

Whole grains one of the most important food groups for preventing type 2 diabetes

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Rikard Landberg, Professor and Head of Division for Food and Nutrition Science, Chalmers University of Technology, Sweden. Credit: Johan Bodell

It doesn't matter if it's rye, oats or wheat. As long as it is whole grain, it can prevent type 2 diabetes. This is the finding of a new study from

researchers at Chalmers University of Technology, Sweden, and the Danish Cancer Society Research Center. The comprehensive study is a strong confirmation of previous research findings on the importance of whole grains for prevention of type 2 diabetes.

The ability to use whole grains for prevention of type 2 diabetes—previously sometimes known as adult-onset diabetes—has been known for a long time. But the role of [whole grain](#) sources has not been investigated. It has also been unclear how much whole grain is needed to reduce the risk of developing diabetes.

"Most studies similar to ours have previously been conducted in the U.S., where people mainly get their whole grain from wheat," says senior researcher Rikard Landberg, professor in Food and Health at Chalmers University of Technology. "We wanted to see if there was a difference between different cereals. One might expect there would be, because they contain different types of dietary fibre and bioactive substances, which have been shown to influence risk factors for type 2 diabetes."

The study was conducted in Denmark, where there is a big variation in whole grain-intake. The study showed that it made no difference which type of whole grain product or cereal the participants ate—rye bread, oatmeal, and muesli, for example, seem to offer the same protection against type 2 diabetes. What is more important is how much whole grain one eats each day—and the study also provides important clarification to the scientific knowledge when it comes to daily dosages.

The participants were divided into 4 different groups based on how much whole grain they reported eating. Those with the highest consumption ate at least 50 grams of whole grain each day. This corresponds to a portion of oatmeal porridge, and one slice of rye bread, for example.

The proportion who developed type 2 diabetes was lowest in the group which reported the highest whole grain consumption, and increased for each group which had eaten less whole grain. In the group with the highest whole grain intake, the diabetes risk was 34 percent lower for men, and 22 percent lower for women, than in the group with the lowest whole grain intake.

"It is unusual to be able to investigate such a large range when it comes to how much whole grain people eat," says Rikard Landberg. "If you divided American participants into four groups, the group that ate the most whole grain would be the same level as the group that ate the least whole grain in Denmark. In Europe, Scandinavia eats the most, Spain and Italy the least." Additionally, the study was uncommonly large, with 55,000 participants, over a long time span—15 years.

Comparing the role of whole grains in the risk of developing type 2 diabetes against other foods investigated in other studies reveals that whole grain consumption is one of the most effective dietary approaches. Drinking coffee and avoiding red meat are other factors that can similarly reduce the risk of type 2 diabetes.

"Our results are in line with dietary advice, which recommends switching out foods containing white flour for whole grains," says Rikard Landberg. "You get extra health benefits—white flour has some negative effects on health, while whole grain has several positive effects, beyond protection against type 2 diabetes."

Whole grains are defined as consisting of all three main components of the grain kernel: endosperm, germ, and bran. Those who avoid all cereals in an attempt to follow a low-carb diet therefore lose out on the positive health effects of whole grain, which come principally from the bran and the germ. Rikard Landberg thinks that cereals, and carbohydrates in general, should not be avoided in diet.

"Carbohydrates are a very varied group of foodstuffs, including sugar, starch, and fibre. We should discuss these more individually, and not throw them together in one group, because they have totally different effects on our physiology and health. When it comes to whole grains, the research results are clear: among the many studies which have been made, in varied groups of people around the world, there hasn't been a single study which has shown negative health effects."

Swedish dietary advice is to eat around 70g of whole grain a day for women, and 90g a day for men. Some examples of how much whole grain different foods contain:

- One 50g slice of rye bread: 16 g whole grain.
- One 35g serving of oatmeal porridge: 35 g whole grain
- One 12g crispbread: 12 g whole grain

Source: the Swedish National Food Administration and Chalmers University of Technology

The study used data from a prospective Danish cohort study on diet, cancer and health. It covered more than 55,000 participants, who were between 50–65 years old when the study started. During the initiation of the cohort study in the early 1990s, healthy participants had filled in detailed forms of their eating habits. Through these, the researchers established the participants' total whole grain intake per day, which of the most common cereals they got their whole grain from, (wheat, rye, oats, in grams per day), and the total number, and different types, of whole grain products (in grams per day)—rye bread, other whole grain breads, oatmeal porridge and muesli.

The cohort study was linked with data from Denmark's national diabetes register, to investigate which participants developed type 2 [diabetes](#) during a 15 year period—which in total was over 7000 people.

More information: Cecilie Kyrø et al, Higher Whole-Grain Intake Is Associated with Lower Risk of Type 2 Diabetes among Middle-Aged Men and Women: The Danish Diet, Cancer, and Health Cohort, *The Journal of Nutrition* (2018). [DOI: 10.1093/jn/nxy112](https://doi.org/10.1093/jn/nxy112)

Provided by Chalmers University of Technology

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