

Some saturated fatty acids may present a bigger risk to diabetes than others

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The relationship between saturated fat and type 2 diabetes may be more complex than previously thought, according to the results of a large international study published today in the journal *Lancet Diabetes and Endocrinology*. The study found that saturated fatty acids can be associated with both an increased and decreased risk of developing the disease, depending on the type of fatty acids present in the blood.

The results add to the growing debate around the health consequences of fat, and could partially explain evidence from recent studies that suggests some foods high in saturated fats, such as dairy products, could actually

lower the risk of [type 2 diabetes](#).

Saturated fat is typically found in foods with a high proportion of animal fat, such as butter, cheese and red meat, and in fried foods. It is made up of chains of individual fat molecules (fatty acids) that vary in length, depending on how many carbon atoms they contain. These saturated fatty acids have long been considered detrimental to health, and current recommendations suggest they should make up no more than 10 per cent of the calories we eat. However, the role of [saturated fat](#) in type 2 diabetes risk is unclear.

In the EPIC-InterAct Study, which was funded mainly by the European Commission under its Framework 6 programme, a team of researchers led by the Medical Research Council (MRC) Epidemiology Unit at the University of Cambridge set out to examine the relationship between blood levels of nine different saturated fatty acids and the risk of developing type 2 diabetes in later life.

The researchers looked at 12,403 people who developed type 2 diabetes from among a group of 340,234 adults across eight European countries. Using a sophisticated method of high-speed blood analysis, developed especially for the project by researchers at MRC Human Nutrition Research, they determined the proportion of each of the nine fatty acids in blood samples from the study participants and related this with later incidence of type 2 diabetes.

They found that saturated fatty acids with an even number of carbon atoms in their chain (14, 16 and 18 [carbon atoms](#)) were associated with a higher risk of type 2 diabetes, while saturated fatty acids with an odd number (15 and 17) were associated with a lower risk.

Lead scientist Dr Nita Forouhi, from the MRC Epidemiology Unit at the University of Cambridge, said: "Our findings provide strong evidence

that individual saturated fatty acids are not all the same. The challenge we face now is to work out how the levels of these fatty acids in our blood correspond to the different foods we eat.

"These odd-chain saturated fatty acids are well-established markers of eating dairy fats, which is consistent with several recent studies, including our own, that have indicated a protective effect against type 2 diabetes from eating yoghurt and other [dairy products](#). In contrast, the situation for even-chain saturated fatty acids is more complex. As well as being consumed in fatty diets, these blood [fatty acids](#) can also be made within the body through a process which is stimulated by the intake of carbohydrates and alcohol."

The authors therefore conclude that it is too early to make any direct dietary recommendations on the basis of this work.

Professor David Lomas, Chair of the MRC's Population and Systems Medicine Board, added: "Type 2 [diabetes](#) has serious consequences for health and healthcare costs, and its numbers are rising in all world regions. Identifying new ways to not only treat, but prevent the condition are therefore vital. This research arising from 26 research institutions across Europe is an example of the power of international collaboration to generate larger and more reliable studies. By combining large-scale population data with advanced laboratory analysis, this research has delivered a compelling case to look more closely at the contribution of individual components of fat to health and disease."

Provided by University of Cambridge

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