

## Press Information

DSM Corporate Communications  
Nutritional Products  
[www.dsmnutritionalproducts.com](http://www.dsmnutritionalproducts.com)

### Widespread inadequate vitamin intakes in developed world, new analysis shows

100 years after the discovery of vitamins by Polish scientist Casimir Funk, most affluent countries have defined detailed national dietary reference values for the micronutrients we need to live healthy lives. A new analysis published in the British Journal of Nutrition, based on national intake data, suggests that intakes of key vitamins are well below recommendations across several Western countries (Germany, the Netherlands, the UK, USA), even though diverse foods are available.

In 1912, Casimir Funk introduced the term 'vitamine' to define vital organic compounds which help prevent conditions like beriberi and scurvy. Since then, researchers have identified and characterized a wide range of vitamins - 13 in total - with a range of functions at both a molecular and a cellular level, all playing an important role in human health.

#### Clear guidelines - but are they followed?

Many countries have now set out clear guidelines and recommendations for daily intake of these 13 essential vitamins. While they vary in terminology and value from country to country, they all aim not only to prevent deficiencies, but also to achieve optimal health for the majority of the population.

Yet despite clear recommendations of optimal daily intakes, changing lifestyles mean we often do not have the time or opportunity to consume adequate quantities of vital micronutrients in our food. An increase in fast and convenience food with a low micronutrient density, combined with indoor living, may have an impact on the quality of a person's daily diet and hence on their nutritional status.

#### New analysis sheds light on the extent of the problem

A new paper written by DSM experts and published in the British Journal of Nutrition suggests that intakes in four major developed nations (Germany, the Netherlands, the UK and the USA) are suboptimal.<sup>1</sup> Looking at national nutritional intake studies from all four nations,<sup>2,3,4,5</sup> this new publication sets out a "traffic light display" (Annex 1) showing optimal and sub-optimal vitamin intake by country and by vitamin, for men and women between 19 and 50 years old (19 and 49 in the UK).

<sup>1</sup> (2012) Dietary surveys indicate vitamin intakes below recommendations are common in representative Western countries: Barbara Troesch, Birgit Hoeft, Michael McBurney, Manfred Eggersdorfer and Peter Weber, British Journal of Nutrition

<sup>2</sup> Max Rubner-Institut (2008) Nationale Verzehrsstudie II. Ergebnisbericht Teil 2. Die bundesweite Befragung zur Ernährung von Jugendlichen und Erwachsenen (National Food Intake Study II. Results Part 2. Countrywide Assessment of Nutrition in Adolescents and Adults). Karlsruhe: Max Rubner-Institut ([http://www.was-esse-ich.de/uploads/media/NVSII\\_Abschlussbericht\\_Teil\\_2.pdf](http://www.was-esse-ich.de/uploads/media/NVSII_Abschlussbericht_Teil_2.pdf)) (accessed 2 July 2011).

<sup>3</sup> van Rossum CTM, Fransen HP, Verkaik-Kloosterman J, et al. (2011) Dutch National Food Consumption Survey 2007-2010: Diet of Children and Adults Aged 7 to 69 Years. Bilthoven: RIVM.

<sup>4</sup> Henderson L, Irving K, Gregory JF, et al. (2003) The National Diet and Nutrition Survey: Adults Aged 19-64 Years. vol 3: Vitamin and Mineral Intake and Urinary Analytes. London: The Stationery Office.

<sup>5</sup> Centers for Disease Control and Prevention & National Center for Health Statistics (2009) NHANES 2003-2004. Data, Documentation, Codebooks, SAS Code. Dietary Interview. Individual Foods, Total Nutrient Intakes First and Second Day. Hyattsville, MD: U.S. Department of Health and Human Services & Centers for Disease Control and Prevention [http://www.cdc.gov/nchs/nhanes/nhanes2003-2004/diet03\\_04.htm](http://www.cdc.gov/nchs/nhanes/nhanes2003-2004/diet03_04.htm) (cited August 2010).

The research paints a picture of deficiencies across all the countries surveyed. More than 75% of the population does not achieve recommended intakes of vitamins A, D and E in the USA, the same for vitamins D and E in the UK, and vitamin D and folic acid in Germany.

Of the countries monitored, the Netherlands fared best, with fewer red lights than the rest of Europe and the US. The variations between countries are most likely due to differences in recommendations, levels of fortification, and local dietary habits.

### **Inadequate vitamin intakes - a serious issue**

As the “traffic light display” shows, more than three quarters of Germans, Dutch, Britons and Americans do not consume recommended levels of a substantial number of vitamins. This is a particular problem for certain groups.

Less-than-optimal vitamin intakes can have a wide range of other impacts on health and wellbeing.

Vitamin D, for example, is vital to bone health and muscle strength, and it can reduce the risk of falls and fractures linked to Osteoporosis by 20%. It is also essential for children in the prevention of rickets. Yet currently, vitamin D intake is seriously below optimal levels in three of the four countries studied (Germany, the UK and the US), while it is slightly less than optimal in the Netherlands. The impact on healthcare expenditures is potentially substantial.

Similarly, folate is especially important for pregnant women worldwide, given its proven role in preventing neural tube defects in the developing baby; vitamin A supports vision, and vitamin E is a vital antioxidant that protects cells from the damage of oxidative stress.

### **Closing micronutrient gaps**

DSM, the world’s leading producer of vitamins and micronutrients is working in partnership with patient groups, public health experts, and policymakers to raise awareness of this problem and to close gaps in vital micronutrients.

Dr Manfred Eggersdorfer, DSM Senior Vice-President for Nutrition and Science Advocacy, and one of the study’s authors, concludes:

“Vitamins play a vital role in the diet, delivering long term benefits to health, and yet this research highlights that 100 years after their discovery there are still major gaps that urgently need closing - to improve people’s long term health and to drive down healthcare costs.”

Find out more about the 100 years of vitamins at: [www.100yearsofvitamins.com](http://www.100yearsofvitamins.com)

