIC) study referred for coronary angiography[3].

Examining data from 3259 participants who had measurements of TFA content in erythrocyte membranes, the researchers found 614 total CV deaths and 254 sudden cardiac deaths (SCDs) after a mean follow-up of 10 years. Interestingly, there was an inverse association between CV mortality or SCD and total TFAs, especially due to the presence of naturally occurring TFA C16:1n-7t (trans-palmitoleic acid).

The adjusted hazard ratio for reduced SCD risk was 0.63 (95% CI 0.46–0.86, P=0.004) for the highest tertile of trans-palmitoleic acid consumption vs the lowest tertile. In addition, there were no significantly increased adverse outcome risks for any subgroup of TFA.

These results were published online September 22, 2015 in the *European Heart Journal.*

The investigators point out that the membrane TFA concentrations in this study was very low compared with those found in a recent study of US patients (mean 0.96 vs 2.68).

Still, the highest concentrations of TFA in their participants "were associated with mostly favorable metabolic profiles, with lower [triglycerides], lower fasting glucose, and lower blood pressure," they write.

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3. Kleber ME, Delgado GE, Lorkowski S, et al. Trans fatty acids and mortality in patients referred for coronary angiography: The Ludwigshafen Risk and Cardiovascular Health Study. *Eur Heart J* 2015; DOI:0.1093/eurheartj/ehv446. Article

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