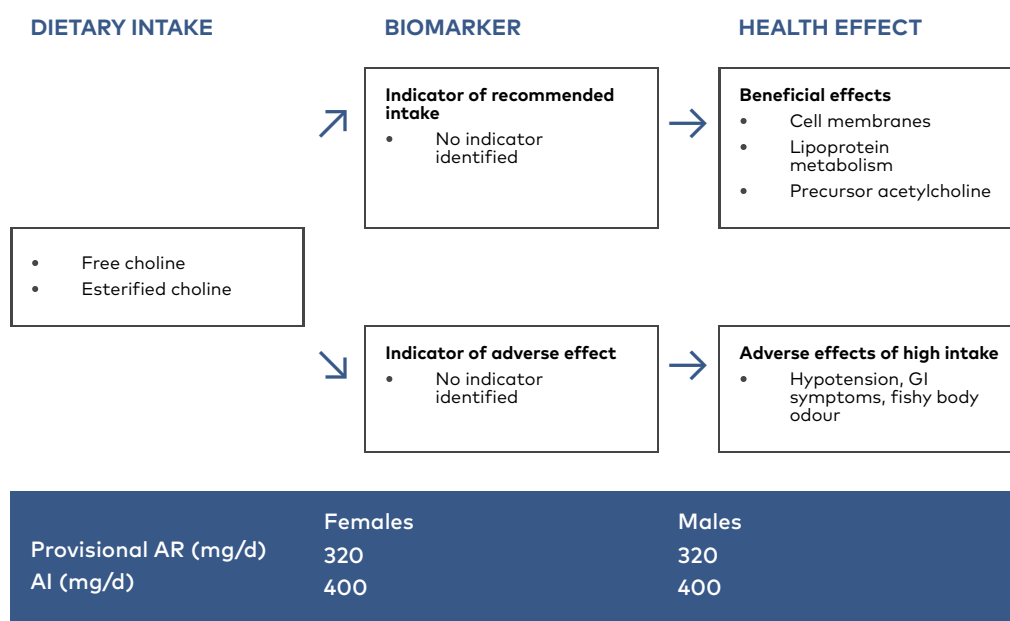


Choline



For more information about the health effects, please refer to the background paper by Rima Obeid and Therese Karlsson (Obeid & Karlsson, 2023).

Dietary sources and intake. Choline is found in foods as free choline or esterified forms (phosphatidylcholine, phosphocholine, glycerophosphocholine and sphingomyelin). It is ubiquitous in foods, but high in liver, eggs and wheat germ. Main sources are meat, dairy, eggs and grains. Dietary intake data from Nordic and Baltic populations are scarce. Average choline intake was 317–468 mg/day (males) and 317–404 mg/day (females) in adults aged 18 to ≥75 y, and 171–180 mg/day (1-3 y), 256–285 mg/day (3-10 y), and 292–373 mg/day (10-18 y) in children (Lemming & Pitsi, 2022).

Main functions. Choline has roles in one-carbon metabolism, as a component of cell membranes (phospholipids such as phosphatidylcholine, the main storage form of choline), in lipoprotein metabolism (VLDL assembly and secretion from the liver), and as a precursor for the neurotransmitter acetylcholine (Obeid & Karlsson, 2023).

Indicator for recommended intake. No indicator was identified for setting AR and RI. For AI, the selected indicator was liver damage and average intake across European populations (EFSA, 2016c). For UL, selected indicators included hypotension, GI symptoms and fishy body odour.

Main data gaps. Dietary intake data for Nordic and Baltic populations, including assessment of choline content of foods in this region, and databases. Surrogate markers or a combination of markers that reflect long-term average choline intake from the diet. Impact of genetic variation in choline metabolism.

Deficiency and risk groups. A choline-free diet results in liver damage (corrected by 500 mg choline/d). No specific risk groups established, although pregnant and lactating women and children are likely more vulnerable.

Dietary reference values. AI is set to 400 mg/day (females and males), based on EFSA (EFSA, 2016c). Provisional AR is set to 320 mg/day (females and males). Values are based on AI from observed dietary intake values set by EFSA (EFSA, 2013c). Not sufficient data to derive UL.