

Bone health and dairy products:

from the latest scientific news on the matrix effect

Press release

Paris, 4 April. In Europe, osteoporosis affects over 22 million women aged over 50 (22% of the population) and 5.5 million men (7% of the population). It is responsible for more than 3 million fractures each year, including 620,000 hip fractures, and results in 2 million DALYs (disability adjusted life years). It is a serious public health problem that is a great concern to the medical and scientific communities.

Over 1,500 scientists and healthcare professionals therefore gathered at the World Congress on Osteoporosis, Osteoarthritis and Musculoskeletal Diseases (WCO- IOF- ESCEO) which was held in Paris on 4 April.

The matrix effect of dairy products has an impact on bone health

During the opening session, the latest breakthroughs in the field of bone and muscle health were presented and Professor Arne Astrup* spoke about the innovative “food matrix” concept, using the example of dairy products for the nutritional prevention of osteoporosis.

In two large observational studies from Harvard it was found that each serving of milk per day was associated with a 8% lower risk of hip fracture.

Prof Arne Astrup from the University of Copenhagen explained « *It is interesting in these studies that the effect could not be explained by the intake of calcium, vitamin D and protein from dairy as adjustment for these nutrients did not weaken the association. This observation supports that other nutrients, or interactions within the dairy matrix, are responsible for the effect on skeletal health* ».

The matrix effect: a new paradigm revolutionising nutrition

“Nutrition recommendations have historically focused on nutrients and are typically constructed to ensure the diet meets requirements for individual nutrients. Translation of nutritional requirements to dietary guidance has often resulted in advice such as “reduce intake of cholesterol and saturated fat.” However, people consume foods not nutrients, and translation from individual nutrients to foods has proven problematic » said Prof Astrup.

For over half a century, the study of the relationship between diet and health has focused on nutrients taken in isolation: fats, carbohydrates, proteins and micro-nutrients. This reductionist approach linking a nutrient to a health effect is perfectly legitimate in the case of deficiency diseases, scurvy for example is linked to vitamin C deficiency and is cured by eating citrus fruit.

But, it is unsuitable for the multi-factorial and chronic diseases affecting the health of populations today. The nutritional value of a food is not limited to the sum of its nutrients, but varies according to the structure of the food, the nutrients, the matrix and interactions with other components in the food. We eat foods, not just nutrients. The way in which the latter are interlinked has a real impact on their metabolic effects and, ultimately, their effects on long-term health.

So dairy products may have a more positive effect on bone health than the sum of their nutrients

The matrix effect helps to explain, at least in part, the greater effects of dairy products – compared with calcium alone – on bone and muscle health, and the prevention of osteoporosis, falls and fractures demonstrated by an accumulating body of scientific evidence. In addition, the matrix concept provides a new approach to nutrition, combining food science and human nutrition, which is more holistic and in keeping with “real” life.

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