

Breastfeeding protects against type 1 diabetes but cow's milk raises risk, research suggests

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New research presented at the Annual Meeting of the European Association for the Study of Diabetes (EASD), held online this year, shows that breastfeeding is associated with a lower risk of developing type 1 diabetes (T1D). Drinking more than two or three glasses of cow's milk a day in childhood, however, is linked with higher odds of

developing T1D.

In T1D, the [immune system attacks](#) and destroys the insulin-producing cells in the pancreas. This prevents the body from producing enough of the hormone to properly regulate blood sugar levels.

What triggers the immune system's attack is unknown but is thought to involve a combination of a genetic predisposition and an environmental trigger such as a virus or foodstuff. In some cases, the condition may develop in people without a genetic predisposition.

Incidence of T1D, the most common form of diabetes in children, is increasing worldwide. The number of diagnoses in young people is rising by an estimated 3.4% annually in Europe and 1.9% in the U.S.

"Type 1 diabetes is a serious condition that requires lifelong treatment," says Ms Anna-Maria Lampousi of Institute of Environmental Medicine, Karolinska Institutet, Stockholm, Sweden, who led the research. "Over time, high [blood sugar levels](#) can damage the heart, eyes, feet and kidneys and can shorten life expectancy.

"Learning more about the causes is key to preventing the type 1 diabetes—and its complications.

"The identification of foodstuffs and other environmental triggers which can be modified would be particularly valuable."

Numerous foodstuffs have been linked to islet autoimmunity—the attack on the insulin-producing cells—and T1D but none of the associations have been firmly established and the existence of a link remains controversial.

In the first study of its kind, Ms Lampousi and colleagues at the

Karolinska Institutet carried out a systematic review and meta-analysis of the existing research to identify which foods have been consistently linked to T1D.

The Medline, Embase and Cochrane Library databases were searched from formation until October 2020, for studies on diet, T1D and islet autoimmunity.

Of the 5,935 studies identified, 152 were eligible for inclusion. The analysis produced estimates for how much 27 dietary components increased or reduced the risk of developing T1D. This included foods eaten by the mother in pregnancy and foods consumed in infancy and childhood, as well as being breastfed.

Babies that were breastfed for longer and those that were breastfed exclusively were less likely to develop T1D.

Those breastfed for at least 6-12 months were less than half as likely (61% less likely) to develop T1D than those breastfed for less. Those given only [breast milk](#) for the first 2-3 months were 31% less likely to develop the condition than those who weren't exclusively breastfed.

The researchers say that breastfeeding promotes the maturation of baby's immune system. Plus, breast milk enhances the baby's gut microbiota—the bacteria, fungi and other microorganisms that live in the digestive tract and help regulate the immune system.

Higher consumption of cow's milk and dairy products such as butter, cheese, yoghurt and ice-cream during childhood (under 15 years old) was associated with a higher risk of islet autoimmunity and T1D.

[For example, those who drank at least two to three glasses of](#) cow's milk (one glass = around 200ml) a day were 78% more likely to be develop

T1D than those who consumed less than this amount of milk.

It isn't known what is behind the association but some research has suggested that amino acids (the building blocks of proteins) in cow's milk can trigger the [immune system](#)'s attack on the insulin-producing cells of the pancreas.

Early introduction of cow's milk to the diet was also associated with a higher risk of T1D. Those who started drinking cow's milk at two or three months old were 31% less likely to develop T1D than those who started consuming it earlier.

Later introduction of gluten to the diet more than halved the odds of developing T1D. Infants who started eating gluten-containing foods, such as cereal, bread, pastries, biscuits and pasta, at 3-6 months old were 54% less likely to develop T1D than those introduced to the foods earlier.

Waiting until a child was four to six months old to introduce fruit to their diet was associated with a 53% reduction in their likelihood of developing T1D.

The study's authors say it isn't clear if delaying introduction to these foods directly protects against T1D or if the infants are benefiting from being breastfed for longer.

Age at introduction to formula milk, meat and vegetables was not linked to risk of T1D. Nor were there any associations between a mother's intake of gluten and vitamin D in pregnancy and her child's odds of the condition.

Ms Lampousi concludes: "Diet in infancy and childhood may influence the risk of type 1 diabetes. The strongest findings were for the beneficial

effects of breastfeeding and the harmful effects of early introduction to cow's [milk](#), gluten and fruit.

"However, most of the evidence to-date is of limited quality and further high-quality research is necessary before any specific dietary recommendations can be made."

Provided by Diabetologia

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