

Choline: Essential for Health Across Every Life Stage



Choline is an essential nutrient that supports many important functions in the body, including brain health, liver function, and building strong, healthy cells.

Research shows that choline plays a key role in memory and learning, muscle movement, and metabolism.^{1,2}

Our body naturally produces a small amount of choline, but not enough to support physiological requirements on its own. This means we must meet our daily adequate intake through the food that we eat.¹



CHOLINE PLAYS A KEY ROLE AT EVERY STAGE OF LIFE.

Pregnancy, infancy, and childhood

Choline plays a critical role in early development, particularly during pregnancy and infancy.

Evidence suggests consuming choline during pregnancy helps contribute to:

- ✓ Healthy brain and spinal cord development
- ✓ Normal neural tube development
- ✓ A healthy, well-functioning placenta that supports the baby's growth
- ✓ Proper regulation of the baby's genes during development
- ✓ Early learning, memory and how babies process information³

As children grow, choline continues to support:

- ✓ Brain development and cognitive function
- ✓ Healthy cell structure and communication between nerve cells
- ✓ Overall growth and development³

Choline is naturally present in breast milk, and diet can influence how much choline is available during breastfeeding. As infants move from breastmilk or formula to solid foods, offering choline-rich foods such as eggs, can help support their overall nutrient needs.

References

- ¹ Zeisel SH, Klatt KC, Caudill MA. Choline. *Advances in Nutrition*. 2018, Vol 9 (1): 58 - 60
- ² NHMRC 2006. Nutrient Reference Values for Australia and New Zealand. <https://www.nrv.gov.au/>.
- ³ Jiang X et al. Maternal choline intake and foetal development. *FASEB Journal*. 2012 Aug;26(8):3563-74.



Healthy ageing in adulthood and beyond

Emerging research suggests choline may also contribute to healthy ageing and cognitive health.⁴

Benefits include:

- ✓ Reducing the risk of cognitive decline as we age
- ✓ Supporting bone health and mineral density
- ✓ Maintaining healthy body composition^{5,6}

Overall, choline plays an important role in health across the life course, from early development through to healthy ageing. Including choline-rich foods, such as eggs, as part of a balanced dietary pattern may help support adequate intake in the Australian population.



HOW MUCH CHOLINE SHOULD WE BE EATING?

National research shows fewer than 10% of Australians are meeting the adequate intake of choline.⁷ Intake is particularly low among pregnant and lactating women, with some analysis suggesting less than 1% meet recommended levels.⁷

The National Health & Medical Research Council (NHMRC) has set the following Adequate Intake (AI) amounts for choline.²

TABLE 1: ADEQUATE INTAKE (AI) ACROSS LIFE STAGES

Children 1-3 years	200mg
Children 4-8 years	250mg
Children 9-13 years	375mg
Boys 14-18 years	550mg
Girls 14-18 years	400mg
Men	550mg
Women	425mg
Pregnant women	440mg
Lactation	550mg



What foods contain choline?

Choline is found in a variety of foods including eggs, meat, fish, dairy, legumes, and certain vegetables. **Eggs are one of the richest and most accessible sources of choline**, with one serve of two (60g) eggs providing around 327mg of choline, making them a great option to contribute to meeting our adequate intake.⁸

References

4 Bekdash RA. Choline, the brain and neurodegeneration. *Frontiers in Bioscience*. 2018, 23(6):1113-1143.
5 Oyen J et al. Dietary choline intake and bone mineral density. *Journal of Nutrition*. 2017 Apr;147(4):572-578.
6 Gao X, et al. Higher Dietary Choline and Betaine Intakes Are Associated with Better Body Composition in the Adult Population of Newfoundland, Canada. 2016. *PLoS ONE* 11(5): e0155403.
7 Probst Y, Guan V, Neale E. Development of a choline database to estimate Australian population intakes. *Nutrients*. 2019 Apr 23;11(4):913.
8 Probst Y, Guan V, Neale E. Development of a choline database to estimate Australian population intakes. *Nutrients*. 2019 Apr 23;11(4):913.

