

# Vitamin K2 Awareness in Sun-Protected Patients Supplementing With Vitamin D

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## ABSTRACT

Dermatologists often recommend vitamin D for sun-protected patients. Most patients are not aware of the key role vitamin K2 plays in vitamin D metabolism and do not receive sufficient dietary vitamin K2. A survey of 50 sun-protecting patients shows 4/50 understood the role of vitamin K2 and 1/50 was supplementing vitamin K2. Therefore, counseling on vitamin K2 supplementation may be of benefit to sun-protected dermatology patients.

*J Drugs Dermatol.* 2021;20(2):228-229. doi:10.36849/JDD.2021.5829

Dermatologists typically counsel patients on vitamin D supplementation when recommending rigorous sun protection for conditions such as lupus or melanoma. Evidence supports a synergistic impact for vitamin K2 on vitamin D, potentially explaining the “calcium paradox,” the inverse relationship between bone mineral density and arterial calcification. Most subjects consuming typical Western foods do not obtain sufficient vitamin K2 from dietary sources.<sup>1</sup> Although the FDA has not at this time authorized an RDA for vitamin K2, the European Food Safety Authorities (EFSA) has accepted a claim for the role of vitamin K2 supplementation on the maintenance of bone health. The Rotterdam Study showed that taking >33 mcg/day K2 decreased coronary heart disease risk by 50% in postmenopausal women.<sup>2</sup> A subsequent clinical trial found that taking 180 mcg/day K2 for 3 years promoted bone quality and strength in postmenopausal women.<sup>3</sup>

Therefore, when counseling on vitamin D supplementation we generally suggest adding vitamin K2 100 mcg daily, especially when at increased risk for osteoporosis or vascular calcification. This is within the range that major studies have correlated to favorable bone and cardiovascular outcomes. While this amount can be obtained from daily consumption of certain pasture raised dairy products or organ meats, few Western patients do so.

Because K2 exerts an effect similar to K1 in activating coagulation factors, vitamin K2 supplementation may be contraindicated in patients on warfarin. However, recent work indicates that increased intake of leafy greens may help rather than harm patients on warfarin.<sup>4</sup> For reference, 100 mcg K1 is the amount present in two leaves of spinach. It is also worth noting that Vitamin K2 absorption may be reduced by certain antibiotics such as cefoperazone, bile acid sequestrants, and orlistat.

The present study aimed to understand whether dermatology patients following recommendations on sun-protection and Vitamin D were (1) aware of the role Vitamin K2 plays in Vitamin D metabolism, and (2) obtaining adequate vitamin K2, either via supplement or by daily consumption of dietary sources such as 5 egg yolks or 900 grams of liver. Patient recruitment occurred at a single institution's dermatology department. An IRB-approved survey was offered to patients over the age of 18 who were advised to engage in sun protection, such as applying sunscreen before going outdoors. Patients were informed that the survey was voluntary and refusal to participate would have no effect on their current or future care. Surveys were completed and submitted anonymously. Patients under 18 or unable to read English were excluded. 54 dermatology patients filled out the survey in Figure 1, and the 50 surveys that answered yes to question 1 were further analyzed.

**FIGURE 1.** The survey that was returned by 54 dermatology patients.

1. Were you told by your dermatologist to engage in sun-protection and supplement with vitamin D?  
Yes No
2. Are you aware of the role that vitamin K2 plays in bone and vitamin D metabolism?  
Yes No
3. Do you currently supplement with vitamin K2, eat a large amount of liver, or eat five eggs per day?  
K2 eggs liver none of these

Of the 50, four were aware of the role of vitamin K2, and one regularly supplemented with vitamin K2. The results support that dermatology patients taking Vitamin D supplements when practicing sun protection may benefit from counseling on vitamin K2.

**DISCLOSURES**

The authors have no conflict of interest to declare.

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