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Physiology and Pathology of Vitamin K Intake

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Message from the Guest Editors

Vitamin K is characterized by a group of lipophilic vitamins determining post-translational modification of proteins. Vitamin K is mainly known as an agent involved in blood coagulation, maintaining the activity of coagulation factors in the liver, but several additional important functions have been discovered. There are two main forms of vitamin K: vitamin K1 and vitamin K2, both of which act as co-enzymes of γ -glutamyl-carboxylase (GGCX), transforming vitamin K-dependent proteins (VKDPs) from the undercarboxylated into the carboxylated form. Vitamin K stores are limited in humans, but the vitamins can be recycled. Vitamin K1 is principally transported to the liver, regulating the production of coagulation factors. Vitamin K2, instead, also reaches extrahepatic tissues, such as bone and arteries, regulating the activity of Osteocalcin and Matrix Gla-protein (MGP), respectively. Furthermore, vitamin K has been also identified as a ligand of the nuclear steroid and xenobiotic receptor (SXR), expressed in osteoblasts. Another possible role of vitamin K could be protective activity against some cancer types.



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