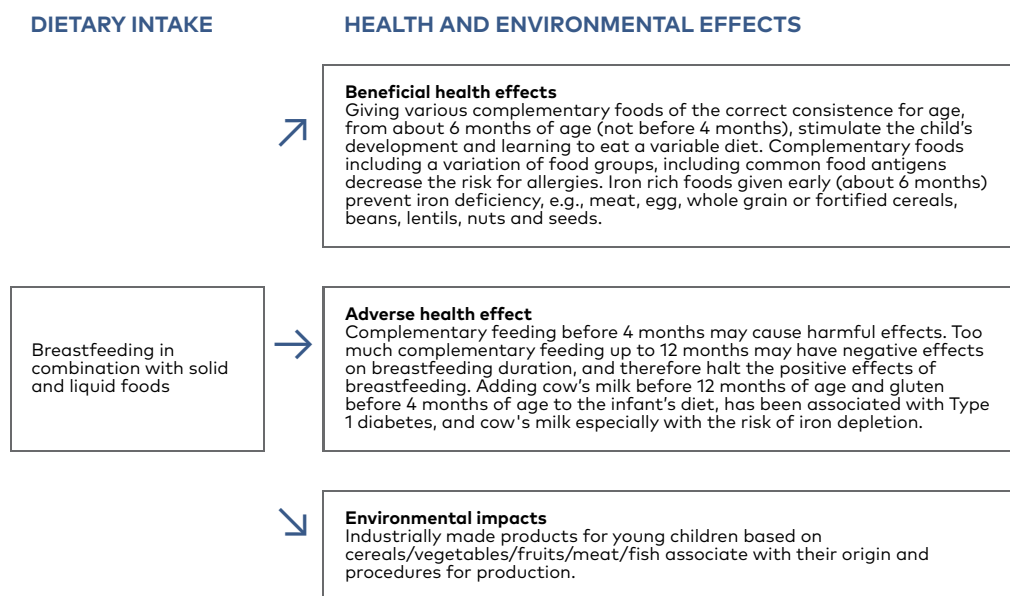


Complementary feeding



Science advice: It is advised to start with solid complementary foods from about 6 months of age, and not before 4 months of age. Various complementary foods should be given, and some iron-containing foods should be ensured.

For more information about the health effects, please refer to the background paper by Agneta Hörnell and Hanna Lagström (Hörnell & Lagström, 2023). For more information about the environmental impacts, please refer to the following background papers (Harwatt et al., 2024; Trolle et al., 2024).

Food and nutrient intake. At 4 month of age, approximately 40–50 % of infants in the Nordic and Baltic countries are still exclusively breastfed. A further 15–30 % are still breastfed together with complementary foods (semi-solids and/or infant formula), while about 15–30 % are not being breastfed. At 12 months of age, about 30–60 % of infants are still breastfed together with complementary foods (Hörnell & Lagström, 2023).

Health effects. Several qSRs are available on the role and timing of complementary feeding and asthma, allergy and atopic dermatitis/eczema (de Silva et al., 2020; Obbagy et al., 2019b), coeliac disease (EFSA, 2019), micronutrient status (Obbagy et al., 2019a), childhood growth and development (EFSA, 2019a; English et al., 2019a, b, c; Padhani et al., 2023), bone health (Obbagy et al., 2019c) and food acceptability (Spill et al., 2019). Two qSRs concluded that there was at least moderate evidence for a lower risk of egg and peanut allergy when small amounts of cooked (not raw) eggs and peanuts are introduced from 4 to 6 months of age in high-risk children (de Silva et al., 2020; Obbagy et al., 2019b). On the other hand, there was also moderate evidence for no associations between the age at introduction of complementary foods and risk of food allergy, atopic dermatitis/eczema, or asthma (Obbagy et al., 2019b), and probably no effect of introducing gluten-containing complementary foods at 4 vs 6 months of age on risk of coeliac disease.

Other qSRs found moderate evidence for no effect on growth, size, body composition or risk of overweight and obesity of introducing complementary foods at 4-5 months compared to with 6 months of age, nor of meat intake or complementary foods with different types of fats, in healthy, full-term infants (EFSA, 2019a; English et al., 2019b, c). There is also moderate evidence suggesting that complementary feeding at 4 months compared with 6 months of age is not associated with iron status (Obbagy, 2019). There is strong evidence that complementary foods and beverages high in iron, such as meat or iron-fortified cereals, help maintaining iron status or prevent iron deficiency among infants with insufficient iron stores or breastfed infants who are not otherwise receiving adequate iron (EFSA, 2019a; Obbagy et al., 2019a). Repeated tasting of vegetables or fruits is also associated with increased acceptability of the exposed food in infants and toddlers (age 4–24 months) (Spill et al., 2019). A *de novo* qSR on protein intake in children found probable evidence for a cause-and-effect association between higher total protein intake during the first 18 months of age and higher BMI later in childhood (Arnesen et al., 2022).

As discussed in Hörnell and Lagström (2023), no conclusive evidence can be drawn regarding complementary foods for the first 6 months of life for other health outcomes. Giving various complementary foods of the appropriate texture for age, from 6 months of age, stimulates the child's development and learning to eat a variable diet (EFSA, 2019a; Hörnell & Lagström, 2023). For nutritional reasons, the majority of infants need complementary feeding from around 6 months of age (EFSA, 2019a; Hörnell & Lagström, 2023). Iron rich foods given early, e.g., meat, eggs, whole grains or fortified cereals, beans,

lentils, and nuts, prevent iron deficiency (Hörnell & Lagström, 2023). Too early and too much complementary feeding reduces the positive health effects of breastfeeding for mother and child, such as protection of the child against infections, overweight and obesity. Adding cow's milk before 12 months of age and gluten before 4 months of age to the infant's diet has been associated with Type 1 diabetes, and cow's milk especially with the risk of iron depletion (Hörnell & Lagström, 2023; SACN, 2018).

Environmental impacts. The climate impact of infant formulas is twice as high as that of breastmilk (Harwatt et al., 2024). The environmental impact of complementary foods for young children depends on their ingredients and procedures for production.

Main data gaps. More knowledge about complementary feeding is needed as well as about foods for young children. Further evidence for associations between infant nutrition and health effects is also needed. Studies and innovation to explore the possibilities and challenges with a vegan or mainly plant-based diet is necessary. More knowledge about the risk of food allergies and asthma in relation to timing of complementary feeding is needed.

Risk groups. The market of special foods for the youngest citizens is large and evolving and needs to be regularly explored by experts. Complementary feeding before 4 months may cause harmful effects. Too much complementary feeding up to 12 months may have negative effects on breastfeeding duration. Cow's milk before 12 months of age has been associated with type 1 diabetes and with the risk of iron depletion. Gluten before 4 months of age has been associated with type 1 diabetes.

Science advice:

- **Based on health outcomes:** It is advised to start with various solid foods of appropriate texture from about 6 months of age, and not before 4 months of age. Various complementary foods including potentially allergenic foods should be given and iron containing foods ensured.
- **Based on environmental impacts:** The climate impact of infant formulas is substantially higher than breastmilk, and this difference might be larger if the mother has a more environmentally conscious diet.
- **Overall science advice:** It is recommended to start with solid complementary foods from about 6 months of age, and not before 4 months of age. Various complementary foods should be given and some iron containing foods should be ensured.