

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 Fulfillment 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.nutrition society.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, non-governmental, 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 Abstracts™, Global Health, BIOSIS® Database, EMBASE/Excerpta Medica and Elsevier BIOBASE/Current Awareness in Biological Sciences, CINAHL, and Chemical Abstracts Service.

www.foodandfunction.net



International Scientific Conference on Nutraceuticals and Functional Foods - FF2011

The next International Scientific Conference on Nutraceuticals and Functional Foods, Food and Function 2011, will be held during **25th-27th October 2011** in the university city of Kosice, Slovakia.

The conference programme will **focus on current advances in the research of nutraceuticals and functional foods and their present and future role in maintaining health and preventing diseases.**

The goal of the conference is to provide a scientific forum for all stakeholders of nutraceuticals, functional foods and enable interactive exchange of state-of-the-art knowledge. The conference will focus on the **evidence-based benefits of nutraceuticals and functional foods.**

Meet those who influenced the past, influence the present and most importantly will enable the future of nutraceuticals and functional foods.

At Food and Function 2011, leading scientists will present and discuss current advances in the research of nutraceuticals and functional foods. New scientific evidences that support or question the efficacy of already existing or prospective substances and applications will be conferred. In addition **novel compounds, controversial but scientifically solid ideas, approaches and visions** will be presented as well.

Food and Function 2011 is a networking event. A unique opportunity to meet all the stakeholders of nutraceuticals and functional foods. Initiation of cross-border cooperations between scientists and institutions will be also facilitated during the conference.

For further information on the conference please visit

www.foodandfunction.net or contact the Organizing Secretariat of FF2011

phone: +421 917 957 393, e-mail: info@foodandfunction.net

www.foodandfunction.net

CAMBRIDGE

JOURNALS

Celebrate 70 years of the
Nutrition Society with their
distinguished publications



journals.cambridge.org/nutrition70



British Journal of Nutrition
journals.cambridge.org/bjn

Nutrition Research Reviews
journals.cambridge.org/nrr



Proceedings of the Nutrition Society
journals.cambridge.org/pns

Public Health Nutrition
journals.cambridge.org/phn



(Contents continued from back cover)

Behaviour, Appetite and Obesity

- Multiple cycles of repeated treatments with a *Phaseolus vulgaris* dry extract reduce food intake and body weight in obese rats.
M. A. M. Carai, N. Fantini, B. Loi, G. Colombo, G. L. Gessa, A. Riva, E. Bombardelli & P. Morazzoni 762–768
- Protective effects of leptin during the suckling period against later obesity may be associated with changes in promoter methylation of the hypothalamic pro-opiomelanocortin gene.
M. Palou, C. Picó, J. A. McKay, J. Sánchez, T. Priego, J. C. Mathers & A. Palou 769–778
- The effect of within-meal protein content and taste on subsequent food choice and satiety.
S. Griffioen-Roose, M. Mars, G. Finlayson, J. E. Blundell & C. de Graaf 779–788

Directions to Contributors - Concise Version*(Revised August 2007)*

The *British Journal of Nutrition* is an international peer-reviewed 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.nutrition-society.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 rhabarbr (*Rheum rhabarbr*) stalk fibre stimulates cholesterol 7 α -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 homeostasis 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

Contents

Horizons in Nutritional Science

The confusion about dietary fatty acids recommendations for CHD prevention.
D. Kromhout, J. M. Geleijnse, A. Menotti & D. R. Jacobs Jr 627–632

Molecular Nutrition

Dietary plant proteins and vegetable oil blends increase adiposity and plasma lipids in Atlantic salmon (*Salmo salar* L.).
B. E. Torstensen, M. Espe, I. Stubhaug & Ø. Lie 633–647

Metabolism and Metabolic Studies

Mitochondrial dysfunction in the liver of type 2 diabetic Goto–Kakizaki rats: improvement by a combination of nutrients.
J. Hao, W. Shen, L. Sun, J. Long, E. Sharman, X. Shi & J. Liu 648–655

A diet with 35% of energy from protein leads to kidney damage in female Sprague–Dawley rats.
A. P. Wakefield, J. D. House, M. R. Ogborn, H. A. Weiler & H. M. Aukema 656–663

Effects of viscosity and fermentability of dietary fibre on nutrient digestibility and digesta characteristics in ileal-cannulated grower pigs.
S. Hooda, B. U. Metzler-Zebeli, T. Vasanthan & R. T. Zijlstra 664–674

Developmental Biology

Protein deficiency, but not zinc deficiency, reduces recovery of type 1 and type 2 muscle fibre diameters in the gastrocnemius muscle of growing rats.
A. L. V. Prescod, W. C. Halliday & C. G. Taylor 675–682

Nutritional Immunology

Sex- and age-specific immunomodulatory effects of dietary soya protein isolate and isoflavones in rats.
S. M. Cornish, C. M. Wood, M. R. L'Abbé, G. S. Gilani, G. M. Cooke, I. H. Curran & C. W. Xiao 683–687

Effects of dietary seaweed extract supplementation in sows and post-weaned pigs on performance, intestinal morphology, intestinal microflora and immune status.
S. G. Leonard, T. Sweeney, B. Bahar, B. P. Lynch & J. V. O'Doherty 688–699

Human and Clinical Nutrition

Nutrient deficiencies as a risk factor in Taiwanese patients with postherpetic neuralgia.
J.-Y. Chen, C.-C. Chu, Y.-S. Lin, E. C. So, J.-P. Shieh & M.-L. Hu 700–707

Early determinants for the development of undernutrition in an older general population: Longitudinal Aging Study Amsterdam.
J. Schilp, H. A. H. Wijnhoven, D. J. H. Deeg & M. Visser 708–717

Dietary Surveys and Nutritional Epidemiology

Marginal selenium status in northern Tasmania.
J. M. Beckett & M. J. Ball 718–724

Consistency of children's dietary choices: annual repeat measures from 5 to 13 years (EarlyBird 49).
A. E. Frémeaux, J. Hosking, B. S. Metcalf, A. N. Jeffery, L. D. Voss & T. J. Wilkin 725–731

Vitamin D, calcium and dairy intake, and risk of oesophageal adenocarcinoma and its precursor conditions.
H. G. Mulholland, L. J. Murray, L. A. Anderson & M. M. Cantwell on behalf of the FINBAR study group 732–741

Breakfast frequency inversely associated with BMI and body fatness in Hong Kong Chinese children aged 9–18 years.
H. K. So, E. A. S. Nelson, A. M. Li, G. S. Guldán, J. Yin, P. C. Ng & R. Y. T. Sung 742–751

Fruit and vegetable intake and cognitive decline in middle-aged men and women: the Doetinchem Cohort Study.
A. C. J. Nooyens, H. B. Bueno-de-Mesquita, M. P. J. van Boxtel, B. M. van Gelder, H. Verhagen & W. M. M. Verschuren 752–761

(Contents continued facing inside back cover)