



Assessment and Updating of the Fortification Model from 2006

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Authors' contributions

This work was carried out in collaboration among all authors. The opinion has been assessed and approved by the Panel on Nutrition, Dietetic Products, Novel Food and Allergy of VKM. All authors read and approved the final manuscript.

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ABSTRACT

In 2006 the, the Panel on Nutrition, Dietetic Products, Novel Food and Allergy in the Norwegian Scientific Committee for Food Safety (VKM) adapted a Danish model for assessing applications concerning food fortification into Norwegian conditions. The fortification model is presently used by the Norwegian Food Safety Authorities as a tool in the management of applications on food fortification.

The model from 2006 was based on intake calculations from dietary surveys from 1997-2000. Since then, new national dietary surveys have been published. These are the comprehensive nationwide Norwegian dietary surveys among adults (Norkost 3, 2010-2011), among young

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children (Småbarnskost, 2007) and infants (Spedkost, 2006-2007). The Norwegian Food Safety Authority has requested VKM to implement the new data into the fortification model from 2006.

In the model from 2006 it is assumed that 25% of the energy in the diet can be derived from fortified foods and drinks. Information from the Norwegian Food Safety Authority, including about a pilot study for Norkost 3 suggested that the overall intake of fortified foods and drinks was marginal. From management of applications for fortified foods, the Norwegian Food Safety Authority also experienced that there are few fortified foods on the market in Norway. The Norwegian Food Safety Authority has therefore requested VKM to evaluate whether the assumption that 25 energy percent (E%) deriving from fortified foods can be reduced to 15 E%, and if such a reduction will have health implications. In addition, the Norwegian Food Safety Authority has asked VKM to perform an evaluation of the safety factors in the model.

VKM argues that the model for fortification should be based on the dietary intake of vitamins and minerals at the 95th percentile level in various age groups. This is in accordance with risk assessments performed in European Food Safety Authority (EFSA), and will assure that the dietary intake in a majority of the population will be covered, still within a reasonable secure use of dietary exposure calculations. Mean intake of vitamins and minerals from food supplements (among users only) was chosen, in an attempt to reduce the impact of those with a high intake of supplements. The intake at 95th percentile from the diet plus the mean nutrient intake from supplements is deducted from the tolerable upper intake level (UL) for each nutrient in each age group, giving the maximum amount of nutrients that can be "allocated" for food fortification. The maximum amount of a nutrient that can be "allocated" is then distributed over the energy intake at the 95th percentile level. In this manner an estimate is made showing which age group is most likely to have an excessive intake of a certain nutrient.

VKM does not have access to any other information about available fortified foods on the Norwegian market than the information given by the Norwegian Food Safety Authority. However, based on this information, VKM considers that it seems reasonable that the energy intake from fortified foods is reduced to 15 E%. In this revised fortification model the assumption from 2006 that 25 E% of the total energy intake will be derived from fortified foods, have therefore been reduced to 15 E%. This adjustment implies that the addition of e.g. vitamin D, vitamin E, thiamine, riboflavin, niacin, folic acid, vitamin B12, vitamin C and calcium per 100 kcal can be increased without risk of exceeding UL. No changes are made for e.g. vitamin A, beta-carotene, magnesium, iron, zinc or copper. A more summary is presented in Table 1 and Appendix 1.

The Panel on nutrition, dietetic products, novel food and allergy considers that this model for management of fortification will reduce health risk that could be caused by unauthorised food fortification.

Keywords: VKM; assessment; Norwegian Scientific Committee for Food Safety; vitamin D.

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COMPETING INTERESTS

Authors have declared that no competing interests exist.

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