Symposia featured in this issue:
Relevance of circadian rhythms and sleep to obesity and metabolic disease
Metabolic & endocrine mechanisms
Cuthbertson Medal Lecture
Importance of meal timing
Influence of lifestyle and genetics
Aims and Scope

Proceedings of the Nutrition Society publishes papers and abstracts presented by members and invited speakers at the scientific meetings of The Nutrition Society.

Coverage includes

- Cellular and molecular nutrition (including immunology)
- Nutritional genomics
- Nutrition and the food chain
- Clinical nutrition and metabolism
- Obesity and body composition
- Infant nutrition
- Diet selection and control of intake
- Nutrition and behaviour
- Reproduction, growth and development
- Public health nutrition
- Nutrition policy
- Sports and exercise nutrition
- Animal nutrition and metabolism
- Molecular aspects of nutrition
- Functional foods
- Macronutrient metabolism
- Micronutrients and antioxidants
- Companion animal nutrition
- Epidemiology

The Proceedings of the Nutrition Society is published four times a year by Cambridge University Press on behalf of the Nutrition Society. Symposium papers are published in February, May, August and November and are available as hard copy or electronically; Original Communications from individual meetings are published electronically only and comprise an OCE issue.

The journal is available on the Internet at: journals.cambridge.org/pns

Editor in Chief
M O’Sullivan, Trinity Centre for Health Science, Dublin, Republic of Ireland

Deputy Editor
J E Drew, Rowett Institute of Nutrition and Health, University of Aberdeen, UK

Editorial Board
M Cantwell, Queen’s University Belfast, UK
A Cross, Imperial College London, UK
F Lithander, University of Canberra, Australia
C Pedersen, University of Glasgow, UK
V Ranawana, University of Aberdeen, UK
M Siervo, Institute for Ageing and Health, Newcastle University, UK

Science Committee

A Salter
Chair/Scientific Officer

M O’Sullivan
Proceedings Editor

C J Seal
Publications Officer

A Gallagher
Programmes Secretary

L Brennan
Irish Section Secretary

B Corfe
Cellular and Molecular Nutrition Theme

A Welch
Public Health Nutrition Theme

B Griffin
Whole Body Metabolism Theme

The Nutrition Society has as its objectives the advancement of the scientific study of nutrition and its application to the maintenance of human and animal health.

Honorary Officers of the Society

P C Calder
President

H J McArule
Secretary

A Gallagher
Programmes Secretary

F Thies
Without Portfolio

P Hunking
Training and Education

P Trayhurn
Publications Officer

S Bird
Strategic Communications

A Salter
Scientific Officer

B Ellahi
International Affairs

Application for membership is open to any person who has a genuine interest in the science of human or animal nutrition and its application to human or animal health. Reduced subscriptions are available to full-time student members and those within 2 years of graduation, retired members, the unwaged and members who reside in low income countries (as defined by the World Bank).

The Nutrition Society Home Page is at http://www.nutritionsociety.org

© Nutrition Society 2016
### Contents

**The Royal Society of Medicine, London, 8–9 December 2015**
Conference on ‘Roles of sleep and circadian rhythms in the origin and nutritional management of obesity and metabolic disease’

#### Symposium 1: Relevance of circadian rhythms and sleep to obesity and metabolic disease
Sleep, circadian rhythm and body weight: parallel developments  
*M. S. Westerterp-Plantenga*  
431–439

#### Symposium 2: Metabolic and endocrine mechanisms
Circadian regulation of lipid metabolism  
*J. J. Gooley*  
440–450

Nutrition in the spotlight: metabolic effects of environmental light  
*R. I. Versteeg, D. J. Stenvers, A. Kalsbeek, P. H. Bisschop, M. J. Serlie & S. E. la Fleur*  
451–463

#### Cuthbertson Medal Lecture
Is breakfast the most important meal of the day?  
*J. A. Betts, E. A. Chowdhury, J. T. Gonzalez, J. D. Richardson, K. Tsintzas & D. Thompson*  
464–474

#### Symposium 3: Importance of meal timing
Meal irregularity and cardiometabolic consequences: results from observational and intervention studies  
*G. K. Pot, S. Almoosawi & A. M. Stephen*  
475–486

Chrono-nutrition: a review of current evidence from observational studies on global trends in time-of-day of energy intake and its association with obesity  
*S. Almoosawi, S. Vingeliene, L. G. Karagounis & G. K. Pot*  
487–500

#### Symposium 4: Influence of lifestyle and genetics
Circadian rhythms, food timing and obesity  
*J. Lopez-Minguez, P. Gómez-Abellán & M. Garauilet*  
501–511

The role of sleep duration in diabetes and glucose control  
*A. Alnaji, G. R. Law & E. M. Scott*  
512–520
Forthcoming topics to be featured in *Proceedings of the Nutrition Society* for 2017 (vol. 76):

- Nutrition and health throughout life-cycle – science for the European consumer  
  *(Above proceedings were presented at the 12th FENS European Nutrition Conference in Berlin, Germany, 20–23 October 2015)*
- Irish Section Postgraduate Conference  
  *(Above proceedings were presented at the NS meeting at University College Cork, 11–12 February 2016)*
- Phytochemicals and health: new perspectives of plant based nutrition  
  *(Above proceedings were presented at the NS meeting at the Royal College of Physicians, Edinburgh, 21–22 March 2016)*
- New technology for nutrition research and practice  
  *(Above proceedings were presented at the NS meeting at University College Dublin, 11–14 July 2016)*
- Nutrition dynamics in Africa: opportunities and challenges for meeting the sustainable development goals  
  *(Above proceedings were presented at the 7th African Nutrition Epidemiology Conference in Marrakesh, Morocco, 9–14 October 2016)*
- Diet, nutrition and mental health and wellbeing  
  *(Above proceedings to be presented at the NS meeting at the Royal Society of Medicine, London, 6–7 December 2016)*

**Original Communications**

- Diet, nutrition and mental health and wellbeing  
  *(Above proceedings to be presented at the NS meeting at the Royal Society of Medicine, London, 6–7 December 2016)*
- Nutrition and health for exercise  
  *(Above proceedings to be presented at the NS meeting at the University of Stirling, 28–29 March 2017)*
- What governs what we eat?  
  *(Above proceedings to be presented at the NS meeting at Queen’s University Belfast, 21–23 June 2017)*
- Improving nutrition in metropolitan areas  
  *(Above proceedings to be presented at the NS meeting at King’s College London, 10–12th July 2017)*

For further details, see our website: http://www.nutritionsociety.org/events