

Markers of dairy fat consumption linked to lower risk of type two diabetes

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Higher levels of biomarkers of dairy fat consumption are associated with a lower risk of developing type 2 diabetes, according to new research published today in *PLOS Medicine*. The study, in more than 60,000 adults, was undertaken by an international consortium led by scientists at the Medical Research Council Epidemiology Unit, University of Cambridge, and the Friedman School of Nutrition Science and Policy at Tufts University.

International nutritional guidelines commonly recommend regular consumption of [dairy](#) products as an important source of key nutrients, and in high-income countries, eating low-fat dairy products is encouraged as part of overall recommendations to limit saturated fat consumption. In some research, consumption of dairy products, in particular yoghurt and cheese, has been associated with a lower incidence of type 2 [diabetes](#). But these findings are inconsistent and the evidence remains controversial.

The FORCE Consortium was established by researchers from Europe, North America, Australia, and Asia to examine the relationships of fatty acid biomarkers with diseases. Biomarkers

are tell-tale molecules in the body that can be measured accurately and consistently, and act as indicators of dietary consumption.

Concentrations in body tissue of certain types of fat have been found to correlate with consumption of fat rich [dairy foods](#), both in self-reported studies and in intervention studies where participants eat a controlled diet. These biomarkers of dairy fat offer a complementary approach, alongside self-reporting of food consumption, to investigate associations of dairy fat consumption with type 2 diabetes in large populations.

The researchers examined specific biomarkers of dairy fat consumption from a total of 63,682 adults from 16 multi-national studies that are part of the FORCE Consortium. These participants were all free from type 2 diabetes when the first samples were taken, and 15,158 of them went on to develop type 2 diabetes over the follow-up period of up to 20 years. In each of the studies, the researchers analysed the relationships of dairy fat biomarkers with the risk of developing type 2 diabetes.

When all the results of the 16 studies were pooled the researchers found that higher concentrations of dairy-fat biomarkers were associated with lower risk of developing type 2 diabetes. This lower risk was independent of other major risk factors for type 2 diabetes including age, sex, race/ethnicity, socioeconomic status, physical activity and obesity.

For example, if people among the top fifth of the concentrations of dairy-fat markers were compared with people among the bottom fifth of the concentrations, the top-fifth people had an approximately 30% lower risk of type 2 diabetes.

Lead author, Dr. Fumiaki Imamura from the MRC Epidemiology Unit, University of Cambridge, said: "Our results provide the most comprehensive global evidence to date about dairy fat biomarkers and their relationship with lower risk of type 2 diabetes.

We're aware that our [biomarker](#) work has limitations and requires further research on underlying mechanisms, but at the very least, the available evidence about dairy fat does not indicate any increased risk for the development of type 2 diabetes.

"We hope that our findings and existing evidence about dairy fat will help inform future dietary recommendations for the prevention of lifestyle-related diseases."

Senior author, Professor Dariush Mozaffarian, Dean of the Friedman School of Nutrition Science and Policy at Tufts University, said: "While dairy foods are recommended as part of a healthy diet, U.S. and international guidelines generally recommend low-fat or non-fat dairy due to concerns about adverse effects of higher calories or saturated fat. Our findings, measuring biomarkers of fatty acids consumed in dairy fat, suggest a need to re-examine the potential metabolic benefits of dairy fat or foods rich in dairy fat, such as cheese."

Despite the several advantages of evaluating fatty acid biomarkers, the researchers caution that the results cannot distinguish between different types of dairy foods (e.g., milk, cheese, yoghurt, others), which could have differential effects. While these biomarkers are known to reflect dairy fat [consumption](#), levels of the biomarkers could also be influenced by other known or unknown factors or may not be exclusive to dairy intake. Data from non-white populations was also limited, and the authors recommend that further research should be undertaken in diverse populations where different types of [dairy products](#) may be consumed with different food preparation methods.

More information: Fumiaki Imamura et al, Fatty acid biomarkers of dairy fat consumption and incidence of type 2 diabetes: A pooled analysis of prospective cohort studies, *PLOS Medicine* (2018). [DOI: 10.1371/journal.pmed.1002670](https://doi.org/10.1371/journal.pmed.1002670)

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