

TEATRO NATURALE International

Trans-palmitoleic acid against diabetes

The compound is a fatty acid found in milk, cheese, yogurt, and butter that may substantially reduce the risk of type 2 diabetes

by Graziano Alderighi

Trans-palmitoleic acid may underlie epidemiological evidence in recent years that diets rich in dairy foods are linked to lower risk of type 2 diabetes and related metabolic abnormalities. Health experts generally advise reducing full-fat dairy products, but trans-palmitoleic acid is found in dairy fat.

The Harvard School of Public Health researchers examined 3,736 participants in the National Heart, Lung, and Blood Institute-funded Cardiovascular Health Study, who have been followed for 20 years in an observational study to evaluate risk factors for cardiovascular diseases in older adults. Metabolic risk factors such as blood glucose and insulin levels, and also levels of circulating blood fatty acids, including trans-palmitoleic acid, were measured using stored blood samples in 1992, and participants were followed for development of type 2 diabetes.

At baseline, higher circulating levels of trans-palmitoleic acid were associated with healthier levels of blood cholesterol, inflammatory markers, insulin levels, and insulin sensitivity, after adjustment for other risk factors. During follow-up, individuals with higher circulating levels of trans-palmitoleic acid had a much lower risk of developing diabetes, with about a 60% lower risk among participants in the highest quintile (fifth) of trans-palmitoleic acid levels, compared to individuals in the lowest quintile.

In contrast to the types of industrially produced trans fats found in partially hydrogenated vegetable oils, which have been linked to higher risk of heart disease, trans-palmitoleic acid is almost exclusively found in naturally-occurring dairy and meat trans fats, which in prior studies have not been linked to higher heart disease risk.

"Unfortunately, with modern diets, synthesis of cis-palmitoleic acid is now driven by high amounts of carbohydrate and calories in the diet, which might limit its normal protective function. We wonder whether trans-palmitoleic acid may be stepping in as a "pinch hitter" for at least some of the functions of cis-palmitoleic acid," said Mozaffarian, lead author of the study.

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