

# EFAD

The European Federation  
of the Associations  
of Dietitians

## From athletes to older adults: food-focused approaches for maximising the health effects of protein



Wednesday, June 8th  
19:00 - 20:15 CEST



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# Table of Contents



**02** Welcome Message

---

**03** Webinar Agenda

---

**04** Meet the *speakers*

---

**05** Meet the moderator

---

**06** Abstracts

---

**06** Food matrix effects – implications for the impact of protein on muscle

**07** Practical aspects of optimizing food-focused protein nutrition

---

**08** Learning Points

---

**09** About EMF

---

**10** About EFAD

---



# Welcome message

Dear Webinar Attendees,

We are delighted to welcome you to the webinar "From athletes to older adults: food-focused approaches for maximising the health effects of protein" which is organised by the European Federation of the Associations of Dietitians (EFAD) and made possible through the support of the European Milk Forum (EMF).

During this webinar, we will hear from our expert speakers, Dr Nicholas Burd and Dr Caoileann Murphy, that optimising protein nutrition, be it for muscle recovery in athletes or for maintaining muscle health in older people, is more complex than simply recommending a total daily protein intake.

The type of protein and protein quality are important. The food matrix may also have an impact. For example, in this webinar, we will learn of research which suggests that protein contained in whole foods may have a more beneficial effect on muscle due to the interaction of the protein with other nutrients in the food matrix.

As we'll hear, there are practical considerations too, including the timing of protein intakes across the day, along with considering the convenience, accessibility, palatability and affordability of protein-containing foods.

These are important issues on a policy level when formulating food-based dietary guidelines, and for the guidance and advice we, as dietitians, give.

We hope you enjoy the event!

**Pauline Douglas**

EFAD Honorary Treasurer, NICHE, Ulster University



# Webinar Agenda



▲ 19:00 Opening Remarks - Introductions

**Pauline Douglas**

EFAD Honorary Treasurer, NICHE, Ulster University

▲ 19:10 "Food matrix effects – implications for the impact of protein on muscle"

**Dr Nicholas A Burd**

Associate Professor, Department of Kinesiology and Community Health, University of Illinois, USA

▲ 19:40 "Practical aspects of optimizing food-focused protein nutrition"

**Dr Caoileann Murphy, RD**

Marie Sklodowska Curie Fellow, Teagasc, Trinity College Dublin and Australian Catholic University

▲ 20:00 Q&A - Conclusions

# Meet the speakers



## Nicholas A Burd, PhD

Associate Professor, Department of Kinesiology and  
Community Health, University of Illinois, USA

Nicholas is an Associate Professor in the Department of Kinesiology and Community Health, the University of Illinois at Urbana-Champaign, USA.

His research interest is nutrition and exercise metabolism. Nicholas has a Kinesiology PhD from McMaster University, Canada followed by a postdoctoral research fellowship at Maastricht University in the Netherlands.

Nicholas's work aims to understand how exercise, nutrition, or disease may regulate skeletal muscle mass (e.g., protein synthesis). The knowledge gained from this research is used to define nutritional and exercise strategies to improve muscle health and performance. His publications include over 100 papers in peer-reviewed journals and book chapters.



## Dr Caoileann Murphy, RD

Marie Skłodowska Curie Fellow, Teagasc, Trinity College Dublin and  
Australian Catholic University

Caoileann is a registered dietitian currently working as a Marie Skłodowska Curie Fellow between Teagasc, Dublin and Australian Catholic University, Melbourne.

Caoileann holds an MSc in Sport and Exercise Nutrition from Loughborough University, the UK and a PhD in Nutrition, Exercise and Health from McMaster University, Canada. Caoileann's research is mainly focused on nutrition and exercise strategies to maintain muscle mass and strength in ageing, with a focus on personalized approaches.

Caoileann was awarded the Irish Nutrition and Dietetic Institute Research Dietitian of the Year 2018 and the British Nutrition Foundation Drummond Early Career Scientist Award 2018.

# Meet the moderator



## Pauline Douglas

EFAD Honorary Treasurer,  
NICHE, Ulster University

Pauline has over 25 years of clinical and academic experience in dietetics. Her main teaching disciplines in the Nutrition Innovation Centre for Food and Health at Ulster University are Professional Practice for dietetic students and dietetic practice educators and Nutrition Education for healthcare professionals.

She has been the Key Contact for Ulster University in the European funded “Dietitians Improving the Education and Training Standards (DIETS) project” and was a member of the Exploitation work package.

Pauline is a previous Honorary Chairman of the British Dietetic Association (BDA). She was elected to the Fellowship of the BDA for her professional achievements in 2010. She is her Professional Body’s European and International representative. She is a partner with the Health and Care Professions Council, the statutory regulator for Allied Health Professions in the UK.

Pauline works closely with Ray et al across the domains of NNEdPro Global Centre for Nutrition and Health and she is an elected Visiting Scholar/College Research Associate at Wolfson College, University of Cambridge.

She is a member of the Executive Committee of the European Federation of the Associations of Dietitians (EFAD). She has led and been an integral part of the European Healthy Hydration Awareness Campaign on behalf of EFAD over the past 7 years.

# Abstracts



## Food matrix effects – implications for the impact of protein on muscle

**Nicholas A Burd**, PhD, Associate Professor, Department of Kinesiology and Community Health, University of Illinois, USA

An adequate quantity and quality of skeletal muscle are important to optimize health and physical performance across the lifespan. Dietary protein intake is essential for stimulating skeletal muscle protein synthesis and remodelling, which ultimately contributes to the maintenance of skeletal muscle mass and health throughout adult life.

Muscle-centric protein recommendations generally recognize the value of protein quality to robustly stimulate postprandial muscle protein accretion. However, there is increasing evidence that food matrix effects are likely to have an important role in the regulation of skeletal muscle mass.

The food matrix is a term used to describe the nutrient and non-nutrient components of whole foods, including how various food components are structured and their molecular interactions. Food matrix manipulations can be accomplished by heat treatment, changing food texture, as well as various food fortification techniques (i.e., leucine, omega-3, vitamin D fortifications, etc).

This presentation will outline the potential of food matrix effects to modulate the anabolic properties of protein foods and the value of nutrient and protein-dense foods as the basis of a more optimal dietary allowance for protein to support skeletal muscle mass for athletes and ageing.

# Abstracts



## Practical aspects of optimizing food-focused protein nutrition

**Dr Caoileann Murphy**, RD Marie Skłodowska Curie Fellow,  
Teagasc, Trinity College Dublin and Australian Catholic University

Accumulating evidence suggests that higher protein intakes (i.e. above the recommended daily allowance of 0.8 g/kg/d) can enhance adaptations to exercise training and slow the loss of muscle mass and function with age. A food-first approach to achieving protein requirements has numerous advantages including the co-consumption of other essential nutrients, food matrix effects, and enhanced palatability, affordability, acceptability, accessibility and social aspects. For example, increasing dairy foods was recently shown to be a practical, acceptable and low-cost intervention for increasing protein (and calcium) intakes and reducing falls and fractures among older adults living in residential care.

In addition to the total daily protein intake, per-meal protein intake and characteristics of the protein source (protein quality, protein density, energy content, volume, texture, convenience) are important considerations. There is a saturable dose-response relationship between the quantity of protein consumed in a single meal and the postprandial rate of muscle protein synthesis. This suggests that the consumption of an even pattern of protein intake, with an optimally stimulatory amount of protein at each of the daily meals, would effectively stimulate rates of muscle protein synthesis throughout the day. However, in practice, older adults and athletes tend to skew protein intake, consuming the majority of daily protein (~40% – 50%) at the evening meal and smaller, suboptimal amounts at the other meals. Protein intakes are typically particularly low at breakfast and therefore this represents a good target to improve intake via increased consumption of protein-dense, culturally acceptable foods (e.g. eggs, dairy, smoked fish).

Different sources of protein vary in their capacity to stimulate muscle protein synthesis due to differences in their essential amino acid content and digestibility. Some, but not all, studies report that isolated plant-based proteins like soy and wheat are less effective for stimulating muscle protein synthesis than animal proteins like whey. Nonetheless, it appears that the lesser anabolic properties of plant-derived proteins can be overcome with the ingestion of a larger protein dose and/or by combining different sources of protein within the meal. From a practical perspective, many whole food sources of plant protein are lower in protein density, meaning that large amounts (volume and energy content) must be consumed to derive an equivalent amount of protein. As such, the most appropriate whole food sources of protein to achieve the per-meal protein target will vary between individuals depending on factors such as age, appetite, energy requirement, activity levels, and personal preferences.



# Learning Points



The nutritional and health effects of a food are a result of a food's structure and its nutrient composition, and how these interact with each other – this is the food matrix effect.

The food matrix effect is an important consideration for optimising protein nutrition across adult life, especially in those groups with higher protein requirements such as athletes and older people.

Research suggests that there may be a greater impact on muscle protein synthesis from protein-rich whole foods such as dairy due to nutrient-nutrient interactions in the food matrix.

Food-focused approaches to achieving protein requirements have several practical advantages including enhanced palatability, affordability, acceptability, accessibility and social aspects.

Other practical considerations for optimising the impact of protein include the timing of protein foods - the most effective way to do this is an even pattern across the day, with sufficient protein each time to stimulate muscle protein synthesis.

These approaches for maximising the health effects of protein should be taken into account for food-based dietary guidelines, including for a sustainable diet, the FAO definition of which states the four dimensions to be considered: cultural acceptability, affordability, nutrition and health, and environmental impact.

# 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](#).**



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# About EFAD

▲ The European Federation of the Associations of Dietitians (EFAD) is the voice of 35,000 European dietitians in 30 European countries representing more than half the profession in Europe. Through its membership of 33 National Dietetic Associations and 40 Higher Education Institutes, EFAD aims to improve European nutritional health and reduce health inequalities among the populations its members represent.

## **EFAD's mission**

To improve nutritional health and promote sustainable diets in Europe by advocating the leadership role for dietitians in collaboration with our members and stakeholder

## **EFAD's vision**

Registered Dietitians positively impact the nutritional health of clients, patients and the wider community. Every European citizen has access to safe and appropriate dietary and nutritional interventions.



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