CAMBRIDGE JOURNALS

70th Anniversary of The Nutrition Society in 2011

Nutrition Research Reviews



Published on behalf of The Nutrition Society

Editors-in-Chief Graham C. Burdge, University of Southampton, UK

Nutrition Research Reviews offers a comprehensive overview of nutritional science today. By distilling the latest research and linking it to established practice, the journal consistently delivers the widest range of in-depth articles in the field of nutritional science and has done so for the past twenty-one years. It presents up-to-date, concise and critical reviews of key topics in nutrition science, advancing new concepts and hypotheses that encourage the exchange of fundamental ideas on nutritional well-being in both humans and animals.

> **70th Anniversary Online Collection** Access 'Hot Topics' from the last 7 decades

http://journals.cambridge.org/nutrition70

Free email alerts http://journals.cambridge.org/nrr-alerts Nutrition Research Reviews is available online at: http://journals.cambridge.org/nrr

Research Reviews

To subscribe contact Customer Services

in Cambridge: Phone +44 (0)1223 326070 Fax +44 (0)1223 325150 Email journals@cambridge.org

in New York: Phone +1 (845) 353 7500 Fax +1 (845) 353 4141 Email subscriptions_newyork@cambridge.org



CAMBRIDGE JOURNALS

70th Anniversary of The Nutrition Society in 2011

Proceedings of the Nutrition Society



Published on behalf of The Nutrition Society

Editor-in-Chief K.R. Westerterp, Maastricht University, The Netherlands



Proceedings of the Nutrition Society publishes papers and abstracts presented by members and invited speakers at the scientific meetings of The Nutrition Society. The journal provides an invaluable record of the scientific research currently being undertaken, contributing to 'the scientific study of nutrition and its application to the maintenance of human and animal health.' The journal is of interest to academics, researchers and clinical practice workers in both human and animal nutrition and related fields.

> **70th Anniversary Online Collection** Access 'Hot Topics' from the last 7 decades

http://journals.cambridge.org/nutrition70

Free email alerts http://journals.cambridge.org/pns-alerts Proceedings of the Nutrition Society is available online at: http://journals.cambridge.org/pns

To subscribe contact Customer Services

in Cambridge: Phone +44 (0)1223 326070 Fax +44 (0)1223 325150 Email journals@cambridge.org

in New York: Phone +1 (845) 353 7500 Fax +1 (845) 353 4141 Email subscriptions_newyork@cambridge.org



CAMBRIDGE JOURNALS

70th Anniversary of The Nutrition Society in 2011





Published on behalf of The Nutrition Society

Editor-in-Chief P.C. Calder, University of Southampton, UK

British Journal of Nutrition is a leading international peerreviewed journal covering research on human and clinical nutrition, animal nutrition and basic science as applied to nutrition. The journal recognises the multi-disciplinary nature of nutritional science and includes material from all of the specialities involved in nutrition research, including molecular and cell biology, and the emerging area of nutritional genomics.

> **70th Anniversary Online Collection** Access 'Hot Topics' from the last 7 decades

http://journals.cambridge.org/nutrition70

Free email alerts http://journals.cambridge.org/bjn-alerts British Journal of Nutrition is available online at: http://journals.cambridge.org/bjn

British Jou<u>rnal of</u>

Nutrition

To subscribe contact Customer Services

in Cambridge: Phone +44 (0)1223 326070 Fax +44 (0)1223 325150 Email journals@cambridge.org

in New York: Phone +1 (845) 353 7500 Fax +1 (845) 353 4141 Email subscriptions_newyork@cambridge.org



CAMBRIDGE

JOURNALS

Discover the benefits of JDOHaD on Cambridge Journals Online (CJO)

- Register for content alerts and receive notification when new articles are published online journals.cambridge.org/doh-alerts
- Save searches
- Search across Cambridge Books Online (CBO) and Cambridge Journals Online (CJO) simultaneously using our new faceted search functionality
- Register for updates on new developments and sample content from your 'favourite journals'
- Easily download citations to reference management software
- Access CJO on your mobile: CJOm is optimised for smart phones and other small mobile devices

JOURNAL OF DEVELOPMENTAL ORIGINS OF HEALTH AND DISEASE

VOLUME 1 SUPPLEMENT 1 NOVEMBER 2009



nd Disease chile CAMBRIDGE

Members of DOHaD receive free access to the Journal. If you have any problems setting up your online access please contact: journals_societies@cambridge.org

Submit your research to JDOHaD

The Journal covers all aspects of research in developmental origins of health and disease (DOHaD) – from basic molecular research to health and disease outcomes, translation into policy and wider social and ethical issues.

- Global Editorial Board
- Dissemination of your research to over 5,000 libraries worldwide, including access through aid donation schemes
- Efficient online manuscript submission and tracking at ScholarOne[™] Manuscripts
- *FirstView* publication of articles online ahead of issue and print allocation

mc.manuscriptcentral.com/dohad

- Generous copyright policies, compliant with all the major funding bodies
- State-of-the-art online hosting
- Forward reference linking
- Permanent record through DOI/CrossRef
- No submission or page charges
- Authors receive a free pdf of the final article





journals.cambridge.org/doh



CAMBRIDGE

JOURNALS

Go Mobile

CJO Mobile (CJOm) is a streamlined Cambridge Journals Online (CJO) for smartphones and other small mobile devices



- Use CJOm to access all journal content including *FirstView* articles which are published online ahead of print
- Access quickly and easily thanks to simplified design and low resolution images
- Register for content alerts or save searches and articles – they will be available on both CJO and CJOm
- Your device will be detected and automatically directed to CJOm via: journals.cambridge.org



JOURNALS

Bulk Article Reprints

Reprints of articles published in this journal can be purchased for use by your company or organisation. These reprints can be produced as straight article reprints or with custom designed covers and, if required, the sponsor's name printed on or inside the cover. Reprints represent a versatile sales tool for the distribution of up-to-date information on your particular areas – via your sales force, direct mail campaigns and as handouts at major conferences and commercial exhibitions. Reprints can usually be delivered to clients 2-4 weeks after the receipt of the order.

Reprint sales in the UK, Europe and Rest of World

The Advertising Sales Team Cambridge University Press The Edinburgh Building, Shaftesbury Road, Cambridge, UK, CB2 8RU Tel: +44 (0) 1223 325083 Email: ad_sales@cambridge.org

Reprint sales in the Americas

Journals Advertising Coordinator 32 Avenue of the Americas, New York, NY 10013-2473, USA Tel: +1 (212) 337 5053 Fax: +1 (212) 337 5959 Email: usreprints@cambridge.org



Public Health Nutrition

Volume 14, 2011 ISSN: 1368–9800 journals.cambridge.org/PHN

Publishing, Production, Marketing, and Subscription Sales Office:

Cambridge University Press The Edinburgh Building Shaftesbury Road Cambridge CB2 8RU UK

For Customers in North America:

Cambridge University Press Journals Fulfillment Dept 100 Brook Hill Drive West Nyack New York 10994–2133 USA

Publisher: Katy Christomanou

Special sales and supplements

This journal accepts advertising and inserts. We also provide bulk reprints of suitable papers to meet teaching or promotional requirements. The journal also publishes supplementary material including conference proceedings on behalf of academic and corporate sponsors. Please contact Katy Christomanou at Cambridge University Press for further details

(email: kchristomanou@cambridge.org).

Subscription information

Public Health Nutrition is an international journal published 12 times per year by Cambridge University Press on behalf of the Nutrition Society. The online edition is available at

journals.cambridge.org/PHN, with free table of contents alert (upon registration).

Annual subscription rates

Volume 14, 2011 (12 issues): Internet/print package: £746/\$1430 Americas only/€1195 EU only Internet only: £613/\$1160 Americas only/€973 EU only

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

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.

Advertising: The Nutrition Society is willing to include advertisements in its journals. However, it will retain the right to make decisions on which advertisements are acceptable and which are not, and will not be obliged to give reasons to prospective advertisers for its decisions. The appearance of an advertisement in the Society's journals does not imply endorsement by the Society. For further details, please contact Cambridge University Press.

Back volumes will be available in due course. Please contact Cambridge University Press for further information.

US POSTMASTERS: Please send address corrections to Public Health Nutrition Cambridge University Press 100 Brook Hill Drive West Nyack New York 10994–2133 USA

Notes for Authors are available from the publisher at the given address and can be found inside the back cover.

Offprints: The author (or main author) of an accepted paper will receive a free PDF of their paper and a copy of the issue in which their paper has been published. Additional offprints are available for a fee and must be ordered at proof stage. **No page charges are levied by this journal.**

Copyright: As of 1 January 2001 the copyright of all articles submitted to *Public Health 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 Editorial 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 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 for information. Typeset by Macmillan India Limited, Bangalore, India and Printed in Europe by Bell and Bain, Glasgow.

Public Health Nutrition is covered in Science Citation Index Expanded (Web of Science), Current Contents, Agriculture, Biology & Environmental Sciences, Current Contents, Clinical Medicine, CAB ABSTRACTS[®], Global Health, Index Medicus[®] (MEDLINE[®]), EMBASE, Excerpta Medica, BIOSIS[®] Database and CINAHL[®] Database Public Health Nutrition participates in the following initiatives: HINARI by WHO and AGORA by FAO.

Public Health Nutrition

Notes for Authors

Public Health Nutrition (PHN) provides a forum for the presentation of original research findings and high quality reviews of key topics, and for discussion of and debate on of current issues and controversies. It also publishes special issues on major topics of interest. Our field includes research, scholarship, and discussions on public health nutrition, that take a population, health promoting and preventive approach. Papers that do not have this emphasis may be directed to more appropriate journals. Potential contributors are encouraged to read the aims and scope of the journal, and to note and follow the guidelines set out below.

Content:

- Original research findings and scientific reviews are published as full papers usually less than 5000 words, including references.
- **Editorials** express the opinion of the journal, as represented by its central editorial team, on topics judged by them to be important. Editorials, including guest editorials, are usually co-ordinated and developed by the editorial team.
- **Position papers,** including declarations and other statements of policy, may be invited or unsolicited.
- Invited commentaries and book reviews are expressions of opinion on a topical subject. These are commissioned by the members of the editorial team.
- Letters to the Editors are usually in response to material published in *PHN*. Submissions are sent to the author for comment and, when possible, published together with the author's reply.

Submission: PHN operates an online submission and reviewing system (eJournalPress). All manuscripts must be submitted online at http://phn.msubmit.net/. If any difficulties are encountered, please contact the Publications Office at phn@nutsoc.org.uk

Refereeing: Review articles and articles reporting original research are subject to external review by two or more referees who evaluate manuscripts based on their importance, relevance, and originality. Authors are asked to submit names and contact details (including email address) of up to four potential referees. All other contributions (editorials, position papers, invited commentaries, book reviews, and letters to the Editors) undergo an internal review process by at least two members of the editorial team. Invited commentaries and book reviews may also be checked externally as necessary to avoid technical errors and to improve salience.

Copyright: At the time of acceptance, authors will be asked to provide a completed copy of the 'Licence to Publish' (in lieu of copyright transfer), available at https://www.nutritionsociety. org/. It is the author's responsibility to obtain written permission to reproduce any material (including text and figures) that has appeared in another publication.

Preparation of manuscripts: Please refer to the full Directions to Contributors on our website (http://www.nutritionsociety. org). Manuscripts should be in clear and concise English, and spelling should follow the Oxford English Dictionary. For authors whose native tongue is not English, in-house editorial attention to their contributions will improve clarity. On acceptance, all contributions are subject to editorial amendment to conform to house style. Manuscripts should be prepared in a common word processing package (Word for Windows is preferred) in Times New Roman or other common typeface, prepared with double-spaced text, at least 2 cm margins, and page and line numbers. Standard abbreviations and SI units must be used.

Disclosure of financial support and any competing

interests. The submission must include a statement within an Acknowledgements section reporting any competing interests, all sources of funding, and the nature of the contribution of each author to the manuscript. If there are no competing interests, this must be stated. Authors are asked to provide this information during the submission process and should not include it as part of the manuscript to allow for double-blind reviewing.

Arrangement of papers:

- Title page should include the article title, author(s), affiliation(s), up to eight keywords, one author identified for correspondence (with full postal address, telephone and fax numbers, and email address), and a running title of up to 45 characters. The title page should be submitted online as a separate cover letter, not as part of the manuscript, to enable double-blind reviewing.
- 2. **Abstract** should be structured, usually using the following internal headings: Objective, Design, Setting, Subjects, Results, Conclusions. Abstracts should be intelligible without reference to text or figures and should not exceed 250 words.
- 3. Text should be divided under headings (typically to include Introduction, Methods, Results, Discussion and Conclusions), and sub-headings as appropriate. Conclusions should include recommendations that derive from the research and that are concrete, feasible, and potentially effective. Emphasising that more research is needed is usually not necessary unless there is specific reason to say so.
- 4. Acknowledgements (sources of funding, competing interests declaration, authorship responsibilities, acknowledgements) should be provided during the submission process, not as part of the manuscript.
- 5. **References** should be in Vancouver style. Please refer to the full Directions to Contributors.
- 6. **Tables** should be reduced to the simplest form and should not be used where text or figures give the same information. Each table must be accompanied by a clear and concise caption that is comprehensible without reference to the text. Longer tables may be published online only.
- 7. **Figures** should be numbered, and legends should be provided. Each figure, with its legend, should be comprehensible without reference to the text and include definitions of abbreviations.

Proofs: Correspondence and proofs for correction will be emailed to the first named author unless otherwise indicated. The author will receive a PDF proof for checking. It is important that proofs be returned promptly. Authors may be charged for any alterations in excess of 10% of original setting.

Offprints: The corresponding author will receive a PDF of the published paper free of charge. Offprints are available to purchase and must be ordered before publication.

Contents

Foreword: Mediterranean diet and climatic change	2271
L Serra-Majem, A Bach-Faig, G Miranda and C Clapes-Badrinas	227/
Mediterranean diet pyramid today. Science and cultural updates A Bach-Faig, EM Berry, D Lairon, J Reguant, A Trichopoulou, S Dernini, FX Medina, M Battino, R Belahsen, G Miranda and L Serra-Majem on behalf of the Mediterranean Diet Foundation Expert Group	2274
Sustainable diets: the Mediterranean diet as an example B Burlingame and S Dernini	2285
The Middle Eastern and biblical origins of the Mediterranean diet EM Berry, Y Arnoni and M Aviram	2288
Mediterranean nuts: origins, ancient medicinal benefits and symbolism <i>P Casas-Agustench, A Salas-Huetos and J Salas-Salvadó</i>	2296
Effects of 3-month Mediterranean-type diet on postprandial TAG and apolipoprotein B48 in the Medi-RIVAGE cohort <i>C Defoort, S Vincent-Baudry and D Lairon</i>	2302
Low consumption of fruit and vegetables and risk of chronic disease: a review of the epidemiological evidence and temporal trends among Spanish graduates <i>MÁ Martínez-González, C de la Fuente-Arrillaga, C López-del-Burgo,</i> <i>Z Vázquez-Ruiz, S Benito and M Ruiz-Canela</i>	2309
Wholegrain cereals and bread: a duet of the Mediterranean diet for the prevention of chronic diseases <i>A Gil, RM Ortega and J Maldonado</i>	2316
Olive oil, an essential component of the Mediterranean diet, and breast cancer <i>E Escrich, R Moral and M Solanas</i>	2323
Mediterranean diet in secondary prevention of CHD <i>M de Lorgeril and P Salen</i>	2333
Comparison and evaluation of the reliability of indexes of adherence to the Mediterranean diet <i>R Milà-Villarroel, A Bach-Faig, J Puig, A Puchal, A Farran, L Serra-Majem</i> <i>and JL Carrasco</i>	2338
Food consumption and civil society: Mediterranean diet as a sustainable resource for the Mediterranean area <i>FX Medina</i>	2346

Cambridge Journals Online For further information about this journal please go to the journal website at: journals.cambridge.org/phn



MIX Paper from responsible sources FSC[®] C007785

