

## Considerations for increasing vitamin D in the food supply

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**Abstract.** The New Zealand Food Safety Authority (NZFSA) has identified vitamin D as an emerging nutrition issue. In New Zealand, voluntary fortification of certain foods with vitamin D is currently permitted. Food Standards Australia New Zealand requires accurate nutrient data to conduct quality risk assessments for voluntary or mandatory fortification of the food supply. Committed to a science and risk-based approach, NZFSA has commissioned a review of the vitamin D data in the New Zealand Food Composition Database.

### Background

The New Zealand Food Safety Authority (NZFSA) is committed to providing a science and risk-based approach to nutrition issues within its wider role of improving the safety and suitability of the food supply (New Zealand Food Safety Authority 2009). Vitamin D was identified as an emerging nutrition issue following an increase in scientific evidence on vitamin D and its impact on health. In 2005, NZFSA and the Ministry of Health commissioned a literature review to summarise the evidence on vitamin D including its impact on health and an overview of international strategies and contextualise this to the New Zealand situation (Rockell et al. 2008).

### Importance of vitamin D

Vitamin D is an essential nutrient that can be synthesised in the body through exposure to sunlight or obtained through eating foods that are sources of Vitamin D (Mann, Truswell 2002). It plays a significant role in bone health and deficiency can lead to rickets in children and osteomalacia and osteoporosis in adults (National Health and Medical Research Council 2005). Results from most recent National Adults' and Childrens' Nutrition Surveys indicate a prevalence of vitamin D deficiency in three and four percent of New Zealand adults and children respectively (Rockell et al. 2006) (Rockell, Green & Skeaff 2005).

### Sources of vitamin D

Vitamin D can be synthesised in the body through sun exposure of the skin. For most free-living people, vitamin D through sun exposure is the largest contributor to vitamin D status (Holick 2004).

Vitamin D is naturally present in a few foods such as oily fish (e.g. salmon and sardines) and eggs (Mann, Truswell 2002). Vitamin D-fortified foods and dietary supplements may be beneficial for those population groups that are at high risk of deficiency, have limited sun exposure and consume few naturally containing food sources of vitamin D (Rockell et al. 2008).

### Existing food regulations and standards

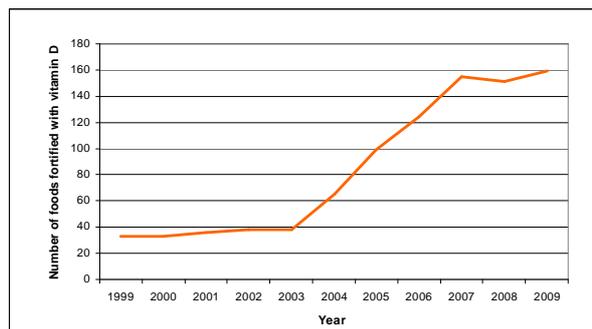
The Australia New Zealand Food Standards Code regulates the addition of vitamins and minerals to food. In New Zealand, vitamin D (as either ergocalciferol or

cholecalciferol) is permitted to be added to a wide range of foods including margarine, milk, yoghurt, dairy desserts and certain formulated supplemented foods. In addition to these permissions, fortification of margarine and edible oil table spreads is a mandatory requirement in Australia. (Food Standards Australia New Zealand 2002).

The New Zealand Supplemented Food Standard, which came into effect in March 2010, regulates food-type dietary supplements that were previously covered under the Dietary Supplement Regulations 1985. Food-type dietary supplements are permitted to contain a maximum of 40µg (1600IU) vitamin D per one day quantity. This is 15µg (600IU) more than permitted for dietary supplements which are still covered under the Dietary Supplement Regulations 1985. (New Zealand Food Safety Authority) (New Zealand Government 1985)

### New Zealand trends in vitamin D fortification

The number of foods fortified with vitamin D in New Zealand has increased since 1999 (Figure 1).

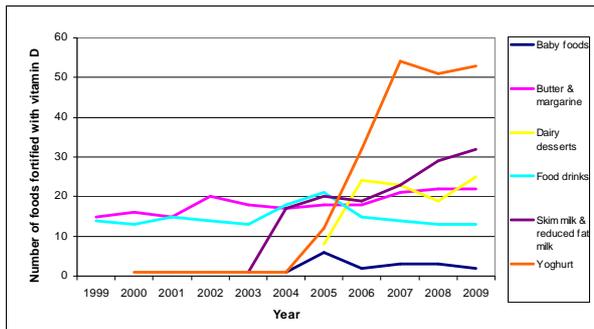


**Figure 1.** Total number of foods fortified with vitamin D between 1999 and 2009 in the Manufactured Food Database.

The Manufactured Food Database<sup>1</sup> (MFD) report that between 2004 and 2009 the number of yoghurts fortified with vitamin D increased from one to 53; skim milk and reduced fat milks increased from 17 to 32; and dairy desserts from zero to 25 (Figure 2) (Personal Communication, Alannah Steeper, MFD, February 2010).

Despite a notable increase in yoghurts fortified with vitamin D in the MFD in 2009, this represents only 31 percent (53 out of 171) of all yoghurts reported. In contrast, 83 percent (25 out of 30) of all dairy desserts were fortified with vitamin D in 2009. (Personal Communication, Alannah Steeper, MFD, February 2010).

<sup>1</sup> The Manufactured Food Database collates data supplied voluntarily by food manufacturers and may not represent all manufactured food currently fortified in New Zealand.



**Figure 2.** Trends in the type of foods fortified with vitamin D from 1999 to 2009 in the Manufactured Food Database.

### Considerations in fortifying food with vitamin D in New Zealand

Fortification of the food supply, whether mandatory or voluntary, requires consideration of a number of issues. The Policy Guideline for the Fortification of Vitamins and Minerals outlines specific principles for voluntary and mandatory fortification of which Food Standards Australia New Zealand (FSANZ) must have regard in developing or reviewing regulatory measures. For example, if an increase in voluntary permissions for vitamin D is sought, there must be evidence of deficiency of vitamin D in the population or evidence of the likelihood of deficiency from changes in food habits. (Australia New Zealand Food Regulation Ministerial Council 2006).

In conducting its risk assessment, FSANZ will assess exposure to vitamin D from dietary sources (food and dietary supplements) and vitamin D synthesised from exposure to sunlight. An assessment of dietary exposure will consider possible food vehicles for fortification (e.g. margarine or milk) and the concentrations of vitamin D to be added. Population estimates of vitamin D intake can then be calculated using National Nutrition Survey data and assessed against documented nutrient reference values. Concentrations of vitamin D provided in national food composition databases must be representative and of sound analytical quality to obtain an accurate population estimate of vitamin D intake.

### Next steps

In March 2010, NZFSA commissioned a review of the vitamin D data in the New Zealand Food Composition Database (NZFCD) with the aim of improving the utility of this data. The New Zealand Food Safety Authority is interested in finding out whether the data is accurate and representative of vitamin D-containing foods, what gaps exist in the current data, assessing the sensitivity and specificity of methods of analysis and technological issues associated with vitamin D fortification. Depending on the outcome of the review, it is anticipated that a plan will be developed to update vitamin D data in the NZFCD in the future.

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