

# MenaQ7™, the natural vitamin K2 in foods – the next era

**H**ealth effects of vitamin Ks are now in focus in scientific journals and in the press. Many players in the market are thus looking for this vital, new ingredient which affects calcium deposition in the body. The situation is however not “just to fortify” with K vitamins. One has to have considerable knowledge of the various vitamin K derivatives, their chemical and biological behaviour, and health effects and- not to be forgotten- to consider safety and the regulatory status of vitamin K. By choosing the natural, scientifically documented MenaQ7™ product you will make the optimal choice.

## Normal diets – not enough vitamin K2

MenaQ7™ is the optimum natural vitamin K2 product based upon solid scientific documentation and endorsed by leading vitamin K experts. Present knowledge reveals an exciting new world of understanding the important health effects of this new vitamin. It is now evident that MenaQ7™ helps improve both bone and vascular health through the activation of certain proteins that bind calcium: Osteocalcin binds calcium in the bone matrix and strengthens bones, while Matrix Gla protein (MGP) binds calcium and thereby inhibits calcification of arterial vessel walls. This is encouraging as poor bone and cardiovascular health are major health problems in most western countries.

Many advocate a healthy life by eating healthy food. It is therefore interesting to know that the western diet contain very little vitamin K2. If you want to check the content of K vitamins in your diet, you might be disappointed or mislead as there is very little information available, or information that is not adequate for vitamin K2. There are hardly any publications available showing the content of vitamin K2 in foods, and the results in these publications are not encouraging. Not many food products contain significant amounts of vitamin K2- only bacterial fermented cheeses and a few other products have measurable vitamin K2 content. Experts are now focusing on increasing vitamin K2 intake in the general public as most western populations are insufficiently supplemented in their daily needs. Fortifying food products should thus represent an easy way to improve bone and cardiovascular health.

In order to be able to take advantage of vitamin K2 fortification NattoPharma continues to document aspects of MenaQ7™ in health and for application purposes. We have also patiently worked with the regulatory authorities to enable customers to safely fortify products and to substantiate health claims used in marketing.

## The description “Vitamin K” is outdated! Ask which K vitamin

The growing knowledge and awareness

among the general public of the beneficial health effects of K vitamins is important and encouraging for those working in the field! However, it is frustrating to witness the lack of stringent terminology and clear distinction between the various forms of exist.

For many years, scientific studies have made distinctions between

We are advocating in this article that it is time to leave the general description “vitamin K”. It should either be replaced by *K vitamins*, or by *defining the specific K variant- as for vitamin B1, B2, B3, B5, B6, B12 etc-*, because both customers and consumers have to know that there are several products on the market with important differences in product properties and effects.

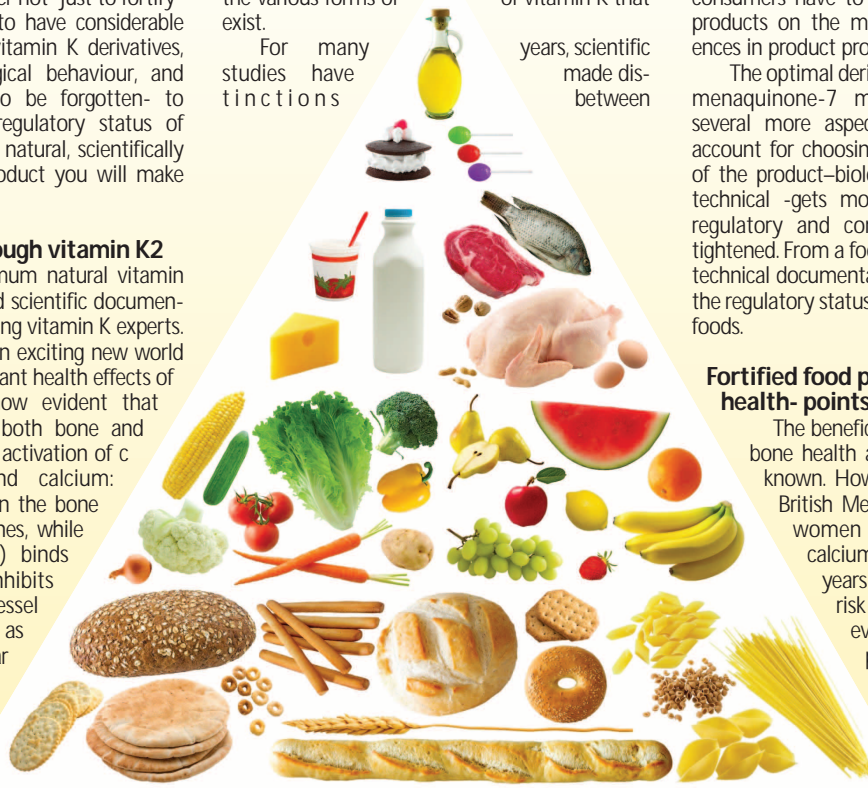
The optimal derivative of the K vitamins is the menaquinone-7 molecule (MK-7). However, several more aspects need to be taken into account for choosing a product. Documentation of the product-biological and clinical as well as technical -gets more and more important as regulatory and competitive requirements are tightened. From a food technology standpoint the technical documentation is important, but only if the regulatory status allows one to fortify relevant foods.

## Fortified food products for better health- points to consider

The beneficial effect of calcium on adult bone health as pointed out above is well known. However, a recent article in the British Medical Journal<sup>1</sup> revealed that women supplemented only with calcium (1000 mg/day) over a 5 years period had a much higher risk for adverse cardiovascular events compared to women on placebo. This seems plausible as these women did not seem to get an adequate amount of biologically effective K vitamins through their ordinary diet. More and

more studies are now focusing on the need for supplementing bones with MK-7 to achieve optimal activation of the calcium-binding protein osteocalcin. Supplementing the bones with adequate doses of MK-7 will also stimulate the activation of Matrix Gla protein (MGP). As previously mentioned, activated MGP inhibits calcium deposits in arteries and thus contributes to better cardiovascular health.

A major concern for adults is not only their



vitamin K1 and K2 while the press and newspapers are still talking about “vitamin K”. “Vitamin K” represents two closely related classes of molecules, phyloquinone, or K1 (just one molecule), and the menaquinones, also known as the K2 vitamins. Within the vitamin K2 group one also has to make distinctions as there are several molecules with varying degrees of biological effects in this group. The molecular structures are illustrated in fig 1.

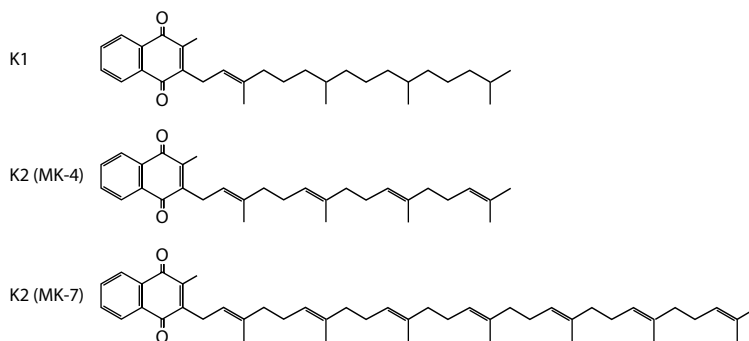


Figure 1

