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Health effects of dairy foods: new insights based on the food matrix concept

The importance of the dairy matrix for musculoskeletal health

Dr Sandra Iuliano, University of Melbourne
Chair: **Professor Michelle McKinley,** Queen's University Belfast

Friday, 10th September 2021,
16:00 – 16:30 (CEST) 15:00 – 15:30 (BST)

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Abstracts

European Milk Forum

Health effects of dairy foods: new insights based on the food matrix concept

Professor Michelle McKinley, Queen's University Belfast

In the last several decades, the predominant focus of nutrition research has been a reductionist view focusing on the potential influence of single nutrients, or dietary constituents, on the diet-disease relationship. This approach fails to consider the possibility that the interaction between nutrients within the food matrix, and also between foods in the diet, has a unique influence on health. Of course, the study of single or a few nutrients still has demonstrable value as knowledge about the individual parts is essential to inform an understanding of the whole. However, nutrition research in the last decade has recognised the need to begin to unravel the relationship between foods, food groups and wider dietary patterns and health. This complementary approach will help to evolve a more comprehensive and new understanding of the relationship between diet and health.

In relation to milk and dairy foods, the concept of the dairy matrix encompasses this holistic approach and proposes that the unique combination of nutrients and bioactive factors within the physical dairy matrix work together to promote health, with the combined effects of the matrix extending beyond the sum of the individual parts. In her presentation, Dr Iuliano will consider dairy matrix effects for musculoskeletal health.

The importance of the dairy matrix for musculoskeletal health

Dr Sandra Iuliano, University of Melbourne, Austin Health, Australian Institute of Musculoskeletal Science

Adequate intakes of quality protein and calcium are essential for musculoskeletal health. Dairy foods, such as milk, yoghurt and cheese are the principal dietary source of calcium and a major source of protein that can benefit musculoskeletal health throughout the lifespan. To optimize musculoskeletal health the required number of servings of dairy foods vary throughout the lifecycle to accommodate the needs during gradual growth in childhood, accelerated growth during adolescence, maintenance of muscle and bone during adulthood, and attenuation of loss of both muscle and bone during old age. Most dairy-based research during growth has focused on the benefits to the bone. For example, avoidance of dairy foods in children is associated with increased fracture risk, while dairy supplementation is associated with greater bone mineral accrual during growth. Skeletal benefits of dairy supplementation have been observed during adulthood by maintaining bone mineral density and increasing old age by attenuating bone loss.

As the population ages, increased interest is focused on muscle and bone, particularly the loss of these tissues in older adults due to the high morbidity associated with sarcopenia (loss of muscle mass and function) and bone fragility. Some evidence exists demonstrating the musculoskeletal benefits of components of dairy foods such as whey protein and its constituents. More recently attention has shifted to the musculoskeletal benefits of dairy foods as a whole and the dairy matrix, especially in high-risk populations such as older adults in aged-care. Collectively well-executed research evidence from dairy-based research can inform dietary guidelines, guide policies and shape practice to improve musculoskeletal outcomes across the lifespan.

Biographies

European Milk Forum

Professor Michelle McKinley

Michelle McKinley is Professor of Nutrition at the Centre for Public Health, School of Medicine, Dentistry and Biomedical Sciences, Queen's University Belfast and a registered Public Health Nutritionist in the UK. Professor McKinley's research investigates the ability of dietary interventions to modify nutritional status and risk of chronic disease, particularly diabetes and cardiovascular disease, as well as exploring novel approaches to encouraging and supporting diet and lifestyle behaviour change and weight management throughout the life course. Her expertise in dietary interventions includes examining the effect of individual nutrients through to studies exploring interventions with whole foods, food groups and whole dietary patterns. Examples of her behaviour change research include developing and evaluating complex interventions to support dietary and lifestyle change: in the school-setting; before, during and after pregnancy; and for people with type 2 diabetes. This work encompasses the use of app and web-based technology to support behaviour change.

Dr Sandra Iuliano

Dr Sandra Iuliano is a Senior Research Fellow in the Department of Medicine, University of Melbourne. Dr Iuliano researches in the area of nutrition and exercise across the lifespan; specifically, to improve musculoskeletal health. Her research includes the effects of exercise and calcium in bone growth in children, vitamin D supplementation to prevent bone loss in adults during prolonged sunlight deprivation, nutrition-based interventions for falls prevention in older adults and studying the cost of fractures and the benefits of fracture identification and secondary prevention through a hospital-based fracture liaison service.

Relative to ageing, her work has focussed on food-based approaches to prevent falls, fractures and malnutrition in older adults in aged-care, involving residential aged-care facilities from most of the key aged-care providers in Australia. Her recent work involved 60 residential aged-care facilities followed for two years to determine the benefits of a food-based approach to enhance the intake of protein and other nutrients to prevent falls and fractures and to reduce the risk of malnutrition, sarcopenia and functional loss.

She provided input into the new single framework quality and safety standards for aged care and was summoned to present evidence at the Royal Commission into Quality and Safety in Aged-Care in Australia regarding nutritional care in residential aged care. She regularly presents her work nationally and internationally. She is a strong advocate for improving nutritional care and quality of life via improved food provision in aged care.

About EMF

The European Milk Forum (EMF) is a collection of national and regional dairy organisations from eight European countries - Austria, Belgium, Denmark, France, Ireland, Netherlands, Northern Ireland and Norway.

'Milk, Nutritious by Nature' is a science-based information initiative from EMF addressing issues on dairy and health, and engaging in a dialogue with health and nutrition professionals.

The aim is to build a clearer understanding of the role of milk and dairy products in a healthy, sustainable diet across Europe.

Find more about EMF here **www.milknutritiousbynature.eu**