

Higher intake of whole grains associated with lower risk of major chronic diseases and death

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A higher intake of whole grain foods is associated with reduced risk of major chronic conditions, such as cardiovascular disease and cancer, as well as lower risk of death from a range of diseases, show findings published by The *BMJ* today.

These include lower risks of coronary heart disease and [cardiovascular disease](#) overall, as well as deaths from all causes and specific diseases including stroke, cancer, diabetes, infectious and respiratory diseases.

The international team of researchers, led by Dr Dagfinn Aune at Imperial College London, say these "results strongly support dietary recommendations to increase intake of whole grain foods in the general population to reduce risk of chronic diseases and [premature mortality](#)."

The greatest benefit was seen for people who increased from no intake of whole grain to two servings per day, equivalent to 32 g/day, such as 32 g of whole grain wheat or 60 g product/day, such as 60 g of whole grain wheat bread.

Further reductions in risks were observed up to 7.5 servings a day, equivalent to 225 g/day of whole grain products, and suggest additional benefits at higher intakes.

A large body of evidence has emerged on the health benefits of whole

grain foods over the last 10-15 years. Grains are one of the major staple foods worldwide and provide on average 56% of energy intake and 50% of protein intake.

But recommendations on the daily amount and types of whole grain foods needed to reduce risk of chronic disease and mortality have often been unclear or inconsistent.

So the researchers carried out a systematic review and meta-analysis of 45 published studies on whole grain consumption in relation to several health outcomes and all cause mortality.

They included more than 7,000 cases of coronary heart disease, 2,000 cases of stroke, 26,000 cases of cardiovascular disease, 34,000 deaths from cancer, and 100,000 deaths among 700,000 participants.

They found reductions in the relative risk of [coronary heart disease](#) (19%), cardiovascular disease (22%), all cause mortality (17%), and mortality from stroke (14%), cancer (15%), respiratory disease (22%), infectious disease (26%), and diabetes (51%) per 90 g/day of whole grain product (one serving equals 30g of whole grain product).

Reductions in risks of cardiovascular disease and all cause mortality were associated with intake of whole grain bread, whole grain breakfast cereals, and added bran, as well as total intake of bread and breakfast cereals.

There was little evidence of an association with intake of refined grains, white rice, total rice or other grains.

Few people may have total grain intake of three or more servings a day, so the authors recommend "increasing intake of whole grains, and as much as possible to choose whole grains rather than refined [grains](#)."

Systematic reviews and meta-analyses involving observational research are useful for pulling evidence together, but cannot be used to draw conclusions about cause and effect.

They add that there are several limitations with their analyses, and call for more research to determine health benefits of different types of whole grain in different geographical regions, as most of the current evidence is from the US and fewer studies have been conducted in Europe, Asia and other regions.

In addition, studies of specific diseases, and less common causes of deaths, are needed.

In a linked editorial, Cecilie Kyrø and Anne Tjønneland from the Danish Cancer Society Research Center, agree that "increasing whole grain intake could have a substantial and positive effect on public health."

Whole grain intakes of up to 7.5 servings a day "might be ambitious, but it is feasible", they explain, adding that lessons can be learnt from Denmark, where consumption has doubled in the last 10 years, through effective campaigns and product development.

They caution it's important that "great care" should be taken not to promote whole grain foods with high sugar and salt content, and call for more research on the "biological mechanisms of health effects and contribution to health of different grain types."

More information: Whole grain consumption and risk of cardiovascular disease, cancer, and all cause and cause specific mortality: systematic review and dose-response meta-analysis of prospective studies, www.bmj.com/content/353/bmj.i2716

Editorial: Whole grains and public health,

www.bmj.com/content/353/bmj.i3046

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