Public consultation on vitamin K. Due August 16, 2022

Key points

- Due to limited knowledge on vitamin K and lack of qualified systematic reviews, the evidence is insufficient to conclude that favorable sources of vitamin K are mainly plant-based foods.
- It is premature to draw the conclusion that plant-based foods are more sustainable to secure vitamin K intake in the public. This disregards the role of meat and dairy products.

According to the authors of this chapter it is a general lack of knowledge regarding vitamin K. This is also emphasized by the fact that the authors were unable to identify qualified systematic reviews for vitamin K. The authors point out that the number of systematic reviews and meta-analyses on vitamin K is limited.

The authors state that little is known about the absorption of dietary vitamin K, and less is known about the absorption of dietary menaquinone than of phylloquinone. Dietary sources of menaquinone include meat and dairy products. According to the authors, there is little information on the content of menaquinone from meat and dairy products. Bovine meat in Norway has been analyzed for total vitamin K, phylloquinone, K1, menaquinone, MK4, and menaquinone MK7[1]. The study found a relatively high variation in content of the different forms of vitamin K. The results showed that almost half of the samples had a high enough content to be labelled as «a source of vitamin K». It has been shown that vitamin K in bovine meat can be increased by supplementation of feed[2]. Thus, there is a potential to make meat products an even more important source of vitamin K.

The chapter states that phylloquinone is generally regarded as the predominant form of vitamin K in the Western diets. However, the limited knowledge on menaquinone content in foods complicates the dietary intake assessment. We therefore find the conclusion *Sustainable food choices favoring plant-based foods and production methods like fermentation may beneficially impact vitamin K intakes* is in significant contrast to the limited knowledge on vitamin K. The authors conclude that: *More knowledge is needed in order to give more evidence-based recommendations for vitamin K intake.*

Based on the limited number of studies on the content of vitamin K in food, we believe it is premature to disregard meat and dairy products as a source of menaquinone. We therefore suggest that the authors reconsider these statements. Moreover, the conclusive remarks which allege that sustainable vitamin K sources are plant-based, is lacking evidence but is also premature as the chapters and work on environmental sustainability are not completed.

Finally, we would like to refer to page 5, *Dietary intake in the Nordic and Baltic countries*, lines 5-6: *Dietary sources of menaquinone-4 include animal meats and dairy products.* The term «meat» has been defined by the EU regulation on food information to consumers as sceletal muscles of mammalian and bird species recognised as fit for human consumption[3]. «Meat» is generally known as the muscles of slaughtered animals meant for human consumption[4]. Thus, we find the most correct term is «meat», not «animal meat». Alternatively, «meat» and the name(s) of the animal species from which it comes.

1. Egelandsdal B, Oostindjer M, Hovland EM, et al. Identifying labelling and marketing advantages of nutrients in minced beef meat: A case study. *Meat Sci*. 2020;159. doi:10.1016/j.meatsci.2019.107920

2. Haug A, Vhile SG, Berg J, Hove K, Egelandsdal B. Feeding potentially health promoting

nutrients to finishing bulls changes meat composition and allow for product health claims. *Meat Sci*. 2018;145(June):461-468. doi:10.1016/j.meatsci.2018.07.015

3. European Parliament and the Council of the Euorpean Uniion. REGULATION (EU) No 1169/2011 OF THE EUROPEAN PARLIAMENT AND OF THE COUNCIL. 2011. https://eur-lex.europa.eu/legal-content/EN/TXT/?uri=CELEX%3A32011R1169#ntr2-L_2011304EN.01005101-E0002. Accessed July 6, 2022.

4. Store norske leksikon. Kjøtt. https://snl.no/kjøtt. Published 2020.