

# High intake of whole grains, fiber, fish and omega-3 fatty acids linked to lower death risk in type 2 diabetic adults

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Eating a diet high in whole grains, fiber, fish and n-3 polyunsaturated fatty acids (PUFAs) may reduce the risk of dying from all causes in

adults with type 2 diabetes (T2D), according to a systematic review and meta-analysis synthesizing all the available evidence, being presented at this year's European Association for the Study of Diabetes (EASD) Annual Meeting in Stockholm, Sweden (19-23 Sept).

"There are some [dietary recommendations](#) and guidelines for people with type 2 diabetes, but most are not evidence-based or are derived from studies of the general population," says author Dr. Janett Barbaresko from the German Diabetes Center in Düsseldorf, Germany. "Our rigorous assessment of the best currently available evidence indicates with reasonable certainty that eating a diet rich in [whole grains](#), fiber, fish and PUFAs as well as consuming more vegetables and plant proteins may help people with type 2 diabetes live longer."

However, the researchers stress that the limited evidence about other [dietary factors](#), including [dietary patterns](#), foods such as dairy, meat, and tea, and micronutrients such as caffeine and vitamin D, underscores the need for more robust and comprehensive studies to better understand the impact of different dietary factors on the progression of T2D.

People with T2D are more prone to circulatory diseases, dementia, cancer, and bone fractures. And despite an increasing number of effective drugs, lifestyle modifications—such as exercise and diet—remain a cornerstone of treatment.

However, little is known about diet and the prevention of illness and death in people living with T2D. A few studies have assessed the association between specific dietary factors such as the Mediterranean diet or intake of vegetables on all-cause mortality in T2D, but the relation with different dietary factors has not been comprehensively summarized.

To find out more, German researchers did a [systematic review](#) of 107

prospective observational studies investigating any dietary factors (i.e., dietary patterns, foods and food groups, macronutrients [carbohydrates, fats, protein] and micronutrients [minerals and vitamins] secondary plant compounds [e.g., polyphenols], and supplements [e.g., vitamin E, magnesium]) and the risk of death from all causes in adults (aged 18 or older) with T2D, up to June 2022.

Overall, 72 studies were included in 45 meta-analyses comparing the effects of high versus low intake and to evaluate the dose-response relationship between dietary factors and death from any cause, over an average of 10 years. The number of participants included in the meta-analyses ranged from 1,073 to 84,816. The certainty of evidence was evaluated to determine the confidence in the meta-findings.

The analyses found that there was moderate certainty of evidence of a protective association between the intake of whole grain, fiber, fish, n-3 PUFAs and death from all causes. Adding one serving (20 g/day) of whole grain from foods such as brown bread and rice or breakfast cereals was associated with about a 16% reduction. Each serving per week increase in fish consumption was associated with a 5% lower risk of death.

Similarly, an additional 5 g per day intake of dietary fiber (equivalent to a medium pear or two shredded wheat) and 0.1 g per day increase in n-3 PUFAs was associated with a reduced risk of death from all causes—14% and 13% lower, respectively. The body does not produce n-3 fatty acids naturally, so good sources include fish, [vegetable oil](#), nuts (especially walnuts), flax seeds and flaxseed oil, and leafy vegetables.

Evidence of lower certainty also suggests that eating large amounts of vegetables and plant protein may be beneficial. A daily increase of 100 g of vegetables and 10 g of plant proteins such as nuts, tofu, beans, lentils and peas was associated with a 12% and 9% lower risk of death,

respectively.

Possible beneficial effects of these foods include their link with favorable changes in [blood pressure](#), cholesterol, blood sugar levels and anti-inflammatory effects, which might help to lower the risk of comorbidities such as cardiovascular diseases and cancer.

In contrast, higher intake of eggs and dietary cholesterol was associated with an increased risk of death from any cause—with a 10 g per day increase in egg intake (equivalent to two medium eggs per week) was associated with a 5% greater risk of death, while adding 300 mg of dietary cholesterol per day was linked with a 19% increase.

For other dietary factors, no association was found and/or the evidence was very uncertain, including: dietary patterns such as the Mediterranean diet and low-carbohydrate high-protein diet; foods including nuts, dairy, meat, sugar and sweets; macronutrients including carbohydrates and micronutrients such as caffeine and vitamin D.

"More research is needed to provide more robust and comprehensive evidence on different dietary factors and the progression of diabetes," says Dr. Sabrina Schlesinger at the German Diabetes Center in Düsseldorf and the German Center for Diabetes Research (DZD) in Munich-Neuherberg (partner in Düsseldorf), who led the study. "But if individuals with type 2 diabetes are able to add a few servings of whole grains, fiber, fish, plant oils and vegetables to their weekly diets, our results suggest it may be an easy and low-risk way to possibly improve their outcome."

The authors note that the study is observational and therefore does not prove that people with T2D who eat a diet rich in whole grains, fiber, fish and n-3 PUFAs will live longer. Rather, it shows an association. They also note that the small number of studies in many [meta-analyses](#)

may limit the conclusions that can be drawn.

Provided by Diabetologia

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