
Childhood iron deficiency: causes and consequences

Long-term imbalances between iron requirements and actual iron intake exhausts iron stores, leading to iron deficiency anemia (IDA). The risk of iron deficiency is highest during periods of rapid growth in infancy and adolescence, but in developing countries iron deficiency prevails throughout childhood due to diets poor in bioavailable iron. The simplest means of combating this is by improving iron intake: the goal of all population-based approaches for improving iron status. Maria Andersson and Richard Hurrell outline the strategies for preventing iron deficiency during infancy, childhood, and adolescence in low- and high-income populations.¹

In infants and young children, specific foods form the backbone of iron-prevention strategies. Beginning with breast milk and iron-fortified formulas, Andersson and Hurrell then describe how complementary foods may be used to meet the infant’s iron needs. “The timing of the introduction of complementary foods may be critical for iron,” state the authors. “When safe hygiene conditions can be assured, the introduction of iron-rich complementary foods … may be beneficial for the prevention of iron deficiency in some young children.”

An important concept when working with dietary iron is to distinguish between heme iron and non-heme iron. Promoting dietary diversity and food processing techniques with the goal of increasing total iron content and improving the bioavailability of non-heme iron are safe and sustainable ways of meeting iron requirements throughout childhood. The most effective public health approach to improving iron status is through fortification programs. Andersson and Hurrell cover the main food vehicles used, followed by the properties of the iron compounds available. “One of the main challenges for successful iron fortification is to select an iron fortificant with high bioavailability, but with stable sensory characteristics which do not change taste, texture and smell of the food vehicle,” highlight the authors. In high-risk populations, iron supplements may also be required.

Finally, Andersson and Hurrell emphasize the importance of preventing iron deficiency as part of integrated health programs, encompassing the continuum of maternal and child health. Iron status should be viewed as part of the whole clinical picture, starting with prenatal iron supplementation for teenage girls and pregnant women, delayed cord clamping in newborns and breast-feeding during the first 6 months of life. “All intervention strategies should be incorporated as a routine part of children’s health care programs and integrated into other health strategies,” conclude the authors.

References