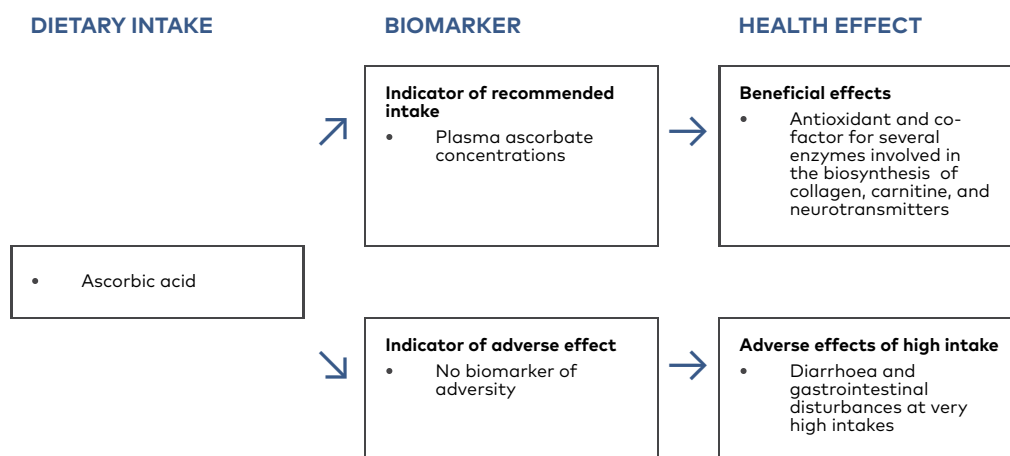


## Vitamin C



	Females	Males
AR (mg/d)	75	90
RI (mg/d)	95	110

For more information about the health effects, please refer to the background paper by Jens Lykkesfeldt and Anitra Carr (Lykkesfeldt & Carr, 2023).

**Dietary sources and intake.** The major sources of vitamin C (ascorbic acid) in the diet are fresh fruit and vegetables. Potatoes have a relatively low content of vitamin C but because of a relatively high intake in the Nordic and Baltic countries they can be an important source. The average vitamin C intake ranges from 69 to 132 mg/d (Lemming & Pitsi, 2022).

**Main functions.** Vitamin C is a low-molecular weight electron donor that has the capacity to reduce any biologically relevant oxidant species as well as regenerate other antioxidants, such as vitamin E, from their oxidized forms. It is a cofactor for several enzymes involved in the biosynthesis of collagen, carnitine, and neurotransmitters.

**Indicator for recommended intake.** Plasma ascorbate concentration is a marker of vitamin C status (EFSA, 2013b; Lykkesfeldt & Carr, 2023). A target plasma ascorbate concentration of 50 µmol/L is used to set the AR. People who smoke need to increase their daily vitamin C intake by 40 mg/d to compensate for the increased metabolic turnover induced by smoking.

**Main data gaps.** Lack of dose-response data from controlled studies for solid clinical endpoints which could be used to set target plasma concentrations of ascorbate.

**Deficiency and risk groups.** Deficiency is defined as plasma vitamin C <11 µmol/L (Lykkesfeldt & Carr, 2023). Prolonged deficiency causes scurvy. Low intake of fruits and vegetables (including fruit juices) is a risk factor. Smokers may have increased requirement for vitamin C and are at risk of inadequate intake (Lykkesfeldt & Carr, 2023).

**Dietary reference values.** For infants (<12 months of age), an AI is set to three times higher than the intake known to prevent scurvy in infants, i.e., 30 mg/d (Lykkesfeldt & Carr, 2023). Using a target plasma ascorbate concentration of 50 µmol/L, the AR is set to 90 mg/day in males, extrapolated to females with isometric scaling to 75 mg/day (females). RI is set at 95 mg/day (females) and 110 mg/day (males) (EFSA, 2013b). People who smoke need to increase their daily vitamin C intake from foods by approximately 40 mg/d.