British Journal of Nutrition Volume 106, 2011 ISSN: 0007-1145

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 Fullfillment Department 100 Brook Hill Drive West Nyack New York 10994-2133 USA

Publisher: Katy Christomanou

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 Katy Christomanou at the Cambridge address for further details. E-mail: kchristomanou@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 2011 comprise Volume 105, the twelve issues starting July 2011 comprise Volume 106.

Annual subscription rates:

Volumes 105/106 (24 issues): Internet/print package £1021/\$1990/€1635 Internet only: £835/\$1630/€1334 Print only: £973/\$1895/€1580

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, 100 Brook Hill Drive, West Nyack, New York 10994-2133.

Directions to Contributors are available from the Society at the address below or can be found on the Society's website at http://www.nutritionsociety.org (an abbreviated Notes for Authors can be found inside the back cover).

Offprints: The author (or main author) of an accepted paper will receive a copy of the PDF file and a voucher copy of the issue in which their paper has been published. 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 the UK by Bell & Bain Ltd., Glasgow.

This journal issue has been printed on FSC-certified paper and cover board. FSC is an independent, nongovernmental, not-for-profit organization established to promote the responsible management of the world's forests. Please see 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 AbstractsTM, Global Health, BIOSIS[®] Database, EMBASE/Excerpta Medica and Elsevier BIOBASE/Current Awareness in Biological Sciences, CINAHL, and Chemical Abstracts Service.

CAMBRIDGE

JOURNALS



Nutrition Research Reviews

Published on behalf of The Nutrition Society

Nutrition Research Reviews is available online at: http://journals.cambridge.org/nrr

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 *Editor-in-chief* K. Younger, Dublin Institute of Technology, Ireland

Nutrition Research Reviews presents up-to-date, concise, critical reviews of key topics in nutritional science in order to advance new concepts and hypotheses. The journal encourages the exchange of fundamental ideas on nutritional well-being in both humans and animals.

Price information is available at: http://journals.cambridge.org/nrr

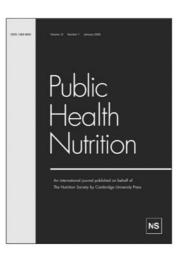
Free email alerts Keep up-to-date with new material – sign up at http://journals.cambridge.org/alerts

For free online content visit: http://journals.cambridge.org/nrr



CAMBRIDGE

JOURNALS



Public Health Nutrition

Published on behalf of The Nutrition Society

Public Health Nutrition is available online at: http://journals.cambridge.org/phn

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 *Editor-in-Chief* Agneta Yngve, Karolinska Institutet, Sweden

Public Health Nutrition provides an international peer-reviewed forum for the publication and dissemination of research and scholarship aimed at understanding the causes of, and approaches and solutions to nutrition-related public health achievements, situations and problems around the world. The journal publishes original and commissioned articles, commentaries and discussion papers for debate.

Price information is available at: http://journals.cambridge.org/phn

Free email alerts Keep up-to-date with new material – sign up at http://journals.cambridge.org/alerts

For free online content visit: http://journals.cambridge.org/phn UNIVERSITY PRESS

CAMBRIDGE

JOURNALS



Proceedings of the Nutrition Society

Published on behalf of The Nutrition Society

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 *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.'

Price information is available at: http://journals.cambridge.org/pns

Free email alerts Keep up-to-date with new material – sign up at http://journals.cambridge.org/alerts

For free online content visit: http://journals.cambridge.org/pns CAMBRIDGE UNIVERSITY PRESS (Contents continued from back cover)

Estimated dietary intakes of flavonols, flavanones and flavones in the European Prospective

Investigation into Cancer and Nutrition (EPIC) 24 hour dietary recall cohort.

R. Zamora-Ros, V. Knaze, L. Luján-Barroso, N. Slimani, I. Romieu, V. Fedirko,

M. S. de Magistris, U. Ericson, P. Amiano, A. Trichopoulou, V. Dilis, A. Naska, D. Engeset,

G. Skeie, A. Cassidy, K. Overvad, P. H. M. Peeters, J. M. Huerta, M.-J. Sánchez,

J. R. Quirós, C. Sacerdote, S. Grioni, R. Tumino, G. Johansson, I. Johansson, I. Drake,

F. L. Crowe, A. Barricarte, R. Kaaks, B. Teucher, H. B. Bueno-de-Mesquita,

C. T. M. van Rossum, T. Norat, D. Romaguera, A.-C. Vergnaud, A. Tjønneland, J. Halkjær,

F. Clavel-Chapelon, M.-C. Boutron-Ruault, M. Touillaud, S. Salvini, K.-T. Khaw,

N. Wareham, H. Boeing, J. Förster, E. Riboli & C. A. González

1915-1925

Directions to Contributors - Concise Version

(Revised August 2007)

The *British Journal of Nutrition* is an international peerreviewed journal that publishes original papers, review articles, technical notes and short communications in English in all branches of nutritional science. **Prospective authors should note that they (or their institutions) now retain the copyright of their material published in the** *British Journal of Nutrition*. As a contributor you are asked to follow the guidelines set out below. For detailed information on the presentation of the technical content of your paper please see the full version of the **Directions to Contributors**, which can be downloaded from the Nutrition Society website (http://www.nutritionsociety. org). Prospective authors may also contact the Publications Office directly on + 44 (0)20 7605 6555 (telephone), +44 20 7602 1756 (fax), or edoffice@nutsoc.org.uk (email).

Papers should be accompanied by a statement to the effect that the conditions laid down in the full Directions to Contributors are accepted. The statement should affirm that the submission represents original work that has not been published previously and which is not currently being considered by another journal. It should also confirm that each author has seen and approved the contents of the submitted paper. At the time of acceptance the authors should provide a completed copy of the 'Licence to Publish' (in lieu of copyright transfer). The Licence to Publish is available on the Nutrition Society website (http://www.nutrition society.org). All relevant financial interests should be declared.

Text. Papers should be submitted with 1.5 line spacing and margins of at least 2 cm on each side. Text should be printed without underlining, bold or italics (except for scientific names). Standard abbreviations (e.g. Fig. and Figs.) and SI units should be used. Typescripts can be submitted as Word, WordPerfect, EPS, Text, Postscript or RTF files. A Word processing format is required for production purposes once papers have been accepted. When substantial revisions are required to typescripts, authors are given the opportunity to do this once only, the need for any further changes should at most reflect any minor issues.

Title Page. The first page should include a concise, informative title together with the names and addresses of the authors. A contact name for correspondence should be given and telephone, fax and email addresses provided. Authors should supply three or four key words or phrases (each containing up to three words). A short title of up to 45 characters is required as a running head.

Abstract. Each paper should commence with an accurate and informative abstract, written as a single paragraph. It should be complete in itself and intelligible without reference to the text or figures, and should not exceed 250 words.

Tables. Tables should be reduced to the simplest form, and should not duplicate information in the text or figures. They should be typed on separate pages, one page for each Table, at the end of the article and carry headings describing their content.

Illustrations. The original illustrations should accompany the submitted typescript. Text figures, line drawings, computer-generated figures and graphs should be of sufficient size and quality to allow for reduction by half or two-thirds. Half-tone photographs are acceptable where they clearly contribute to the text. All figures should be numbered and legends should be provided.

Note that authors will be charged 350 GBP for the publication of colour figures. Authors from countries entitled to free journal access through HINARI will be exempt from these charges.

References. References should be based on the numbered (Vancouver) system. When an article has more than ten authors, only the names of the first three should be given followed by *et al.*; give abbreviated journal titles and conform to the following styles:

- Goel V, Cheema SK, Agellon LB, Ooraikul B & Basu TK (1999) Dietary rhubabrb (*Rheum rhaponticum*) stalk fibre stimulates cholesterol 7α-hydroxylase gene expression and bile acid excretion in cholesterol-fed C57BL/6J mice. *Br J Nutr* **81**, 65–71.
- Jenkins DJ, Kendall CW, Marchie A, *et al.* (2003) The effect of combining plant sterols, soy protein, viscous fibres, and almonds in treating hypercholesterolemia. *Metabolism* 52, 1478–1483.
- Brandtzaeg P (2003) Role of local immunity and breast-feeding in mucosal homoeostasis and defence against infections. In *Nutrition and Immune Function*, pp. 273–320 [PC Calder, CJ Field and HS Gill, editors]. Wallingford, Oxon: CAB International.
- Stock M & Rothwell NJ (1982) *Obesity and Leanness: Basic Aspects*. London: John Libbey.

Citations should be numbered consecutively in the order in which they first appear in the text using superscript Arabic numerals in parentheses, e.g. 'The conceptual difficulty of this approach has recently been highlighted^(1,2–4). If a reference is cited more than once the same number should be used each time.

Referees. Authors are asked to submit the names of up to four scientists who would be well-qualified to review the paper; however, no more than one such reviewer will be used. The email addresses and institutions of the named reviewers should be given.

Proofs. PDF page proofs will be emailed to authors for checking, and should be returned within 3 days (by fax or Express mail) to the BJN Production Editor, Cambridge University Press, The Edinburgh Building, Shaftesbury Road, Cambridge CB2 2RU, UK; fax +44 1223 325802, email bjnproduction@cambridge.org

Typescripts. The British Journal of Nutrition operates an on-line submission and reviewing system (eJournalPress). Authors should submit to the following address: http://bjn.msubmit.net/ If any difficulties are encountered please contact the Publications Office (details above) immediately.

Professor Philip Calder Editor-in-Chief British Journal of Nutrition The Nutrition Society 10 Cambridge Court 210 Shepherds Bush Road London W6 7NJ UK

Tel: +44 (0)20 7605 6555 Fax: +44 20 7602 1756 Email: edoffice@nutsoc.org.uk

Volume 106 No. 12 28 December 2011

Contents

British Journal of Nutrition

Short Communication	
Importance of early nutritional screening in patients with gastric cancer.	1772 1779
C. Gavazzi, S. Colatruglio, A. Sironi, V. Mazzaferro & R. Miceli Molecular Nutrition	1773–1778
Mitogen-activated protein kinase mediates the apoptosis of highly metastatic human	
non-small cell lung cancer cells induced by isothiocyanates.	
<i>H. Yan, Y. Zhu, B. Liu, H. Wu, Y. Li, X. Wu, Q. Zhou & K. Xu</i> Effect of anthocyanins on expression of matrix metalloproteinase-2 in naproxen-induced	1779–1791
gastric ulcers.	
SJ. Kim, Y. S. Park, HD. Paik & H. I. Chang	1792-1801
Bone-protective effects of bioactive fractions and ingredients in <i>Sambucus williamsii</i> HANCE.	1902 1900
<i>HH. Xiao, Y. Dai, HY. Wan, MS. Wong & XS. Yao</i> Supplement of bamboo extract lowers serum monocyte chemoattractant protein-1 concentration in	1802–1809
mice fed a diet containing a high level of saturated fat.	
J. K. Higa, W. Liu, M. J. Berry & J. Panee	1810-1813
Hepatic expression of sodium-dependent vitamin C transporters: ontogeny, subtissular distribution	
and effect of chronic liver diseases. R. I. R. Macias, C. Hierro, S. C. de Juan, F. Jimenez, F. GS. Martin & J. J. G. Marin	1814-1825
Effect of the fat composition of a single high-fat meal on inflammatory markers in	
healthy young women.	
M. C. W. Myhrstad, I. Narverud, V. H. Telle-Hansen, T. Karhu, D. B. Lund, KH. Herzig, M. Makinen, B. Halvorsen, K. Retterstøl, B. Kirkhus, L. Granlund, K. B. Holven & S. M. Ulven	1826-1835
Low-molecular-weight fucoidan regulates myogenic differentiation through the mitogen-activated	1020-1055
protein kinase pathway in C2C12 cells.	
KJ. Kim, OH. Lee & BY. Lee	1836–1844
Metabolism and Metabolic Studies Effects of dietary protein content and 2-hydroxy-4-methylthiobutanoic acid or DL-methionine	
supplementation on performance and oxidative status of broiler chickens.	
Q. Swennen, PA. Geraert, Y. Mercier, N. Everaert, A. Stinckens, H. Willemsen, Y. Li,	
E. Decuypere & J. Buyse	1845–1854
Tannic acid is more effective than clofibrate for the elevation of hepatic β-oxidation and the inhibition of 3-hydroxy-3-methyl-glutaryl-CoA reductase and aortic lesion formation in	
apo E-deficient mice.	
GM. Do, EY. Kwon, TY. Ha, Y. B. Park, HJ. Kim, SM. Jeon, MK. Lee & MS. Choi	1855–1863
Human and Clinical Nutrition	
Digestive physiological outcomes related to polydextrose and soluble maize fibre consumption by healthy adult men.	
B. M. V. Boler, M. C. R. Serao, L. L. Bauer, M. A. Staeger, T. W. Boileau, K. S. Swanson &	
<i>G. C. Fahey Jr</i>	1864–1871
Reported zinc, but not copper, intakes influence whole-body bone density, mineral content and	
T score responses to zinc and copper supplementation in healthy postmenopausal women. F. H. Nielsen, H. C. Lukaski, L. K. Johnson & Z. K. (Fariba) Roughead	1872–1879
Health effects of green tea catechins in overweight and obese men: a randomised controlled	1072-1079
cross-over trial.	
A. L. Brown, J. Lane, C. Holyoak, B. Nicol, A. E. Mayes & T. Dadd	1880–1889
Structure modification of a milk protein-based model food affects postprandial intestinal peptide release and fullness in healthy young men.	
K. R. Juvonen, L. J. Karhunen, E. Vuori, M. E. Lille, T. Karhu, A. Jurado-Acosta,	
D. E. Laaksonen, H. M. Mykkänen, L. K. Niskanen, K. S. Poutanen & KH. Herzig	1890–1898
Dietary Surveys and Nutritional Epidemiology	
National Diet and Nutrition Survey: UK food consumption and nutrient intakes from the first year of the rolling programme and comparisons with previous surveys.	
C. Whitton, S. K. Nicholson, C. Roberts, C. J. Prynne, G. K. Pot, A. Olson, E. Fitt,	
D. Cole, B. Teucher, B. Bates, H. Henderson, S. Pigott, C. Deverill, G. Swan & A. M. Stephen	1899–1914

(Contents continued facing inside back cover)

