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Reply

Reply to the letter to the editor "Calcium supplementation, vitamin K status and cardiovascular disease: an additional point"

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The benefit and risk of calcium supplementation in patient with osteoporosis were reviewed recently by Meier and Kraenzlin [1]. They detailed the use of calcium with or without vitamin D whilst other nutrients were out of the scope of this review. The comment from Dr. Fernandez and colleagues is very much appreciated. Indeed, vitamin K – as well as many other nutritive and non-nutritive components of the diet – might be of importance in the maintenance of cardiovascular health, especially of arterial health [2]. The decision of the Swiss Medical Weekly to publish this contribution is well taken. Vitamin K is a cofactor for the posttranslational gamma-carboxylation of glutamate residues leading to gamma-carboxylation of different proteins that are of importance in various disease conditions – from bone formation to cell growth and carcinogenesis and various calcification reactions [3, 4]. Potential causality and biological plausibility of the relationship with vitamin K vary from one condition to the other, as well as from one chemical form of vitamin K to the other (phylloquinone and menaquinone might elicit different effects). The vitamin K-dependent protein matrix gamma-carboxyglutamic acid is, amongst other functions, a potent inhibitor of calcification [5]. A dysfunction or lack of this protein, as found in the autosomal recessively transmitted Keutel Syndrome, leads to a complex syndrome with extensive soft tissue calcification including calcification of arteries [6]. This suggests a strong role for vitamin K at least at the very lower end of the vitamin K nutritional status, or respectively of abnormalities in vitamin K related metabolic pathways. Contrary to animal data, human data (epidemiological studies and a few intervention studies) on the role of vitamin K in atherosclerosis (including calcification reactions) are less consistent, not to say controversial, and the relationship remains so far hypothetical [2] and might only be of importance at vitamin K intakes well below the recommended allowances, or in specific settings such as the presence of other risk factors. It is conceivable that vitamin K intake might merely represent a proxy marker for an overall healthy lifestyle including healthy diet.

At the bottom line it is the overall dietary pattern (and not a single nutrient) which accounts for potential protective health effects [7]. In addition a consequent control of the established risk factors in combination with a balanced diet might be a better strategy instead of a focus on single nutrients.

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Letter to the Editor:
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