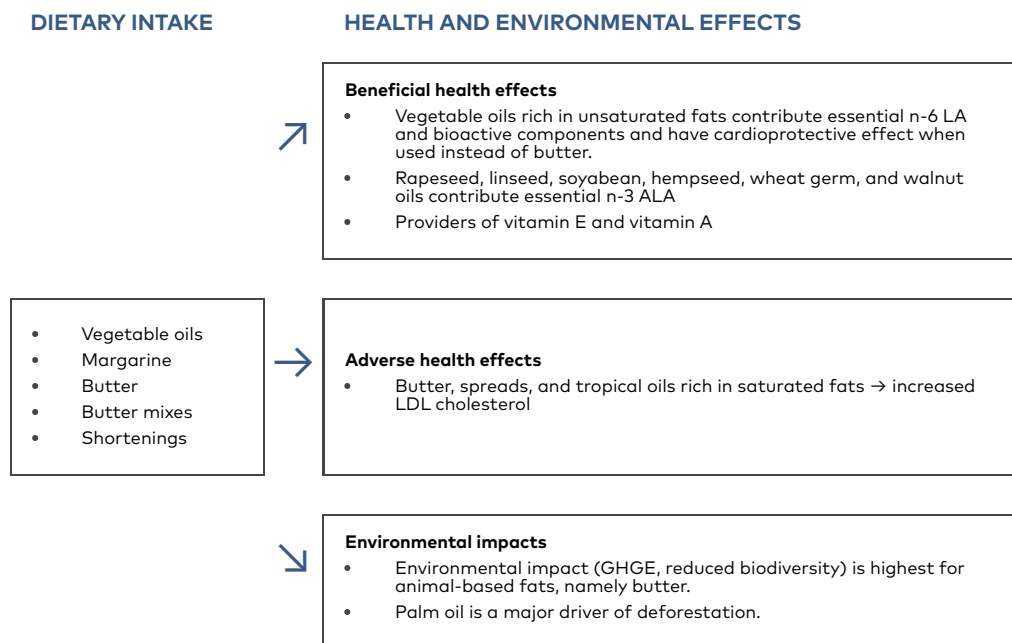


Fats and oils



Science advice: It is recommended to consume a minimum of 25 g/day vegetable oil (or similar amounts fatty acids from whole foods) to obtain a sufficient intake of ALA (minimum of 1.3 g/day per 10 MJ/day), and limit the consumption of butter and tropical oils in favour of fats and oils high in unsaturated fatty acids.

For more information about the health effects, please refer to the background paper by Fredrik Rosqvist and Sari Niinistö (2023). For more information about the environmental impacts, please refer to the following background papers (Benton et al., 2024; Harwatt et al., 2024; Meltzer et al., 2024; Trolle et al., 2024).

Dietary sources and intake. Fats and oils contribute with essential fatty acids, fat-soluble vitamins, and bioactive components in a regular diet. The average intake of fats and oils ranges from 10 to 50 g/d (Lemming & Pitsi, 2022).

Health effects. No qSRs are available on the role of fats and oils as a food group and health outcomes (Høyer et al., 2021; Rosqvist & Niinistö, 2023).

As discussed in the background review by Rosqvist and Niinistö, the degree of saturation is the primary mediator in terms of the health effects of dietary fats and oils together with different contents of bioactive components and degree of processing (Rosqvist & Niinistö, 2023). Replacing animal-based saturated fats (mainly butter) with plant-based fats (unsaturated oils) may reduce the risk of cardiovascular diseases and mortality. Regarding specific oils, the evidence mostly concerns olive oil, which has been favourably associated with cardiovascular disease, type 2 diabetes, certain types of cancer as well as all-cause mortality. Rapeseed oil is also associated with lower LDL-cholesterol compared with sources of saturated fatty acids and other types of oil in RCTs, while palm oil and coconut oil increase LDL-cholesterol compared with oils rich in MUFA and PUFA (Rosqvist & Niinistö). The average daily intake of 25 g/10MJ of rapeseed oil and some other oils would secure the recommended intake of essential fatty acids (Retterstøl & Rosqvist, 2023; Rosqvist & Niinistö, 2023). Rapeseed oil is a preferable source of added fat due to its nutritional profile.

For cardioprotective effects, vegetable oils rich in unsaturated fatty acids and margarines produced therefrom should be preferred over butter and butter-mixes, hard margarines, and tropical oils (palm, palm kernel, shea, and coconut oil) (Rosqvist & Niinistö, 2023).

Environmental impacts. The high production and consumption of animal-based fats contribute to GHGE, reduced biodiversity, and loss of nature (Harwatt et al., 2024; Meltzer et al., 2024; Trolle et al., 2024). Palm oil is a major driver of deforestation and has the highest carbon and biodiversity impacts of all vegetable oils, followed by soybean oil (Bajzelj et al., 2021). Among the main fat sources, sunflower and rapeseed oil have the lowest GHGE. Land and water use are highest for olive oil and sunflower oil (Harwatt et al., 2024). When oil crops are grown in intensive large-scale cropping systems with low diversity, they have a negative impact on biodiversity. Rapeseed and sunflower can contribute with variety to cereal dominated crop rotations and thereby reduce the need for chemical plant protection, making them beneficial in Nordic agricultural landscapes. In addition, flowering crops support pollinators (Harwatt et al., 2024; Meltzer et al., 2024; Trolle et al., 2024).

Main data gaps. Studies on health effect of margarines and butter mixes, commonly used products in the Nordic countries, are scarce (Rosqvist & Niinistö, 2023). In addition, further studies of different consumption levels of vegetable oils, rapeseed oil in particular, in relation to disease outcomes, mortality, blood lipids, overweight, and obesity in different age groups are needed. There is a lack of studies covering environmental aspects other than climate, for example biodiversity aspects for different types of products within this food group.

Risk groups. From the perspective of weight management, it is advisable to use fats and oils in moderate amounts.

Science advice:

- **Based on health outcomes:** To secure the intake of essential fatty acids, it is recommended to consume vegetable oils rich in unsaturated fatty acids a minimum of 25 g/day paying attention to a sufficient intake of ALA (minimum of 1.3 g/day per 10 MJ/day). For cardioprotective effects, vegetable oils rich in unsaturated fatty acids and margarines produced therefrom should be preferred over butter and butter-mixes, hard margarines, and tropical oils (palm and coconut oil).
- **Based on environmental impacts:** A shift from animal to plant-based fats its recommended to contribute to lower GHG emissions and it is recommended to avoid oils that contribute to deforestation.
- **Overall science advice:** It is recommended to consume a minimum of 25 g/day vegetable oil (or similar amounts of fatty acids from whole foods) to obtain a sufficient intake of ALA (minimum of 1.3 g/day per 10 MJ/day) and limit the consumption of butter and tropical oils.