

**VITAMIN K2 REDUCES WOMEN'S RISK OF CORONARY HEART DISEASE,  
SPECIFICALLY AS MENAQUINONES 7, 8, & 9**

12 February 2009, Lysaker, Norway – NattoPharma and PL Thomas are pleased to notify of a new publication by G. Gast et al. ([A high menaquinone reduces the incidence of coronary heart disease in women](#)<sup>1</sup>), in the journal Nutrition, Metabolism and Cardiovascular Diseases that posted online January 28, 2009 confirming the pivotal importance of high menaquinone (Vitamin K2) intake for human cardiovascular health.

The main goal of the study carried out by Gast and colleagues was to investigate the association of dietary vitamin K1 (phylloquinone) and vitamin K2 (menaquinones) intake with the incidence of coronary heart disease (CHD). To examine a possible correlation, researchers evaluated the Prospect-EPIC cohort, consisting of 16,057 women, aged 49 – 70 years and free of cardiovascular disease at baseline, with follow-up data available over a period of more than 8 years. The data showed and confirmed that higher consumption of natural vitamin K2 (especially its longer subtypes such as menaquinone-7 through menaquinone-9) – but not vitamin K1 - was associated with significantly reduced prevalence of CHD.

According to Dr. Leon Schurgers of CARIM at the University of Maastricht, 'This study confirms our findings in the Rotterdam study<sup>2</sup>, showing that increased vitamin K2 intake strongly reduces the risk of coronary heart disease. Also this study showed that the reduction in CHD was tied to the longer-chain menaquinones 7, 8, and 9 - the menaquinones found most abundantly in fermented cheese. As the Western diet is likely deficient in K, supplementation or enrichment of long chain menaquinones is an obvious choice.'

The Gast et al. study showed a 9% reduction in risk of developing CHD for every 10 mcg of natural vitamin K2 consumed. The highest average consumption was > 36 mcg K2/day. The mechanism of vitamin K2 for the prevention of calcification has been addressed in previously published research<sup>3</sup>. A vitamin K-dependent protein called matrix Gla-protein (MGP) is the most potent inhibitor of vascular calcification known. This protein has a high affinity for calcium, and without adequate vitamin K it is inactive, and thus non-functional. Inactive MGP may lead to increased calcium-deposition and the development of cardiovascular diseases.

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<sup>1</sup> Gast **G.C.M.**, et al. **A high menaquinone reduces the incidence of coronary heart disease in women**, Nutrition, Metabolism and Cardiovascular Diseases, Available online 28 January 2009. doi:10.1016/j.numecd.2008.10.004

<sup>2</sup> Geleijnse JM., et al. **Dietary Intake of Menaquinone Is Associated with a Reduced Risk of Coronary Heart Disease: The Rotterdam Study**, Nutritional Epidemiology, 2004 134: 3100-3105.

<sup>3</sup> Schurgers LJ., et al., **Regression of Warfarin-Induced Medial Elastocalcinosis by High Intake of Vitamin K in Rats**, Blood, 2007. 109(7): 2823-2831

Indeed, findings of present research clearly support the groundbreaking outcomes of The Rotterdam Study which was published in 2004, establishing a powerful protective effect of vitamin K2 on heart health. In the Rotterdam study 4,800 healthy men and women were included and follow-up data were available over a 10 year period. It was shown that the highest menaquinone consumption (45mcg daily), resulted in 50% less arterial calcification and a 50% reduction in the risk of CHD related death compared to the lowest consumption (12 mcg daily).

Also in the study from Gast and colleagues, vitamin K1 had no effect on vascular health, confirming the data obtained in the Rotterdam study. It seems that the different effect of both vitamins may be explained by their different distribution within the body: while K1 is primarily taken-up by the liver, K2 is the major form of vitamin K transported also to extra-hepatic tissues, such as vessel wall and bones-tissue. Therefore, long-chain menaquinones like MK7, MK8 and MK9 are especially important for cardiovascular health.

#### **Vitamin K2 – Western Diets may be Deficient**

Adequate vitamin K is necessary to activate vitamin K-dependent proteins involved in coagulation, bone-health and the inhibition of cardiovascular calcification. However, it is now known that even in healthy individuals, substantial fractions of the K-dependent proteins necessary for bone and CV health are not fully activated, indicating subclinical vitamin K deficiency.

According to Dr. Schurgers, “Since vitamin K was discovered, we have understood its role in providing the liver’s needs for proper coagulation. It is only in the last decades or so that we have recognized vitamin K’s role activating proteins responsible for calcium utilization in the bones – and only in the past 5 years has its role in inhibiting arterial calcification been understood.”

Natural vitamin K2 as Mk-7 is now recommended by experts to address dietary deficiencies. According to a paper published in Blood in 2007<sup>4</sup>, which evaluated the different types of supplemental vitamin K, taking into consideration dose, efficacy and safety, natural vitamin K2 as menaquinone-7 (MK-7) is the obvious choice for enrichment of dietary supplements and functional foods due to its bioavailability, bioactivity and long half-life in the blood.

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<sup>4</sup> Schurgers LJ., et al., **Vitamin K-Containing Dietary Supplements: Comparison of Synthetic Vitamin K1 and Natto Derived Menaquinone-7**, Blood, 2007. 109(8): 3279-3283.

**About MenaQ7**

MenaQ7™ is a safe and effective extract from the Japanese food natto (fermented soybeans), which is the richest known source of natural vitamin K2 (MK-7). MK-7 is recognized in scientific literature for providing optimal activity and vitamin K status in the body. MenaQ7 is the best documented commercially available Natural Vitamin K2 with guaranteed actives and stability, clinical substantiation and international patents awarded and pending.

For more information on the health benefits of MenaQ7, please visit [www.menaq7.com](http://www.menaq7.com)

**About NattoPharma**

NattoPharma, Norway is the exclusive international supplier of MenaQ7, the natural Vitamin K2. NattoPharma has entered into a multi-year research and development program to substantiate and discover the health benefits of natural vitamin K2 for applications in the exciting marketplace for functional food and health food supplements.

For more information, please visit our website [www.nattoPharma.com](http://www.nattoPharma.com)

**About PL Thomas**

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PLT specializes in clinically-supported nutraceuticals, fruit and botanical extracts, probiotics and fermentation products, novel delivery systems, and hydrocolloids, with ingredients covering a wide range of application specific conditions.

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