

Vitamin D and Health

The BMSRI NICHE Group has been at the forefront of Vitamin D research over the past decade. Our research has led to changes in the dietary intake guidelines on the international stage, most notably in the U.S by the Institute of Medicine, the international body responsible for agenda setting of dietary recommendations worldwide. Our work has also been crucial in shaping UK and Irish Health Service reports on vitamin D assessment and use during pregnancy and in infants and has provided robust scientific evidence to the food industry for fortification strategies. In addition to establishing the vitamin D requirements of population sub-groups, the research at Ulster has also focused on investigating the relationship between vitamin D status and skeletal & cardiovascular health and immune function.

Research undertaken within NICHE in collaboration with others has highlighted the prevalence of low vitamin D status, not just among the 'at risk' groups, but throughout a large proportion of the general population. This work has had a major global impact in setting dietary reference intake (DRI) values for vitamin D, which are dietary recommendations specifying the average daily requirements for nutrients for the general public. Most notably, the data emanating from the work at Ulster, in collaboration with University College Cork were vital in establishing a scientific opinion to set the new DRI for vitamin D produced by the Institute of Medicine (IOM) of the National Academies in the U.S. The IOM, which is the international body responsible for agenda setting of dietary recommendations, is the most influential committee for other organisations such as the European Food Safety Authority (EFSA) and the UK Scientific Advisory Committee on Nutrition (SACN) to follow regarding change in policies. The IOM recognised that sufficient high quality scientific evidence was available to warrant a review of the 2007 DRI for vitamin D, and subsequently published a re-evaluation in 2011, following a comprehensive assessment of more than 1000 studies and reports on potential health outcomes. On the back of this significant research, the IOM deemed it necessary to raise the DRI for vitamin D for younger adults (19-50 years) from 200 IU/day to 600 IU/day and older adults (51-70 years) from 400 IU/day to 600 IU/day. These revisions represent recommendations for a significant increase on current population intakes and highlight the need for food-based vitamin D deficiency prevention strategies. DRI recommendations are utilised by various stakeholders, including national nutrition and healthcare policy makers and public health officials and practitioners to counsel individuals about dietary intakes for health benefits; the food industry for food product development and nutrition labelling; and the catering industry for dietary composition of meals provided to schools, hospitals, nursing homes and prisons. This newly revised DRI will provide the food industry with an opportunity to develop fortified foods/beverages that can help to improve vitamin D status in the general population. Within the UK, dietary recommendations on vitamin D are currently being reviewed by the Scientific Advisory Committee on Nutrition (SACN) and are anticipated to make similar changes to those by the IOM.

Ulster's research investigating vitamin D status during pregnancy, including an assessment of the effects of supplement use, has been crucial in evolving stakeholder opinion on the importance of the vitamin and how best to optimise status for both the mother and child at this critical developmental time period. This work was of particular interest to the media and has been used by food companies to promote and market their products enriched with vitamin D to pregnant women and their children as a means of improving status. Furthermore, this work has been and continues to be used as evidence to assess and influence health service policies and practices related to the promotion and prescription of vitamin D to pregnant women, infants and premature babies across the UK and Ireland.