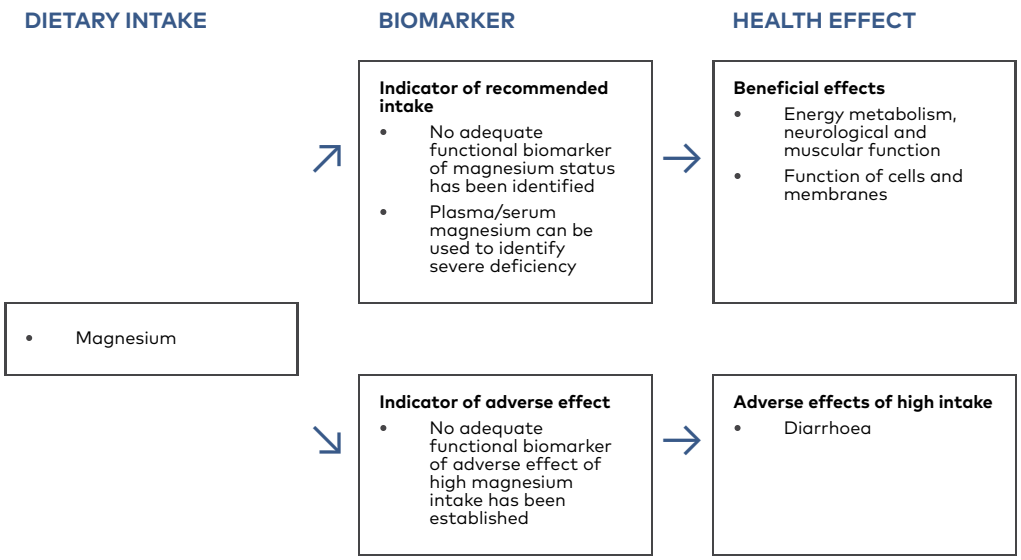
Magnesium



	Females	Males
Provisional AR (mg/d)	240	280
AI (mg/d)	300	350

For more information about the health effects, please refer to the background paper by Christine Henriksen and Jan Olav Aaseth (Henriksen & Aaseth, 2023).

Dietary sources and intake. Milk, whole grain cereals, starchy roots, vegetables and legumes are dietary sources of magnesium in Nordic and Baltic populations. Magnesium concentrations are especially high in cocoa, nuts and seeds. The average magnesium intake ranges from 260 to 440 mg/d (Lemming & Pitsi, 2022).

Main functions. Magnesium is a cofactor of many enzymes and thus necessary in a large number of biochemical and physiological processes such as energy metabolism, glucose transport, electrical potential in nerves and cell membranes and transmission of neuromuscular impulses (Henriksen & Aaseth, 2023).

Interaction with other nutrients. A diet high in phytic acid and phosphate reduces absorption, but the clinical relevance is uncertain (Henriksen & Aaseth, 2023). Plasma magnesium concentrations are regulated by kidney excretion, which is increased by hypernatraemia, metabolic acidosis, unregulated diabetes, and alcohol consumption (Henriksen & Aaseth, 2023).

Indicator for recommended intake. No adequate functional biomarker of magnesium status has been identified (EFSA, 2015d). Plasma or serum concentrations can be used to identify severe deficiency. The available evidence suggests a causal relationship between magnesium intake and lower risk for CVD, hypertension, metabolic syndrome and improvement of glucose tolerance, but limitations of the studies makes it impossible to identify an optimal magnesium intake (Henriksen & Aaseth, 2023).

Main data gaps. The lack of an appropriate biomarker.

Deficiency and risk groups. Magnesium depletion is uncommon and usually secondary to a disease or to the use of a therapeutic agent.

Dietary reference values. In NNR2012, magnesium recommendations were based on balance studies. However, in the most recent review of the evidence of magnesium and health it was concluded that the lack of a functional biomarker of magnesium status makes it impossible to define an average requirement (EFSA, 2015d). EFSA (2015d) set an AI based on the average magnesium intakes of the EU population and NNR2023 adopts these values to set AI and AR. AI is set to 300 mg/day (females) and 350 mg/day (males). Provisional AR is set to 240 mg/day (females) and 280 mg/day (males). UL is set to 250 mg/day based on the health outcome mild diarrhoea, and it applies only to magnesium in dietary supplements (SCF, 2006).