VITAMIN K DEFICIENCY MAY BE A SIGNIFICANT RISK FACTOR FOR LOW BONE MASS IN HEALTHY CHILDREN AND IN THOSE WITH JUVENILE ARTHRITIS

16 July 2008, Lysaker, Norway – NattoPharma and PL Thomas announce today a new study has published in the journal *Clinical and Experimental Rheumatology* 2008; 26(3):484-91) discussing the association between the vitamin K-dependent protein osteocalcin and the incidence of low bone mass in children with juvenile idiopathic arthritis.

In the study, high vitamin K status – in healthy, as well as in diseased children - was found positively correlated with markedly better bone properties, whereas low blood concentrations of active osteocalcin, that are indicative of poor vitamin K status, were associated with a significant impairment in bone quality.

According to Leon Schurgers, PhD, one of the study's authors, *'these findings suggest that improvement in vitamin K status, and thus in the amount of active osteocalcin, might significantly improve bone health in children, even in those with arthritis. Certainly in adults, low bone density and increased fracture risk are associated with low vitamin K status in bone.'*

'Unfortunately we also know that the Western diet is insufficient in K vitamins for bone and cardiovascular health,' continued Schurgers. *'Supplementing the diet with natural vitamin K2 as menaquinone-7, either in food enrichment or dietary supplements, seems to be the obvious solution to promote human health.'*

In the Western diet, vitamin K1 (phylloquinone) is found in leafy green vegetables, and vitamin K2 (menaquinones) is found in fermented foods including cheese, and in small amounts in egg yolk and meat. Natural vitamin K2 is believed to provide the majority of vitamin K activity outside of the liver, contributing to bone and cardiovascular tissue health.

A growing body of evidence points to the vital role of K vitamins within the human body. K vitamins are responsible for the carboxylation (i.e. activation) of proteins that block precipitation of calcium in the arteries (where it's superfluous and causes danger) and bind it to the mineral structure of bone to make it stronger.

Population, laboratory and human interventional studies show that diets rich in K vitamins contribute to cardiovascular and bone health. The population-based Rotterdam Study found that high natural Vitamin K2 consumption reduces the risk of fatal cardiovascular event by as much as 50%. Research indicates also that higher vitamin K status (and therefore larger amount of circulating active osteocalcin) is strongly associated with higher bone mass, density, improved geometry and mineral content of bone. That discovery is especially important for elderly and children, because in those populations the requirement for K vitamins are remarkably greater: during childhood bone tissue grows and develops most intensively, whereas the process of aging combined with vitamin K deficiency seems to make the skeleton weak and brittle.

However, recent scientific data reveals that Western diet might not provide K vitamins in the amounts sufficient for satisfying the body's needs. This is especially concerning given that, according to researcher CJ Prynne, mean dietary intake of K vitamins are currently significantly lower than it was 50 years ago and, as a result of changes in dietary patterns, the daily consumption of K vitamins has decreased gradually since 1950[1]. With the suggested need for adequate vitamin K status for optimal development and maintenance of bone and the cardiovascular system, the substantially lower intakes may have implications for health in adulthood.

To avoid far-reaching negative consequences, European experts recommend increasing intake of the K vitamins through dietary supplements and food enrichment. Of the K Vitamins, the most active contributor to bone and vascular health is natural vitamin K2, especially the longer menaquinones, such as menaquinone-7.

The best source of natural Vitamin K2 is the traditional Japanese food natto, which contains a significant amount of natural Vitamin K2 as menaquinone-7 (MK-7). Natto consumption has been linked to bone health and the reduction of the risk of fracture.[2]

Now natural vitamin K2 is available for food enrichment and dietary supplements as MenaQ7™.

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[1] Prynne CJ, Thane CW, Prentice A, Wadsworth ME. Intake and sources of phylloquinone (vitamin K(1)) in 4-year-old British children: comparison between 1950 and the 1990s. Public Health Nutr. 2005;8(2):171-80.

[2] Yaegashi Y, et. al., Association of hip fracture incidence and intake of calcium, magnesium, vitamin D, and vitamin K E J Epidemiology 2008 23:3 219-225

About MenaQ7™
MenaQ7 provides Natural Vitamin K2 as an extract of natto, a fermented soy food from Japan. Natto is particularly rich in the highly bio-available form of vitamin K2 called menaquinone-7 (MK-7). MenaQ7 provides the only 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

About NattoPharma
NattoPharma, Norway, is a publically-traded company and the exclusive international supplier and brand owner of MenaQ7 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. www.nattopharma.com

About PL Thomas
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