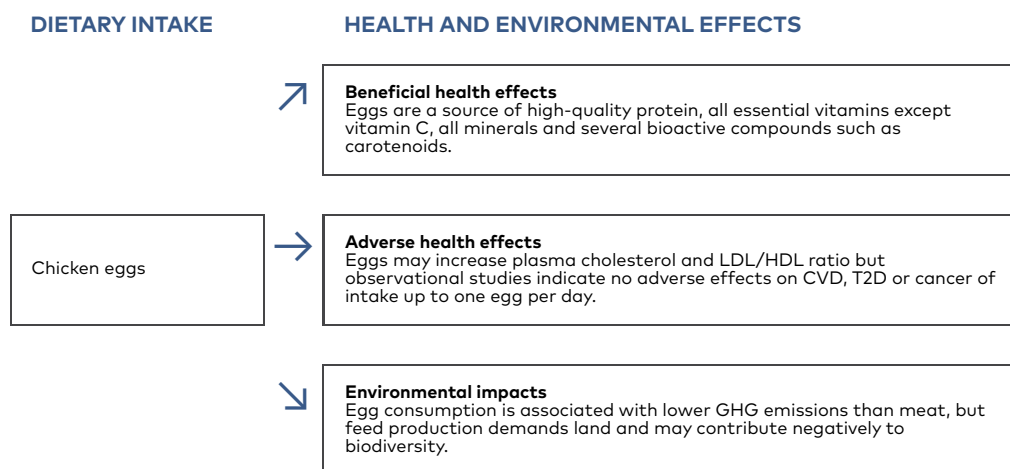


Eggs



Science advice: A moderate intake of egg may be part of a healthy and environment-friendly diet.

For more information about the health effects, please refer to the background paper by Jyrki K. Virtanen and Susanna C. Larsson (Virtanen & Larsson, 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. Eggs is a source of high-quality protein. It also contains all essential vitamins except vitamin C, all minerals and several bioactive compounds such as carotenoids. The average intake of eggs ranges from 10 to 40 g/d (Lemming & Pitsi, 2022).

Health effects. No qSRs are available on the role of eggs and health outcomes (Høyer et al., 2021).

As discussed in the background review by Virtanen and Larsson randomized controlled trials show that higher egg intake may increase serum total cholesterol concentration and the ratio of low-density lipoprotein (LDL) to high-density lipoprotein (HDL) cholesterol, but there is substantial heterogeneity in the response. Observational studies indicate no adverse effects of up to one egg per day on the risk of cardiovascular disease.

Observational studies indicate no association between egg consumption and mortality or type 2 diabetes, stroke and cancer, but the evidence is limited (Virtanen & Larsson, 2023). Consumption of up to 1 egg per day can be part of a healthy diet (Virtanen & Larsson, 2023).

Environmental impacts. (Harwatt et al., 2024; Meltzer et al., 2024)

Environmental issues related to egg consumption are land use, nutrient pollution of surrounding ecosystems from manure and urea, ecotoxicity, and resource use on farm including water and energy (Harwatt et al., 2024). Egg production produces GHG emissions per kilogram which are lower than those of most other land animal sourced foods but considerably higher than those for root vegetables and legumes (Meltzer et al., 2024). Feed for laying-hens may contribute to biodiversity loss when grown intensively in large fields in simplified crop rotations with low diversity, for example soy or cereals. Food-feed competition is an issue as feed crops are generally produced on land that is also suitable for production of food for human consumption. On the other hand, laying hens can make use of cereals not meeting food grade quality thereby keeping such cereals in the food system. In intensive and efficient egg production, male chickens and most of the laying hens post-production are considered waste. A more resource efficient system would make use of all by-products that are the result of egg production.

Main data gaps. There are limited data on health effects of >1 egg per day (Virtanen & Larsson, 2023). There is a lack of studies covering environmental aspects other than climate impact such as biodiversity aspects.

Risk groups. People with allergies to egg. There are no population groups especially vulnerable to positive or negative health effects of egg consumption of up to one egg per day. People with familial hypercholesterolemia should limit their consumption of cholesterol-rich foods such as eggs, in line with clinical guidelines.

Science advice:

- **Based on health outcomes:** Eggs are nutrient dense and can be part of a healthy diet at current level of consumption in Nordic and Baltic countries, although evidence on health outcomes from intakes of more than one egg per day is limited.
- **Based on environmental impacts:** Egg consumption is associated with lower GHG emissions than most other animal sourced foods, but as feed production demands land and may contribute negatively to biodiversity.
- **Overall science advice:** A moderate intake of egg may be part of a healthy and environment-friendly diet.