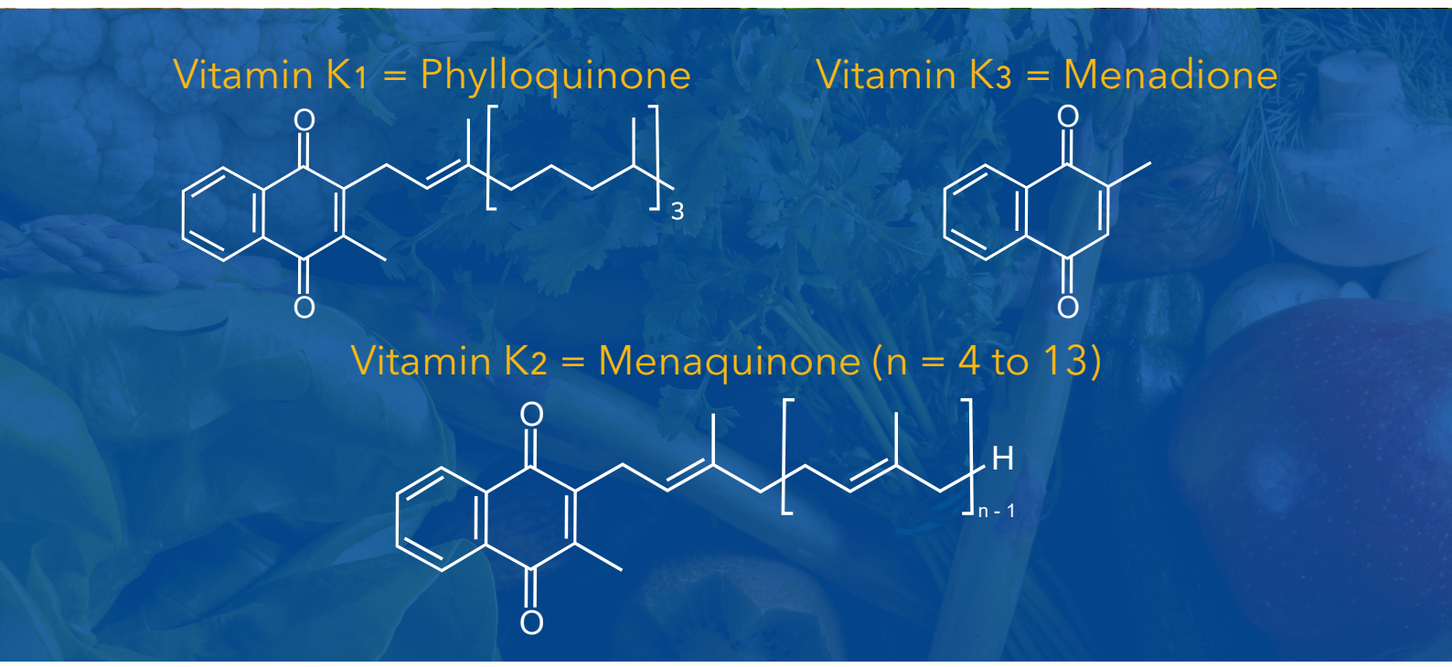
Vitamin **K**

Vitamin K (K1 – phylloquinone, K2 – menaquinone, K3 - menadione) refers to structurally similar, fat-soluble vitamers found in foods and available in dietary supplements. The first two, vitamin K1 and vitamin K2, belong to natural vitamers. Out of the K2 subtypes, MK-4 and MK-7 attract most attention (numbers referring to the number of isoprenyl units in the K2 chemical structure). Vitamin K3 is the synthetic form of vitamin K, often found in pet foods.



Functions/Health effect:

Vitamin K activates proteins that are needed for blood clotting and calcium deposition, thus contributing to bone and heart health. Prothrombin is a vitamin K-dependent protein directly involved with blood clotting. Osteocalcin is another protein that requires vitamin K to produce healthy bone tissue.

Sources:

Vitamin K1 is primarily found in plants, especially leafy green vegetables. Small amounts are provided by animal-sourced foods. Vitamin K2 is synthesized by bacteria and obtained primarily via animal-sourced foods (with poultry and eggs ahead of beef, pork or fish). One exception is nattō, which is made from bacteria-fermented soybeans. It is a rich food source of vitamin K2 variant MK-7. The MK-4 form of vitamin K2 is made by the conversion of plant-sourced vitamin K1 in various tissues in the body.

Did you know that?

Menadione, a synthetic compound referred to as vitamin K3, is mainly used in pet food as once consumed, it is converted to vitamin K2. The US FDA has banned this form from sale as a human dietary supplement because large doses have been shown to cause allergic reactions, hemolytic anemia, and cytotoxicity in liver cells in human.

For several decades, the vitamin K–deficient chick model was the only method of quantifying vitamin K in various foods: the chicks were made vitamin K–deficient and subsequently fed with known amounts of vitamin K–containing food. The extent to which blood coagulation was restored by the diet was taken as a measure for its vitamin K content.

Antibiotic medicines may destroy vitamin-K-producing bacteria in the gut, thereby potentially decreasing vitamin K levels, especially if taking the medicine for more than a few weeks.

As vitamin K is fat-soluble, it is best to eat vitamin K foods with some fat to improve absorption. So, drizzle some olive oil or add diced avocado to your favorite leafy green salad!

Food *division*