

# Is the top health concern in the West a vitamin deficiency?

New breakthrough research shows that sufficient vitamin K2 intake can profoundly affect cardiovascular health.

**C**ardiovascular health, one of the most common concerns in the Western world, has been shown to require an essential vitamin. Ongoing research confirms that vitamin K2 as menaquinone-7 (MK-7) can likely improve cardiovascular outcomes significantly, yet populations are woefully deficient, making supplementation a practical alternative.

## What is vitamin K2 and why are we deficient?

Vitamin K is a fat-soluble vitamin that exists in two forms: vitamin K1, also known as phylloquinone and found in plant sources; and vitamin K2, also known as menaquinones and found in fermented foods such as natto or cheese, or commercially produced naturally or synthetically.

Intestinal bacteria have the potential to synthesize vitamin K2; however, the contribution to human health is not entirely clear.

K vitamins contribute to normal blood clotting. Compared with vitamin K1, vitamin K2 has a more efficient protective effect on cardiovascular health as well as bone health. Through the activation of K-dependent proteins like osteocalcin (OC) and matrix Gla protein (MGP), vitamin K2 contributes to bind calcium to the bone matrix and to inhibit calcium from depositing in the blood vessel walls. As vitamin K2 has been recently shown to reduce arterial stiffness and improve elasticity, this may add a new dimension to explain vitamin K2's positive cardiovascular effect.

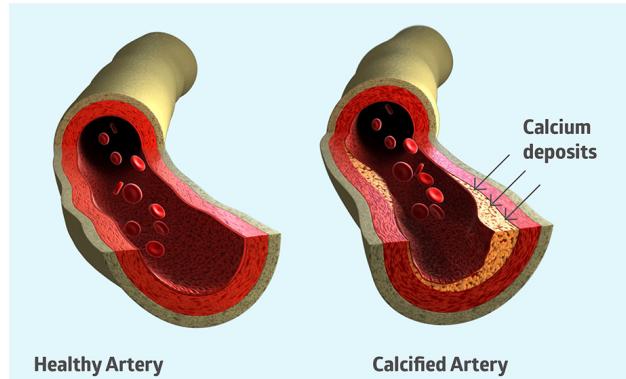
The Rotterdam Study (2004) was the first substantiation that dietary intake of vitamin K2 – but not K1 – provided cardiovascular benefits. Findings from this ten-year population-based study indicate that eating foods with natural vitamin K2 – at least 32µg a day – reduces the risk of arterial calcification and negative cardiovascular events, with no undesirable side effects.

The Utrecht Prospect Study (2008) confirmed these findings. After eight years of follow-up of 16,057 women, vitamin K2 was found to decrease the risk of negative coronary events by 9% for every 10µg of K2 consumed. The strongest correlation was seen in high menaquinones (MK-7, MK-8 and MK-9) intake cases.

However promising these results are, other findings demonstrate that populations are subclinically deficient in vitamin K2. According to Prynne et al (2005), consumption of K-vitamin-containing foods in Western countries has decreased gradually since 1950. In general, the typical Western diet contains insufficient amounts of vitamin K2 to adequately activate OC and MGP, indicating that about 30% of vitamin-K2-activated proteins remain inactive.

## A cardiovascular breakthrough

Findings from a large clinical study have just published in *Thrombosis and Haemostasis* signalling vitamin K2 as MK-7 as a potential game-changer for the heart health category.



Vitamin K2 is a cardiovascular protector, and is essential for bone and cardiovascular health – without vitamin K2, calcium is not properly directed to bones, allowing it to build up in blood vessel walls and soft tissues.

Funded by Norway-based NattoPharma, the world leaders in vitamin K2 research and development, scientists at the University of Maastricht in the Netherlands performed a double-blind, randomised intervention study of 244 postmenopausal women given either 180µg of vitamin K2 as MK-7 (as MenaQ7®) or a placebo daily for three years.

Using ultrasound and pulse-wave velocity measurements – recognised as standard measurements for cardiovascular health – researchers determined that carotid artery distensibility and stiffness index beta was significantly improved for a three-year period in the MenaQ7 group of women with increased arterial stiffness at start as compared with that of a placebo group. Additionally, pulse-wave velocity in this same group showed a statistically significantly larger decrease after three years for the vitamin K2 (MK-7) group than for the placebo group, demonstrating an increase in elasticity and reduction in age-related arterial stiffening.

This first intervention trial on MK-7 supplements and cardiovascular end points indicates that three-year supplementation with a daily, nutritional dose (180µg) of MenaQ7 has the potential to decrease arterial stiffness in healthy postmenopausal women.

In conclusion, these results demonstrate vitamin K2 as MK-7's interesting potential for populations seeking to influence their cardiovascular risk and even improve their cardiovascular health. ■

**References available upon request.**

## Further information

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