

Directions to Contributors can be found at [journals.cambridge.org/bjn](http://journals.cambridge.org/bjn)

## British Journal of Nutrition

Volume 128, 2022 ISSN: 0007-1145

### Publishing, Production, Marketing, and Subscription Sales Office:

Cambridge University Press  
Journals Fulfillment Department  
University Printing House, Shaftesbury Road  
Cambridge CB2 8BS, UK

### For Customers in North America:

Cambridge University Press  
Journals Fulfillment Department  
1 Liberty Plaza  
Floor 20  
New York, NY 10006  
USA

**Publisher:** Cambridge University Press

### Special sales and supplements:

This Journal accepts relevant advertisements and inserts. We also provide bulk reprints of suitable papers to meet teaching or promotional requirements. The journal also publishes supplements on behalf of academic and corporate collaborators. Please contact Sarah Maddox at the Cambridge address for further details. E-mail: [special\\_sales@cambridge.org](mailto:special_sales@cambridge.org)

### Subscription information:

*British Journal of Nutrition* is an international journal published by Cambridge University Press on behalf of The Nutrition Society. The twelve issues starting January 2022 comprise Volume 127, the twelve issues starting July 2022 comprise Volume 128.

### Annual subscription rates:

Volumes 127/128 (24 issues):  
Internet/print package £1724/\$3363  
Internet only: £1164/\$2271

Any **supplements** to this journal published in the course of the annual volume are normally supplied to subscribers at no extra charge.

**Back volumes** are available. Please contact Cambridge University Press for further information.

**Claims** for non-receipt of journal issues will be considered on their merit and only if the claim is received within six months of publication. Replacement copies supplied after this date will be chargeable.

**US POSTMASTERS:** please send address corrections to *British Journal of Nutrition*, Cambridge University Press, 1 Liberty Plaza, Floor 20, New York, NY 10006, USA.

**Directions to Contributors** are available from the Society at the address below or can be found on the Society's website at <http://www.nutritionociety.org>.

**Offprints:** The author (or main author) of an accepted paper will receive a copy of the PDF file of their article. There will be an option to purchase paper offprints, these should be ordered at proof stage. No page charges are levied by this journal.

**Copyright:** As of 1 July 2000 the copyright of all articles submitted to *British Journal of Nutrition* are retained by the authors or their institutions. For articles prior to this date permission for reproduction of any part of the journal (text, figures, tables or other matter) in any form (on paper, microfiche or electronically) should be sought directly from the Society, at: The Publications Office, The Nutrition Society, 10 Cambridge Court, 210 Shepherds Bush Road, Hammersmith, London W6 7NJ, UK.

**Disclaimer:** The information contained herein, including any expression of opinion and any projection or forecast, has been obtained from or is based upon sources believed by us to be reliable, but is not guaranteed as to accuracy or completeness. The information is supplied without obligation and on the understanding that any person who acts upon it or otherwise changes his/her position in reliance thereon does so entirely at his/her own risk. Neither the Society nor Cambridge University Press accepts responsibility for any trade advertisement included in this publication.

This journal is printed on acid-free paper from renewable sources. Printed in Great Britain by Bell & Bain Ltd, Glasgow.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, non-governmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see [www.fsc.org](http://www.fsc.org) for information.

*British Journal of Nutrition* is covered in Current Contents®/Agriculture, Biology & Environmental Sciences, SciSearch®, Research Alert®, Current Contents®/Life Sciences, Index Medicus® (MEDLINE®), AGRICOLA®, CAB Abstracts™, Global Health, BIOSIS® Database, EMBASE/Excerpta Medica and Elsevier BIOBASE/Current Awareness in Biological Sciences, CINAHL, and Chemical Abstracts Service.

**Molecular Nutrition**

Vitamin D impacts on the intestinal health, immune status and metabolism in turbot (*Scophthalmus maximus* L.)  
Rui Shao, Jiayu Liu, Yawen Lan, Ximmeng Liao, Jinjin Zhang, Weiqi Xu, Kangsen Mai, Qinghui Ai and Min Wan 2083

**Metabolism and Metabolic Studies**

Early pregnancy hemoglobin is associated with the risk of gestational diabetes mellitus: a retrospective cohort study  
Heng Yaw Yong, Zallilah Mohd Shariff, Barakatun Nisak Mohd Yusof, Zulida Rejali, Yvonne Yee Siang Tee, Jacques Bindels and Eline M. van der Beek 2097

Effects of dietary and exercise treatments on HDL subclasses in lactating women with overweight and obesity: a secondary analysis of a randomised controlled trial  
Elisabeth Adolfsen Øhman, Lisa Kirchner, Anna Winkvist, Fredrik Bertz, Kirsten Bjørklund Holven, Stine Marie Ulven and Hilde Kristin Brekke 2105

Sex differences in vitamin D metabolism, serum levels and action  
Alicja Wierzbicka and Maria Oczkiewicz 2115

**Nutritional Immunology**

Vitamins, microelements and the immune system: current standpoint in the fight against coronavirus disease 2019  
Branka Djordjevic, Jelena Milenkovic, Dijana Stojanovic, Aleksandra Velickov, Boris Djindjic and Tatjana Jevtic Stojanovic 2131

Dietary supplementation of thiamine enhances colonic integrity and modulates mucosal inflammation injury in goats challenged by lipopolysaccharide and low pH  
Yi Ma, Chao Wang, Mawda Elmhadid, Hao Zhang, Fuyuan Liu, Xingliang Gao and Hongrong Wang 2147

**Human and Clinical Nutrition**

Potential anti-inflammatory effects of legumes: a review  
Milagros Faridy Juárez-Chairez, Ofelia Gabriela Meza-Márquez, Yazmín Karina Márquez-Flores and Cristian Jiménez-Martínez 2158

Mineral micronutrient status and spatial distribution among the Ethiopian population  
Adamu Belay, Dawd Gashu, Edward J. M. Joy, Murray R. Lark, Christopher Chagumaira, Dilnesaw Zerfu, Louise E. Ander, Scott D. Young, Elizabeth H. Bailey and Martin R. Broadley 2170

Effect of oat or rice flour on pulse-induced gastrointestinal symptoms and breath hydrogen in subjects sensitive to pulses and controls – a randomised cross-over trial with two parallel groups  
Salla Laito, Niina Valkonen, Oskar Laaksonen, Marko Kalliomäki, Tuula Tuure and Kaisa M. Linderborg 2181

**Dietary Surveys and Nutritional Epidemiology**

Diet Quality Index for older adults (DQI-65): development and use in predicting adherence to dietary recommendations and health markers in the UK National Diet and Nutrition Survey  
Nicole Dorrington, Rosalind Fallaize, Ditte Hobbs, Michelle Weech and Julie Anne Lovegrove 2193

Influence of geographical latitude on vitamin D status: cross-sectional results from the BiomarCaRE consortium  
Viktor Oskarsson, Mats Eliasson, Veikko Salomaa, Jaakko Reinikainen, Satu Männistö, Luigi Palmieri, Chiara Donfrancesco, Susana Sans, Simona Costanzo, Giovanni de Gaetano, Licia Iacoviello, Giovanni Veronesi, Marco M. Ferrario, Teresa Padro, Barbara Thorand, Cornelia Huth, Tanja Zeller, Stefan Blankenberg, Annie S. Anderson, Hugh Tunstall-Pedoe, Kari Kuulasmaa, Stefan Söderberg and on behalf of the BiomarCaRE investigators 2208

The role of Mediterranean diet in the course of subjective cognitive decline in the elderly population of Greece: results from a prospective cohort study  
George S. Vlachos, Mary Yannakoulia, Costas A. Anastasiou, Mary H. Kosmidis, Efthimios Dardiotis, Georgios Hadjigeorgiou, Sokratis Charisis, Paraskevi Sakka, Leonidas Stefanis and Nikolaos Scarmeas 2219

Association of dietary patterns with obesity and metabolically healthy obesity phenotype in Chinese population: a cross-sectional analysis of China Multi-Ethnic Cohort Study  
Dan Tang, Xiong Xiao, Liling Chen, Yixi Kangzhu, Wei Deng, Basang, Shujuan Yang, Lu Long, Xiaofen Xie, Jiaojiao Lu, Qun Meng, Jianzhong Yin, Feng Hong and Xing Zhao 2230

Mushroom intake and cognitive performance among US older adults: the National Health and Nutrition Examination Survey, 2011–2014  
Djibril M. Ba, Xiang Gao, Laila Al-Shaar, Joshua Muscat, Vernon M. Chinchilli, Paddy Ssentongo, Robert B. Beelman and John Richie 2241

Different statistical methods identify similar population-specific dietary patterns: an analysis of Longitudinal Study of Adult Health (ELSA-Brasil)  
Mariane de Almeida Alves, Maria del Carmen Bisi Molina, Maria de Jesus Mendes da Fonseca, Paulo Andrade Lotufo, Isabela Martins Benseñor and Dirce Maria Lobo Marchioni 2249

Dietary inflammation index and osteoarthritis in the elderly: is there a mediating role of physical activity?  
Haoyi Wang, Runzhi Liao, Weifeng Tang, Weiping Su, Min Zeng, Junxiao Yang, Xiaolei Fan, Jie Xie and Yihe Hu 2258

Influence of sugar consumption from foods with different degrees of processing on anthropometric indicators of children and adolescents after 18 months of follow-up  
Jamile Rafaela Pereira da Silva Barreto, Ana Marlúcia de Oliveira Assis, Mônica Leila Portela de Santana, Jacqueline Costa Dias Pitangueira, Carla de Magalhães Cunha and Priscila Ribas de Farias Costa 2267

Degree of food processing and breast cancer risk in black urban women from Soweto, South African: the South African Breast Cancer study  
Inarie Jacobs, Christine Taljaard-Krugell, Mariaan Wicks, Herbert Cubasch, Maureen Joffe, Ria Laubscher, Isabelle Romieu, Renata B. Levy, Fernanda Rauber, Carine Biessy, Sabina Rinaldi and Inge Huybrechts 2278

**Corrigendum**

Vitamin D impacts on the intestinal health, immune status and metabolism in turbot (*Scophthalmus maximus* L.) – CORRIGENDUM  
Rui Shao, Jiayu Liu, Yawen Lan, Ximmeng Liao, Jinjin Zhang, Weiqi Xu, Kangsen Mai, Qinghui Ai and Min Wan 2290

Cambridge Journals Online For further information about this journal please go to the journal website at: [journals.cambridge.org/bjn](http://journals.cambridge.org/bjn)