42 countries include dairy in their dietary recommendations at between two and five servings a day.
While milk has long been regarded as a healthy, whole food that can provide almost all the nutrition one needs, the Internet and social media are full of negative information about milk, especially as far as its role in bone health is concerned.

There has been some flip-flopping in the media about the nutritional value of various foodstuffs. One day the experts say one thing and the next day they seem to say another. This shatters the confidence or trust consumers had in the scientific or governmental body that made the original statement. Consumers then go on to seek other sources of information, for example on the open-source Internet and social media. They find it difficult to evaluate the information they find, as nutrition and health are personal issues, embracing factors like culture, religion and socio-economic status. A lot of information on the Internet and social media is fuelled by opinion and anecdotes.
describing people’s personal experiences and, more often than not, includes a lot of hyperbole, fearmongering and alarmist language. This is what seems to have happened with milk.

While bone health is very complex, requiring the consumption of a wide array of nutrients, the main minerals and vitamins in milk are calcium, phosphorus, magnesium and vitamin D, A and K. Bone can be considered a protein matrix, within which calcium, phosphorus and magnesium salts are deposited to give the bone its strength. Vitamin D is vital for the absorption of calcium and phosphorus, and vitamin K is a cofactor for an enzyme that modifies the proteins in bone to facilitate calcium-binding.

TELL THE TRUTH

So the question is: Is milk really bad for bone health or does the negative information arise from a biased evaluation of the research that has been conducted in this regard?

Among other things, consuming milk and dairy products contributes substantial amounts of calcium, phosphorus, vitamin B2, vitamin B12 and, while to a somewhat lesser degree, still significant amounts of vitamin A, vitamin D and zinc to the diet. Higher dietary recommendations for dairy are associated with larger contributions of dairy towards the various nutrient intakes. Milk is often fortified with vitamin D, which can then be a very good source; otherwise, sufficient sun exposure can ensure vitamin D production in the skin. Replacing the calcium in dairy in the diet with alternative food products is very difficult and would require an extremely well-planned diet.

The science

There are multiple research studies available that have looked into the association of total dairy consumption, specifically milk, yoghurt and cheese consumption, and bone health, including bone mineral density (BMD) and risk of fractures. The one most frequently quoted to illustrate the supposed “dangers” of milk consumption is a large study published by Prof. Michaëlsson and colleagues from Uppsala University in the British Medical Journal entitled: “Milk intake and risk of mortality and fractures in women and men: cohort studies”. The objective of the study was to examine whether high milk consumption was associated with mortality and fractures in women and men. High milk intake was associated with higher mortality in one cohort of women and in another cohort of men. The researchers did, however, state that, due to the limitations of the study, the results should be interpreted with caution.
In various other studies, total dairy and, even more so, yoghurt intake are associated with improved bone health. It is not clear what separates yoghurt from the other dairy products, as milk and cheese consumption have been found to sometimes have a neutral and/or negative association with bone health. Determining whether it is the low pH of yoghurt, the influence of the probiotics or another factor might be an interesting avenue to explore in future research.

Another interesting trend is that the protection that dairy provides against fractures is not always due to increased bone mineral density. In other words, sometimes dairy consumption is associated with a decreased risk of fractures, but there is no increased bone mineral density. This points towards an alternative protective mechanism.

So all in all, in my opinion, consuming dairy in a balanced diet forms part of a healthy lifestyle.

**IT’S COMPLICATED**

Why is there so much uncertainty when it comes to the association of bone health and dairy intake? All the studies mentioned previously were done by evaluating the dietary intake/lifestyle factors of a population. The researchers then waited a number of years (usually between 10 and 50 years) and determined how many fractures occurred. They then went back and looked at what had been eaten to try and see whether there was a correlation/association between dietary/dairy intake and the risk of fracture. There are various limitations to these kinds of study designs, e.g. differences in nutrient contents and serving sizes of food, the accuracy of food intake data over such a long period, the inherent risk of disease, physiological factors, and possibly various confounding factors that are unaccounted for.

So what does one then do to answer the question as to whether dairy is good for your bones? Well, most studies show a neutral or positive association between dairy consumption and bone health. Also, according to a recent review, which looked at the most recent available data, one can say with certainty that there is no evidence that milk consumption poses any danger to the consumer as far as illness and death are concerned. Another indication of the safety and necessity of milk consumption is that 42 countries include dairy in their dietary recommendations at between two and five servings a day.

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