VITAMIN K1 VS. K2

Question 1) Can Vitamin K2 be listed as Vitamin K in the Nutrition Facts Label per FDA?

Answer: No.

Question 2) What is FDA's position on Vitamin K2?

Vitamin K2 cannot be listed as Vitamin K in the Nutrition and Supplement Facts Label per Revision of the Nutrition and Supplement Facts Labels by FDA, but it can be included in the ingredient list as Menaquinone (scientific name of Vitamin K2).[1]

Further Explanations: Studies done on Vitamin K2 do not yet establish solid scientific evidence of its benefits or mechanism yet, and food source data for K2 are limited. Therefore, FDA ruled that K2 cannot be declared as Vitamin K in the Nutrition and Supplement Facts Label, but suggested that menaquinone (K2) can be included in the ingredient list to inform consumers that another variety of Vitamin K is a component of the product (Effective July 26, 2018).[1]

Question 3) What form of Vitamin K does Shaklee use?

Answer: Vitamin K1.

Question 4) Why does Shaklee use Vitamin K1, not K2?

Answer: Vitamin K1 is the naturally occurring form of Vitamin K found in green leafy vegetables. K2 can be synthesized from dietary / supplemental K1 by certain intestinal bacteria. There are more concrete scientific evidences to support the benefit of dietary/supplemental Vitamin K1 compared to Vitamin K2, so that US FDA allows only Vitamin K1 to be labeled as Vitamin K on the Nutrition Facts Label.

Further Explanations: In general, there are 3 forms of Vitamin K: K1 (phylloquinone), K2 (menaquinone: MK), and K3 (menadione). Vitamin K1 is plant based form and can be found in green leafy vegetables and their oils; K2 is synthesized by bacteria and there are several forms of K2 (MK-4 through MK-10), which can be found in animal based foods or in fermented soybeans (e.g., *natto,* a traditional Japanese food); K3 can be formed from vitamin K1 during absorption and found in legumes or fermented soybeans.[2-4]

All types of Vitamin K provide benefits on blood coagulation, bone health, and cardiovascular health.[2] However, **K1** is the primary dietary form, and both K2 and K3 can be synthesized from K1 by our gut bacteria or by an enzyme in our body when we consume K1.[5,6] For instance, a study had lactating mothers take phylloquinone supplements, which resulted in higher concentrations of MK-4 in their breast milk, supporting dietary/supplemental K1 conversion to K2.[7] In addition, K1 is the only type among the Vitamin Ks that has been studied to fully understand its bioavailability and mechanism within the body.[1]

Question 5) Is additional Vitamin K2 supplement necessary or can people be Vitamin K2 deficient?

Answer: Not likely.

Further Explanations: When one consumes sufficient Vitamin K1 from diets / supplements, Vitamin K2 can be synthesized from K1 by certain gut bacteria and the enzyme in the body. The contribution of K2 to the maintenance of Vitamin K status in human body or the deficiency has NOT been established because blood K1 level is used to determine Vitamin K status or deficiency.[1,2] Therefore, additional Vitamin K2 supplement is not necessary, and it is unlikely for people to develop Vitamin K2 deficiency according to the current scientific evidence.

Due to several human studies showing beneficial effect of K2 supplementation on bone health, the necessity of supplemental Vitamin K2 has been proposed.[8-10] However, some of studies used pharmacological dose (45 mg) of Vitamin K2, which is several hundred times higher than the daily recommended level for Vitamin K.[1,2,8-11] Despite the mega dose of Vitamin K2 used in those studies, the evidence of Vitamin K2 on bone and other health benefits (e.g., cardiovascular health) to date is not conclusive.[1,2,12,13] Also, numerous studies done on the effects of K1 demonstrated that higher K1 intake can benefit bone and cardiovascular health in addition to the effect on blood coagulation, and thus additional supplemental K2 is unlikely to be necessary.[1,2,.14-18]

Conclusion

Shaklee does not use Vitamin K2, or menaquinone, as the primary ingredient of Vitamin K supplements, and will continue to use Vitamin K1.

1. K1, or phylloquinone, is the major, plant based natural form of Vitamin K. There are concrete scientific evidence that K1 provides health benefits on blood coagulation, bone, and cardiovascular system with clear understanding on its metabolism in the body. On the other hand, how K2 is exactly used and incorporated in the body is not yet understood completely.

2. The enzyme in the body and certain intestinal bacteria are able to synthesize K2 efficiently from the intake of K1.

3. It is unlikely to be Vitamin K2 deficient.

4. FDA ruled that only Vitamin K1 can be declared as Vitamin K on Nutrition and Supplement Facts Label and that menaquinone (K2) **cannot** be listed on the label but only in the ingredient list to the product (Effective July 26, 2018).

References

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