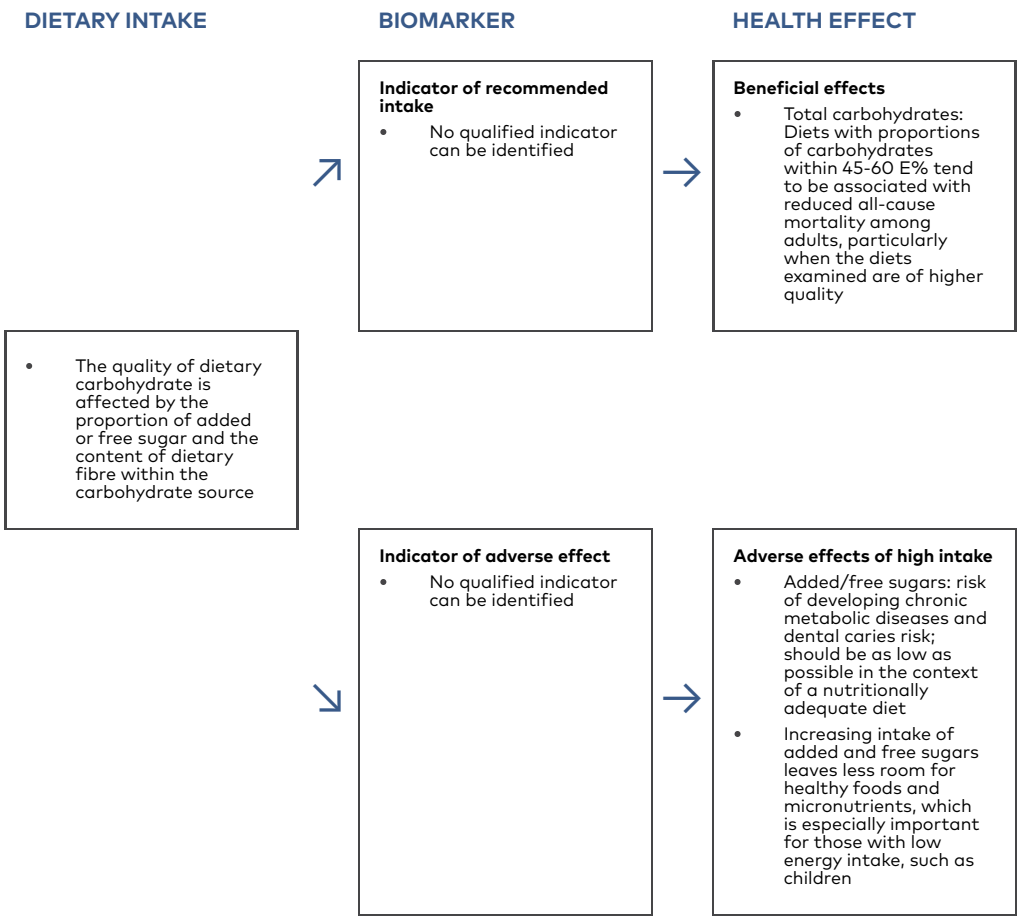
Carbohydrate



Total carbohydrates	45-60 E% (including dietary fibre)
Added/free sugar	<10 E% (preferably lower)

For more information about the health effects, please refer to the background paper by Emily Sonestedt and Nina Øverby (Sonestedt & Øverby, 2023).

Dietary sources and intake. The main sources of carbohydrates are cereal products, vegetables, fruits, and berries, but also dairy products, snacks, and confectionery. Added and free sugars are mostly found in granulated sugar, honey, sweets, confectionary, sugar sweetened beverages, but also in juices, and all other sweetened food products (e.g., milk products, breakfast cereals, some types of baby foods etc.).

In the Nordic countries and Estonia, the average intake of carbohydrates varies between 42 and 48 E%. In Latvia and Lithuania, the intake is below 42 E%, because of different calculation procedures (Lemming & Pitsi, 2022).

Main functions. Dietary carbohydrates is a major source of energy. No beneficial health effects of carbohydrate intakes outside the current recommended range of 45-60 E% have been demonstrated. Intake of carbohydrates within this range tends to be associated with reduced all-cause mortality among adults, particularly when the diets examined were of higher quality (Sonestedt and Øverby 2023).

No consistent benefits on clinical outcomes have been demonstrated when changing the glycaemic index of a diet, and findings from prospective studies of diets characterized by glycaemic index or load are inconsistent. Strong evidence for an association between glycaemic load and endometrial cancer and type 2 diabetes were observed in two qualified systematic reviews (SACN, 2015; WCRF/AICR, 2018i).

Based on the risk of developing chronic metabolic diseases and dental caries, the EFSA Panel concluded that the intake of added and free sugars should be as low as possible within the context of a nutritionally adequate diet (EFSA, 2022). In a WHO guideline from 2015, it was recommended to limit free sugars intake to less than 10 E%. In addition, a conditional recommendation was set to limit the intake of free sugars to less than 5 E% (WHO, 2015). This was mainly based on effects on body weight in adults, and the latter with dental caries. EFSA (2022) found moderate evidence, based on RCTs, for a causal relationship between higher ad libitum intake of added and free sugars and risk of obesity and dyslipidaemia. The effect on body weight seems to be mediated mainly by changes in energy intake (EFSA, 2022; Hjelmesæth & Sjöberg, 2022; SACN, 2015; WHO, 2015).

Interaction with other nutrients Diets high in added and free sugars may compromise the intake of dietary fibre, vitamins, and minerals.

Indicator for recommended intake There is no specific biological marker for recommended total carbohydrate intake or added or free sugar intake.

Main data gaps. There is a lack of studies on carbohydrates and health effects in pregnancy. There is also a lack of a standardized definition for dietary sugars (free and added sugars) and a lack of long-term studies measuring the impact of reducing intake of free and added sugars (especially below 10 E%) on chronic metabolic diseases and surrogate outcomes. Because of the difficulties in measuring carbohydrate quality in observational studies, there is a need for further development and use of objective biomarkers.

Deficiency and risk groups. No risk group is identified regarding total available carbohydrate intake. The combinations of foods needed to achieve recommended intakes of key nutrients for ages 6 to 24 months leave virtually no remaining dietary energy for added and free sugars, apart from the very small amounts (less than 3 grams per day) already inherent in the foods used in modelling (Dietary Guidelines Advisory Committee, 2020).

Recommendations. An extensive discussion on the recommendations for carbohydrates is described in the carbohydrates review (Sonestedt & Øverby, 2023). Recommendations for adults and children above 2 years: Carbohydrates should provide 45-60 E% (including energy from dietary fibre). Intake of added and free sugars should be below 10 E%, and preferentially lower.

Foods and beverages with added and free sugars should be avoided in children below 2 years.