

## Invited Speaker Abstract

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### Title

Dairy matrix and health from a holistic point of view

### 1. Abstract

The nutritional evaluation of the relation between diet and health has traditionally focused on individual food constituents and nutrients. But when we eat, we do not consume individual nutrients, we eat the whole food, alone or together with other foods in a meal.

Recent data show that the effects of nutrients on health can be different within the special structures formed by the food matrix. Different foods with the same amount of a component will not necessarily be equivalent in terms of nutrition or health and the actual effects of a food are not always those expected on the basis of its nutrition content.

Examples supporting this matrix concept are emerging, especially concerning dairy products which is the most studied food group.

Calcium bioavailability is considerably higher when provided by dairy products in comparison to most vegetables, due to matrix. Dairy matrix contains phosphopeptides and lactose which potentiate calcium uptake whereas plants contains absorption inhibitors such as oxalates and phytates.

Recent research has shown that the various saturated fatty acids exert very different biological effects, which are substantially modified by the food matrix. One example is cheese, which might be expected to increase cardiovascular disease risk due to high content of saturated fatty acids, but studies indicate the opposite. The explanation seems to be in the matrix, where the high calcium content plays an important role by interfering with fat digestion and absorption in the intestine.

Another example is from two large epidemiological studies from Harvard in which each serving of milk was associated with a significant 8% lower risk of fracture. The benefit was not explained by the calcium, vitamin D or protein content of milk, suggesting that interactions within the dairy matrix could be responsible.

Nutrition knowledge is changing from a reductionist to a holistic approach considering the whole foods, which is essential to support dietary guidelines for population and individual dietary counselling for patients.

### 2. Key references

Thorning TK et al. Whole dairy matrix or single nutrients in assessment of health effects: current evidence and knowledge gaps. *Am J Clin Nutr* 2017;105:1033–45.

Feskanich D et al. Milk and other dairy foods and risk of hip fracture in men and women. *Osteoporos Int* 2018;29(2):385-396 2017.