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Higher Intake of Trans Fats Harms Brain Function

Megan Brooks | June 19, 2015

Higher intake of trans fat, commonly used in processed foods to improve taste, texture, and shelf life, has been linked to worse memory function in men in their prime earning years.

Beatrice A. Golomb, MD, PhD, of the University of California, San Diego, and colleagues analyzed data on 694 men who completed a dietary survey and a word recall test. On average, men aged 45 years and younger recalled 86 words.

However, each gram per day of dietary trans fatty acid intake was associated with an estimated 0.76 fewer words recalled ($P = .006$). This translates into 11 to 12 fewer words recalled with the highest intake vs none from a mean of 86 words, they report.

Adjustment for systolic blood pressure, waist circumference, and body mass index, but not lipid or glycemic variables, attenuated the relationship, "consistent with mediation by factors involving, relating to, or concurrently influencing, these factors," the investigators write.

These observational data in humans are "buttressed by experimental data in animals [in that] rats fed trans fats have impaired memory acquisition," Dr Golomb told *Medscape Medical News.*

"In terms of brain function more broadly, our work has previously shown an association between trans fat consumption and worse mood and more aggressive behaviors. Thus, trans fats show adverse associations with two of the other key pillars of brain function, mood and behavior," she said.

The study was published online June 17 in *PLoS One.*

Dr Beatrice Golomb

Lean Diet, Sharp Mind

A large body of research has linked trans fat intake to other health risks, including higher rates of cardiovascular disease and obesity.

Dr Golomb believes complete avoidance of industrial trans fats is a "very reasonable dietary recommendation. Evolution did not intend or prepare for exposure, there is no need for these fats, and they are adversely associated with an array of outcomes. The evidence really does support that trans fats improve the shelf life of food — but reduce the shelf life of patients," she said.

Commenting on the findings for *Medscape Medical News*, Alice H. Lichtenstein, DSc, director and senior scientist, Cardiovascular Nutrition Laboratory, Tufts University, in Boston, Massachusetts, said the study results are "interesting, but the limited amount of data presented makes it difficult to determine whether the putative component of the diet is the trans fat, another component(s) of the diet, overall diet quality, or chance."

"Frequently, individuals who consume diets with higher levels of trans fat tend to consume less healthy diets in general — for example, fewer fruits and vegetables and whole grains and more commercially prepared baked and fried foods. To fully evaluate the study, it would be important to see the full scope of the nutrients and food group in the diet and some estimate of diet quality, and then see whether there are additional associations with memory or whether it is unique to trans fat," said Dr Lichtenstein, who was not involved in the study.

"We currently recommend people consume as little trans fat as possible. These new findings would not change that recommendation," she added.

Also commenting on the study, Shaheen Lakhan, MD, PhD, executive director of the Global Neuroscience Initiative Foundation, told *Medscape Medical News* the findings "confirm that proper nutrition is essential for cognitive function."

"What has recently emerged," he noted, "is the association of obesity with cognitive decline and that intake of trans fatty acids may mediate the influence of obesity on cognitive function. As a neurologist, I am frequently asked how to prevent dementia and preserve memory. With this and other evidence, I can confidently counsel my patients to avoid food with high trans fats. After all, sharp minds run on lean diets."

Earlier this week, as reported by *Medscape Medical News*, the US Food and Drug Administration announced regulations requiring food manufacturers to remove partially hydrogenated oils (PHOs), the main source of artificial trans fat, from processed foods in the next 3 years.

Artificial trans fat in processed foods are not "generally recognized as safe" for use in human food, and the elimination of PHOs could prevent 20,000 heart attacks and 7000 deaths from heart disease each year, the FDA said.

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