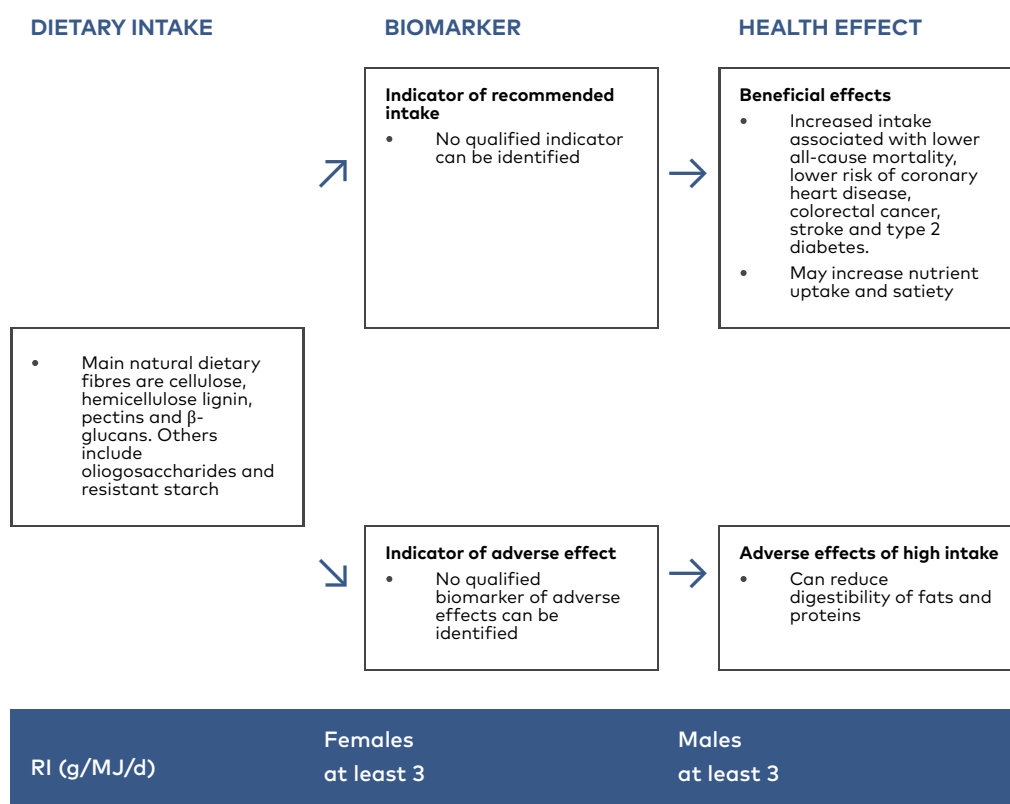


Dietary fibre



For more information about the health effects, please refer to the background paper by Harald Carlsen and Anne-Maria Pajari (Carlsen & Pajari, 2023).

Dietary sources and intake. The main sources of fibre are whole grain foods, fruits and berries, vegetables, nuts/seeds, and pulses. Of these, pulses is the food group containing the highest amount of dietary fibre. Additionally, several processed foods contain additives with fibre properties, including galactomannan from guar gum, alginates from seaweed, and methylcellulose (Gill et al., 2021). The average dietary fibre intake ranges from 16 to 26 g/d (Lemming & Pitsi, 2022).

Main functions. Dietary fibre contributes to swelling and delayed gastric emptying, leading to increased satiety and nutrient uptake in the small intestine. Dietary fibre, through the effect on swelling, viscosity and bulking caused by mixtures, can optimize nutrient uptake, but also decrease

gastrointestinal transit time. Viscosity, caused primarily by soluble fibres such as β -glucans from oats and barley, can also lead to a less penetrable barrier close to the epithelial cells and delay uptake of nutrients. This process leads to a reduced postprandial rise in glucose and lipids. Reduced uptake of bile acids molecules by β -glucans is now accepted as the main mechanism for the blood cholesterol lowering effects of fibre (Carlsen & Pajari, 2023). A considerable body of evidence over many years consistently reports on beneficial health effects of a higher intake of dietary fibre. The strongest evidence is related to all-cause mortality followed by coronary heart disease and colorectal cancer (Reynolds et al., 2019). Evidence for a protective effect against stroke and type 2 diabetes is judged to be weaker, but still significant. Effects on body weight is judged as significant, but modest. A *de novo* qSR for NNR2023 found no clear evidence relating high intakes of dietary fibre to growth or bowel function in young children living in affluent countries, mainly due to a limited number of studies (Dierkes et al., 2023).

An adequate intake of dietary fibre reduces the risk of constipation and contributes to a lower risk of colorectal cancer and several other chronic diseases such as cardiovascular disease and type-2 diabetes. Moreover, fibre-rich foods help maintain a healthy body weight. Intake of appropriate amounts of dietary fibre from a variety of foods is also important for children (Carlsen & Pajari, 2023).

Interaction with other nutrients. May increase nutrient uptake, and may reduce fat and protein digestibility. Phytate content related to dietary fibre content (depending on the source) can decrease availability of iron and zinc, see the respective summaries in the report.

Indicator for recommended intake. No biomarker for intake.

Main data gaps. There is a lack of studies investigating health effects of high fibre intake in small children.

Deficiency and risk groups. People with very low carbohydrate intake.

Dietary reference values. An extensive discussion on the recommendations for dietary fibre is covered in the NNR2023 background review (Carlsen & Pajari, 2023). Recommended intake for adults: at least 3 g/MJ. Based on the reference energy intake, this corresponds to at least 25 g/d for females and 35 g/d for males. Whole grain cereals, whole fruits, berries, vegetables, legumes/pulses, and nuts should be the major sources.