British Journal of Nutrition

Volume 105, 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, 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 AbstractsTM, Global Health, BIOSIS® Database, EMBASE/Excerpta Medica and Elsevier BIOBASE/Current Awareness in Biological Sciences, CINAHL, and Chemical Abstracts Service.

(Contents continued from back cover)

Dietary Surveys and Nutritional Epidemiology High sugar consumption and poor nutrient intake among drug addicts in Oslo, Norway.	
M. Sæland, M. Haugen, FL. Eriksen, M. Wandel, A. Smehaugen, T. Böhmer & A. Oshaug	618-624
Relative validity of adolescent dietary patterns: a comparison of a FFQ and 3 d food record. G. L. Ambrosini, T. A. O'Sullivan, N. H. de Klerk, T. A. Mori, L. J. Beilin & W. H. Oddy	625-633
G. E. Innovestin, T. H. & Summan, T. H. de Hieri, T. H. Mort, E. V. Bellin & W. H. Gady	023 033
Innovative Techniques	
The effect of size and density on the mean retention time of particles in the reticulorumen of cattle (<i>Bos primigenius</i> f. taurus), muskoxen (<i>Ovibos moschatus</i>) and moose (<i>Alces alces</i>). M. Clauss, I. Lechner, P. Barboza, W. Collins, T. A. Tervoort, KH. Südekum, D. Codron	
& J. Hummel	634-644
Behaviour, Appetite and Obesity	
The impact of salt, fat and sugar levels on toddler food intake.	
S. Bouhlal, S. Issanchou & S. Nicklaus	645-653
Effects of cannabinoids on neuropeptide Y and β-endorphin expression in the rat hypothalamic arcuate nucleus.	
L. Bakkali-Kassemi, S. El Ouezzani, R. Magoul, I. Merroun, M. Lopez-Jurado & M. Errami	654-660

British Journal of Nutrition

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.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 105 No. 4 28 February 2011



Contents

TET 1 37 (10)	
Molecular Nutrition	
Efficacy of various dietary calcium salts to improve intestinal resistance to Salmonella infection in rats.	
S. J. M. ten Bruggencate, J. Snel, M. H. C. Schoterman, E. Ertmann, E. van der Meulen, A. Schonewille & I. M. J. Bovee-Oudenhoven	489–495
High dietary niacin intake is associated with decreased chromosome translocation frequency in	407-473
airline pilots.	
L. C. Yong & M. R. Petersen	496–505
Metabolism and Metabolic Studies	170 303
Is the effect of prior exercise on postprandial lipaemia the same for a moderate-fat meal as it is for	
a high-fat meal?	
N. M. Hurren, F. F. Eves & A. K. Blannin	506-516
Development of nutritional iron deficiency in growing male rats: haematological parameters, iron	300 310
bioavailability and oxidative defence.	
M. J. M. Alférez, J. Díaz-Castro, I. López-Aliaga, M. Rodríguez-Ferrer, L. J. Pérez-Sánchez	
& M. S. Campos	517-525
The fat and protein fractions of freshwater clam (<i>Corbicula fluminea</i>) extract reduce serum cholesterol	
and enhance bile acid biosynthesis and sterol excretion in hypercholesterolaemic rats fed a	
high-cholesterol diet.	
T. Chijimatsu, M. Umeki, Y. Okuda, K. Yamada, H. Oda & S. Mochizuki	526-534
A possible role of plasma aldosterone in hypotension secondary to iron-deficiency anaemia combined	
with zinc deficiency in rats.	
A. Konomi & K. Yokoi	535–538
Developmental Biology	
The effect of gestational undernutrition on maternal weight change and fetal weight in lines of mice	
selected for different growth characteristics.	
C. M. Dwyer, C. Moinard, K. M. McIlvaney, C. A. Morgan & L. Bünger	539–548
Nutritional Immunology	
Effect of dietary seaweed extracts and fish oil supplementation in sows on performance, intestinal	
microflora, intestinal morphology, volatile fatty acid concentrations and immune status of	
weaned pigs.	540, 560
S. G. Leonard, T. Sweeney, B. Bahar, B. P. Lynch & J. V. O'Doherty	549–560
Microbiology	
Hypocholesterolaemic effect of dietary inclusion of two putative probiotic bile salt hydrolase-producing	
Lactobacillus plantarum strains in Sprague–Dawley rats.	561 572
R. Kumar, S. Grover & V. K. Batish	561–573
Human and Clinical Nutrition	
Weight status and iron deficiency among urban Malian women of reproductive age.	574 570
N. Fanou-Fogny, N. J. Saronga, Y. Koreissi, R. A. M. Dossa, A. Melse-Boonstra & I. D. Brouwer	574–579
Improvements in LDL particle size and distribution by short-term alternate day modified fasting in	
obese adults.	580 583
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche	580–583
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood	580–583
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes.	
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes	580–583 584–592
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes.	
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile	
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile acid levels and faecal water toxicity towards Caco-2 cells. WT. Wu, HC. Cheng & HL. Chen Maternal plasma fatty acid composition and pregnancy outcome in adolescents.	584–592 593–600
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile acid levels and faecal water toxicity towards Caco-2 cells. WT. Wu, HC. Cheng & HL. Chen Maternal plasma fatty acid composition and pregnancy outcome in adolescents. S. J. Wheeler, L. Poston, J. E. Thomas, P. T. Seed, P. N. Baker & T. A. B. Sanders	584–592
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile acid levels and faecal water toxicity towards Caco-2 cells. WT. Wu, HC. Cheng & HL. Chen Maternal plasma fatty acid composition and pregnancy outcome in adolescents. S. J. Wheeler, L. Poston, J. E. Thomas, P. T. Seed, P. N. Baker & T. A. B. Sanders Effect of hydrolysed egg protein on brain tryptophan availability.	584–592 593–600
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile acid levels and faecal water toxicity towards Caco-2 cells. WT. Wu, HC. Cheng & HL. Chen Maternal plasma fatty acid composition and pregnancy outcome in adolescents. S. J. Wheeler, L. Poston, J. E. Thomas, P. T. Seed, P. N. Baker & T. A. B. Sanders Effect of hydrolysed egg protein on brain tryptophan availability. E. S. Mitchell, M. Slettenaar, F. Quadt, T. Giesbrecht, J. Kloek, C. Gerhardt, A. Bot,	584–592 593–600 601–610
obese adults. K. A. Varady, S. Bhutani, M. C. Klempel & B. Lamarche Egg consumption as part of an energy-restricted high-protein diet improves blood lipid and blood glucose profiles in individuals with type 2 diabetes. K. L. Pearce, P. M. Clifton & M. Noakes Ameliorative effects of konjac glucomannan on human faecal β-glucuronidase activity, secondary bile acid levels and faecal water toxicity towards Caco-2 cells. WT. Wu, HC. Cheng & HL. Chen Maternal plasma fatty acid composition and pregnancy outcome in adolescents. S. J. Wheeler, L. Poston, J. E. Thomas, P. T. Seed, P. N. Baker & T. A. B. Sanders Effect of hydrolysed egg protein on brain tryptophan availability.	584–592 593–600

(Contents continued facing inside back cover)

