Health and nutritional benefits of dairy

- Milk and dairy products are an important part of the dietary guidelines and recommendations across the EU.
- Dairy foods are **natural sources of high-quality protein, as well as essential vitamins and minerals**.
- Research shows that dairy has **beneficial effects on health beyond its nutritional value.**
- People enjoy and eat foods, not nutrients. Therefore, **nutrition and public health policies should focus more on foods and food patterns and less on single nutrients.**

Dairy foods are an important part of a healthy diet

International institutions and public health authorities consider dairy products as an important part of a healthy balanced diet [1, 2, 3]. Dietary advice all over Europe recommends that dairy products be consumed daily during all stages of life. **On average it is recommended to consume 2-3 portions of dairy foods per day for adults and 3-4 portions for children and older adults** [1].

Many people in Europe do not comply with dietary recommendations and guidelines for dairy intake, in particular adolescent girls, young women, and elderly people (the latter representing a growing proportion of the population in the EU) [4, 5].

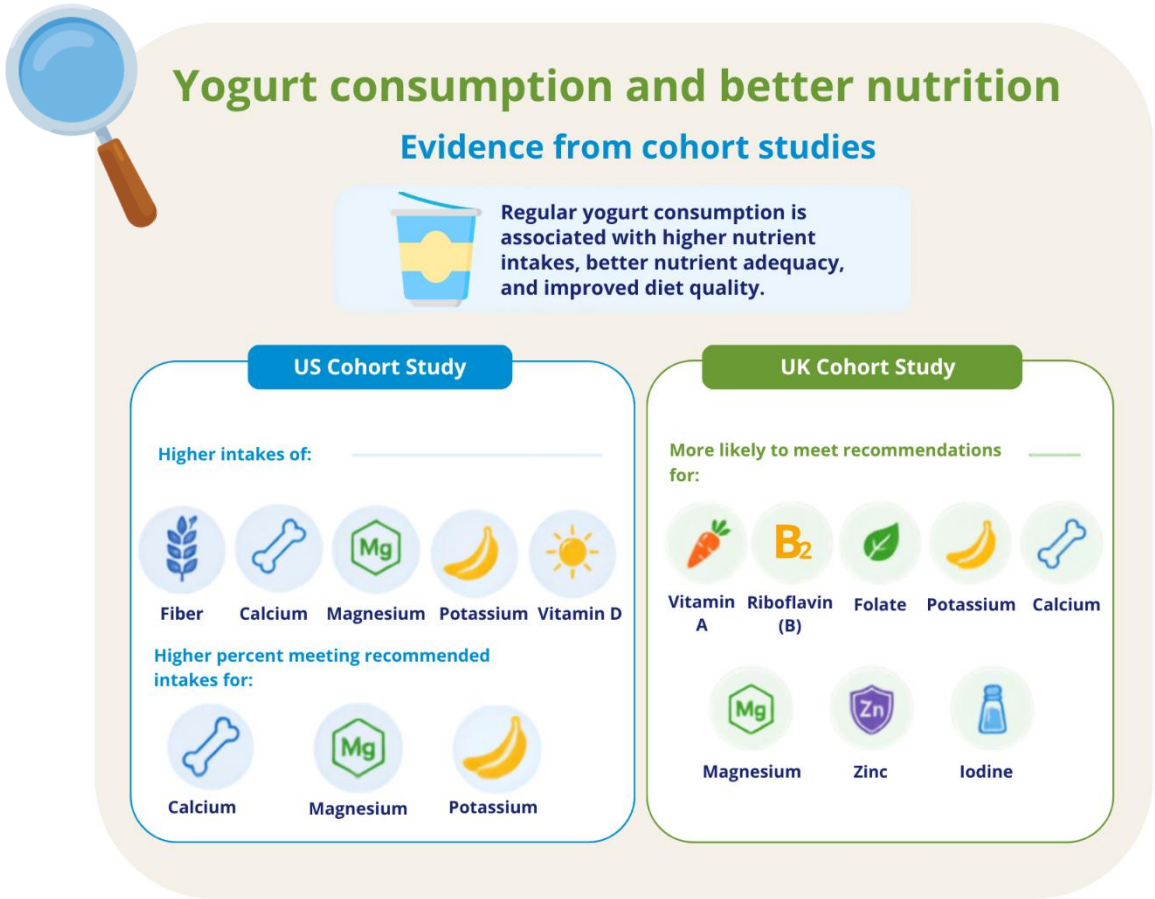
Insufficient intake of dairy products may lead to unbalanced and inadequate intakes of nutrients with consequences for public health. On the contrary, consuming dairy on a daily basis contributes to a better nutrient status [6] and is associated with health benefits beyond nutrition, such as decreased risk of colorectal cancer, type 2 diabetes and cardiovascular disease, depending on the dairy type [7].

Dairy foods are naturally nutrient-rich

Milk, yoghurt and cheese are **naturally rich** in many essential nutrients, such as high-quality protein, calcium, phosphorous, potassium, iodine, and the B-vitamins (in particular B2 and B12). Dairy also contains smaller amounts of vitamin A, niacin, folate, vitamin B6, vitamin D, magnesium, selenium and zinc [8].

A small portion of cheese (30g), or two pots of yoghurt (2 x 125g) or 250ml of milk all contain about 300mg of calcium, an amount equivalent to approximately 470 g of raw kale or collard greens, or 750 g of raw bok choy/pak choi [9].

In addition, these comparisons do not take calcium bioavailability into account, which can vary substantially between plant sources due to the presence of compounds such as oxalates and phytates that reduce calcium absorption. While some leafy vegetables such as kale show relatively good calcium absorption, the bioavailability of calcium from vegetables is generally comparable to or lower than that from milk [10, 11].



Dairy consumption is also associated with overall better diet (as measured with dietary quality indices): in two recent cohorts from US and UK, yogurt consumers had **higher intakes and better nutrient adequacy** for key nutrients than non-consumers [33, 34].

Health effect of dairy foods

Dairy foods provide many essential nutrients which contribute to good health at all stages of life.

High quality protein and **calcium** are needed in sufficient amounts for normal growth and development of bones in children and adolescents and for the maintenance of bones later in life [12, 13].

In addition, consuming sufficient amounts of dairy is associated with a decreased risk of falls and bone fracture in elderly people. Calcium is also needed for the maintenance of normal teeth, and protein also contribute to the maintenance of muscle mass [14].

During pregnancy and breast-feeding, many of the nutrients such as **protein, phosphorous, magnesium, iodine, vitamin B12, vitamin B2** are required in larger amounts [15].

Protein contributes to muscle maintenance and growth

Calcium is needed for bones, teeth and muscles

Scientific evidence suggests that consuming dairy as part of a healthy diet is associated with many health effects, depending on the type of dairy product (e.g. milk, cheese, yogurt), including **body weight management and composition, and reduced risk of type 2 diabetes** [16-18]. Some studies have also observed a modest **cardio-protective effect** (lower blood pressure) in dairy products [16, 19].

Several studies have reported neutral or beneficial associations between saturated fat intake from dairy foods and cardiovascular disease risk [16, 17]. Similarly, evidence suggests that consumption of full-fat yogurt is associated with either neutral or favourable effects on type 2 diabetes risk and related metabolic outcomes [30-32]. Beneficial cardiometabolic associations have also been observed in other studies of dairy intake [18, 27-29].

Cheese consumption, in particular, has generally been associated with neutral or beneficial effects on blood cholesterol levels [20-23, 25] and may be linked to a lower risk of cardiovascular disease [21, 23].

These findings may reflect the complex food matrix of dairy products, which contains a range of nutrients and bioactive compounds, including calcium, potassium, and bioactive peptides, that may influence health outcomes beyond the effects of saturated fat alone [22, 24, 25].

Table 1. Dairy products and chronic diseases[35]

Product group	Quantity at which the correlation was observed	Chronic disease with which a connection was observed
Total dairy	Every 400 grams increase in consumption per day	Association with lower risk of bowel cancer
Milk	Every 200 grams increase in consumption per day	Association with lower risk of bowel cancer
Milk	115 to 600 grams per day compared to 0 grams per day	Association with lower risk of stroke
Yoghurt	75 to 150 grams per day compared to 0 to 22 grams per day	Association with lower risk of bowel cancer
Yoghurt	80 to 125 grams per day compared to 0 grams per day	Association with lower risk of type 2 diabetes
Cheese	Every 20 grams increase in consumption per day	Association with lower risk of coronary heart disease
Milk instead of processed meat	Specification of the quantity was not possible. The maximum milk consumption in the study was 300 grams per day.	Association with lower risk of diabetes type 2
Yoghurt instead of red and processed meat	Specification of the quantity was not possible. The maximum yoghurt consumption in the study was 95 to 100 grams per day.	Association with lower risks of coronary heart disease and diabetes type 2
Cheese instead of red and processed meat	Specification of the quantity was not possible. The maximum cheese consumption in the study was 50 to 55 grams per day.	Association with lower risks of coronary heart disease and diabetes type 2

Conclusion

Dairy foods contribute meaningfully to overall diet quality by providing a nutrient-rich and highly bioavailable source of essential nutrients. Their role in supporting health is reflected in a broad evidence base spanning different health outcomes and life stages.

Despite this, intake levels remain below recommendations in several population groups in Europe, suggesting a need for public health and nutrition policies to **improve dietary adequacy** through greater alignment with existing guidelines.

A greater **focus on whole foods** and their contribution to overall diet, rather than single nutrients in isolation, may further support more effective nutrition guidance.

References and further reading

1. Comerford KB, Miller GD, Boileau AC, Masiello Schuette SN, Giddens JC, Brown KA. Global Review of Dairy Recommendations in Food-Based Dietary Guidelines. Front Nutr. 2021 May 25;8:671999. doi: 10.3389/fnut.2021.671999. PMID: 34113643; PMCID: PMC8186461
2. European Food Safety Authority (EFSA). Your nutrition needs. Last reviewed 24 March 2025. Available at: https://www.efsa.europa.eu/en/safe2eat/your-nutrition-needs
3. FAO. Contribution of terrestrial animal source food to healthy diets for improved nutrition and health outcomes – An evidence and policy overview on the state of knowledge and gaps. Rome: Food and Agriculture Organization of the United Nations, 2023. https://doi.org/10.4060/cc3912en
4. European Food Safety Authority (EFSA). The EFSA Comprehensive European Food Consumption Database (EU Menu). Latest updates 2024–2026. https://www.efsa.europa.eu/en/data-report/food-consumption
5. Julián C. et al. Dietary sources and sociodemographic factors affecting calcium intakes in European adolescents: the HELENA Study. Public Health Nutrition, 2017;20(9):1593-1601. https://pmc.ncbi.nlm.nih.gov/articles/PMC10261664
6. Rosa M. Ortega, Ana Isabel Jiménez-Ortega, José Miguel Perea Sánchez, Esther Cuadrado Soto, Aránzazu Aparicio, Ana M. López-Sobaler, Nutritional value of dairy products and recommended daily consumption. Nutricion hospitalaria: organo oficial de la Sociedad Espanola de Nutricion Parenteral y Enteral. 2019. DOI:10.20960/nh.02803
7. Dutch Health Council, *Achtergronddocument bij Richtlijnen goede voeding: eiwitbronnen en voedingspatronen 2025*. Den Haag: Gezondheidsraad, 2025; publicatie nr. 2025/19A3.
8. O'Sullivan, T. A., & Nicholl, A. (2026). Exploring the dairy milk matrix beyond isolated nutrients—a narrative review: For resubmission to "The Important Role of the Dairy Matrix in Diet and Health" issue in Critical Reviews in Food Science and Nutrition. Critical Reviews in Food Science and Nutrition, 1–21. https://doi.org/10.1080/10408398.2026.2648097
9. International Osteoporosis Foundation (IOF), Calcium content of common foods. Available at: https://www.osteoporosis.foundation/patients/prevention/calcium-content-of-common-foods
10. Shkembi, B., & Huppertz, T. (2021). Calcium absorption from food products: food matrix effects. *Nutrients*, *14*(1), 180. https://doi.org/10.3390/nu14010180
11. Melse-Boonstra A. Bioavailability of Micronutrients From Nutrient-Dense Whole Foods: Zooming in on Dairy, Vegetables, and Fruits. Front Nutr. 2020 Jul 24;7:101. doi: 10.3389/fnut.2020.00101. PMID: 32793622; PMCID: PMC7393990.
12. Rizzoli, R., Chevalley, T. Nutrition and Osteoporosis Prevention. Curr Osteoporos Rep 22, 515–522 (2024). https://doi.org/10.1007/s11914-024-00892-0
13. Iuliano, S., Poon, S., Robbins, J., Bui, M., Wang, X., De Groot, L., Van Loan, M., Zadeh, A. G., Nguyen, T., & Seeman, E. (2021). Effect of dietary sources of calcium and protein on hip fractures and falls in older adults in residential care: cluster randomised controlled trial. *BMJ*, *375*, n2364. https://doi.org/10.1136/bmj.n2364
14. Yeji Baek, Sandra Iuliano, Judy Robbins, Shirley Poon, Ego Seeman, Zanfina Ademi, Reducing hip and non-vertebral fractures in institutionalised older adults by restoring inadequate intakes of protein and calcium is cost-saving, *Age and Ageing*, Volume 52, Issue 6, June 2023, afad114, https://doi.org/10.1093/ageing/afad114
15. Hart KH, Hill AJ, Gonzalez JT, de la Hunty A, Gallagher AM, Stanner SA. Diet in Pregnancy: A Review of Current Challenges and Recommendations. A British Nutrition Foundation Briefing Paper. Nutr Bull. 2025 Sep;50(3):365-410. doi: 10.1111/nbu.70016. Epub 2025 Jul 6. PMID: 40618386; PMCID: PMC12398648
16. Akyil, S., Winkler, S., Meyer, D., Kiesswetter, E., Kussmann, M., Schwingshackl, L., & Hauner, H. (2025). Association between dairy intake and multiple health outcomes: a scoping review of systematic reviews and meta-analyses. *Eur J Clin Nutr*. https://doi.org/10.1038/s41430-025-01639-5
17. Feng Y, Zhao Y, Liu J, Huang Z, Yang X, Qin P, Chen C, Luo X, Li Y, Wu Y, Li X, Huang H, Hu F, Hu D, Liu Y, Zhang M. Consumption of Dairy Products and the Risk of Overweight or Obesity, Hypertension, and Type 2 Diabetes Mellitus: A Dose-Response Meta-Analysis and Systematic Review of Cohort Studies. Adv Nutr. 2022 Dec 22;13(6):2165-2179. Available here: Consumption of Dairy Products and the Risk of Overweight or Obesity, Hypertension, and Type 2 Diabetes Mellitus: A Dose-Response Meta-Analysis and Systematic Review of Cohort Studies - PubMed
18. Sochol KM, Johns TS, Buttar RS, Randhawa L, Sanchez E, Gal M, Lestrade K, Merzkani M, Abramowitz MK, Mossavar-Rahmani Y, Melamed ML. The Effects of Dairy Intake on Insulin Resistance: A Systematic Review and Meta-Analysis of Randomized Clinical Trials. Nutrients. 2019 Sep 17;11(9):2237. doi: 10.3390/nu11092237. PMID: 31533272; PMCID: PMC6769921.
19. Zhang, X., Chen, X., Xu, Y., Yang, J., Du, L., Li, K., & Zhou, Y. (2021). Milk consumption and multiple health outcomes: umbrella review of systematic reviews and meta-analyses in humans. *Nutr Metab (Lond)*, *18*(1), 7. https://doi.org/10.1186/s12986-020-00527-y
20. Feeney EL, Barron R, Dible V, Hamilton Z, Power Y, Tanner L, Flynn C, Bouchier P, Beresford T, Noronha N, Gibney ER. Dairy matrix effects: response to consumption of dairy fat differs when eaten within the cheese matrix-a randomized controlled trial. Am J Clin Nutr. 2018 Oct 1;108(4):667-674. doi: 10.1093/ajcn/nqy146. Erratum in: Am J Clin Nutr. 2018 Dec 1;108(6):1356. doi: 10.1093/ajcn/nqy316. PMID: 30107488.
21. Rooney M, O'Connor A, Dunne S ... The impact of sex and the cheese matrix on cholesterol metabolism in middle-aged adults. Atherosclerosis, 2025; 402
22. Benoît Lamarche, Arne Astrup, Robert H Eckel, Emma Feeney, Ian Givens, Ronald M Krauss, Philippe Legrand, Renata Micha, Marie-Caroline Michalski, Sabita Soedamah-Muthu, Qi Sun, Frans J Kok. Regular-fat and low-fat dairy foods and cardiovascular diseases: perspectives for future dietary recommendations, The American Journal of Clinical Nutrition, Volume 121, Issue 5, 2025, Pages 956-964, https://doi.org/10.1016/j.ajcnut.2025.03.009.
23. Zhang M, Dong X, Huang Z, Li X, Zhao Y, Wang Y, et al. Cheese consumption and multiple health outcomes: an umbrella review and updated meta-analysis of prospective studies. Adv Nutr 2023; 14(5): 1170-86.
24. Everett, 2025, Dairy Foods: A Matrix for Human Health and Precision Nutrition—The impact of the dairy food matrix on digestion and absorption. Journal of Dairy Science, 2025; 108, 3070-3087. Dairy Foods: A Matrix for Human Health and Precision Nutrition—The impact of the dairy food matrix on digestion and absorption – ScienceDirect
25. Eugenio A, Ramos R, Barreto IR, Carriço R, Marcos J, Camelo A, Espírito Santo C and Brand˜ao I, 2025, Cheese: mere indulgence or part of a healthy diet? Front. Nutr. 12:1649432. doi: 10.3389/fnut.2025.1649432. Frontiers | Cheese: mere indulgence or part of a healthy diet?
26. Z. Chen, M. Ahmed, V. Ha, K. Jefferson, V. Malik, P.A.B. Ribeiro, et al., Dairy product consumption and cardiovascular health: a systematic review and meta-analysis of prospective cohort studies, Adv. Nutr. 13 (2022) 439–454.
27. Companys, J. *et al.* (2020) "Fermented Dairy Products, Probiotic Supplementation, and Cardiometabolic Diseases: A Systematic Review and Meta-analysis," *Advances in Nutrition*, 11(4), pp. 834–863. Available at: https://doi.org/10.1093/advances/nmaa030.
28. Zhang, K., Bai, P. and Deng, Z. (2022) "Dose-Dependent Effect of Intake of Fermented Dairy Foods on the Risk of Diabetes: Results From a Meta-analysis," *Canadian Journal of Diabetes*, 46(3), pp. 307–312. Available at: https://doi.org/10.1016/j.jcjd.2021.09.003.
29. Mohan, V. *et al.* (2023) "Effect of Milk and Cultured Milk Products on Type 2 Diabetes: A Global Systematic Review and Meta-analysis of Prospective Cohort Studies," *Journal of the Indian Institute of Science*, 103(1), pp. 167–190. Available at: https://doi.org/10.1007/s41745-023-00396-3
30. Yuzbashian, E., Asghari, G., Mirmiran, P., Chan, C. B., & Azizi, F. (2021). Changes in dairy product consumption and subsequent type 2 diabetes among individuals with prediabetes: Tehran Lipid and Glucose Study. Nutr J, 20(1), 88.
31. Slurink, I. A. L., den Braver, N. R., Rutters, F., Kupper, N., Smeets, T., Elders, P. J. M., . . . Soedamah-Muthu, S. S. (2022a). Dairy product consumption and incident prediabetes in Dutch middle-aged adults: the Hoorn Studies prospective cohort. Eur J Nutr, 61(1), 183-196.

32. Slurink, I. A. L., Voortman, T., Ochoa-Rosales, C., Ahmadizar, F., Kavousi, M., Kupper, N., . . . Soedamah-Muthu, S. S. (2022b). Dairy Product Consumption in Relation to Incident Prediabetes and Longitudinal Insulin Resistance in the Rotterdam Study. Nutrients, 14(3).
33. Cifelli CJ, Agarwal S, Fulgoni VL 3rd. Association of Yogurt Consumption with Nutrient Intakes, Nutrient Adequacy, and Diet Quality in American Children and Adults. Nutrients. 2020 Nov 9;12(11):3435. doi: 10.3390/nu12113435.
34. Zhu Y, Jain N, Holschuh N, Smith J. Associations between frequency of yogurt consumption and nutrient intake and diet quality in the United Kingdom. J Nutr Sci. 2021 Oct 4;10:e85. doi: 10.1017/jns.2021.63.
35. Dutch Health Council, Dairy & Chronic Diseases, 2025. Available at https://www.gezondheidsraad.nl/documenten/2025/12/04/advies-richtlijnen-goede-voeding-eiwitbronnen-en-voedingspatronen-2025