# Directions to Contributors

***British Journal of Nutrition***
*(Revised September 2014)*

*British Journal of Nutrition* (BJN) is an international peer-reviewed journal that publishes original papers and review articles in all branches of nutritional science. The underlying aim of all work should be to develop nutritional concepts.

## SUBMISSION

This journal uses ScholarOne Manuscripts for online submission and peer review.

Complete guidelines for preparing and submitting your manuscript to this journal are provided below.

## SCOPE

The British Journal of Nutrition encompasses the full spectrum of nutritional science and reports of studies in the following areas will be considered for publication: Epidemiology, dietary surveys, nutritional requirements and behaviour, metabolic studies, body composition, energetics, appetite, obesity, ageing, endocrinology, immunology, neuroscience, microbiology, genetics, and molecular and cell biology. The focus of all manuscripts submitted to the journal must be to increase knowledge in nutritional science.

**The journal does NOT publish papers on the following topics:** Case studies; papers on food technology, food science or food chemistry; studies of primarily local interest; complementary medicine; studies on pharmaceutical agents or that compare the effects of nutrients to those of medicines; substances that are considered primarily as medicinal agents; studies in which a nutrient or extract is administered by a route other than orally (unless the specific aim of the study is to investigate parenteral nutrition) nor studies using non-physiological amounts of nutrients (unless the specific aim of the study is to investigate toxic effects).

### In vivo and in vitro models

Studies involving animal models of human nutrition and health or disease **will only be considered for publication** if the amount of a nutrient or combination of nutrients used could reasonably be expected to be achieved in the human population.

Studies involving *in vitro* models **will only be considered for publication** if the amount of a nutrient or combination of nutrients is demonstrated to be within the range that could reasonably be expected to be encountered in vivo, and that the molecular form of the nutrient or nutrients is the same as that which the cell type used in the model would encounter in vivo.

### Extracts

Studies involving extracts **will only be considered for publication** if the source of starting material is readily accessible to other researchers and that there are appropriate measures for quality control, that the method of extraction is described in sufficient detail with appropriate quality control measures, that the nutrient composition of the extract is characterised in detail and that there are measures to control the quality of the composition of the extract between preparations, and that the amount of extract used could reasonably be expected to be achieved in in the human population (or in animals if they are the specific target of an intervention).

Studies involving extracts in *in vitro* models **will only be considered for publication** if the above guidelines for studies involving extracts are followed, and that the amount and molecular form of the extract is the same as that which would be encountered by the cell type used in the model in vivo.

**Manuscripts submitted to BJN that are outside of the journal's scope or do not meet the above requirements will be rejected immediately.**

## REVIEW PROCESS

*British Journal of Nutrition* uses a single blind review process.

As part of the online submission process, authors are asked to affirm that the submission represents original work that has not been published previously, and that it is not currently being considered by another journal. Authors must also confirm that each author has seen and approved the contents of the submitted manuscript. Finally, authors should confirm that permission for all appropriate uses has been obtained from the copyright holder for any figures or other material not in his/her copyright, and that the appropriate acknowledgement has been made to the original source.

At submission, authors are asked to nominate at least four potential referees who may then be asked by the Editorial Board to help review the work. Manuscripts are normally reviewed by two external peer reviewers and a member of the Editorial Board.

When substantial revisions are required to manuscripts after review, authors are normally given the opportunity to do this once only; the need for any further changes should at most reflect only minor issues. If a paper requiring revision is not resubmitted within 2 months, it may, on resubmission, be deemed a new paper and the date of receipt altered accordingly.

## PUBLISHING ETHICS

*British Journal of Nutrition* considers all manuscripts on the strict condition that:

1) The manuscript is your own original work, and does not duplicate any other previously published work;
2) The manuscript has been submitted only to the journal - it is not under consideration or peer review or accepted for publication or in press or published elsewhere;
3) All listed authors know of and agree to the manuscript being submitted to the journal; and
4) The manuscript contains nothing that is abusive, defamatory, fraudulent, illegal, libellous, or obscene.

The Journal adheres to the Committee on Publication Ethics (COPE) guidelines on research and publications ethics.

Text taken directly or closely paraphrased from earlier published work that has not been acknowledged or referenced will be considered plagiarism. Submitted manuscripts in which such text is identified will be withdrawn from the editorial process. If a concern is raised about possible plagiarism in an article published in *British Journal of Nutrition*, this will be investigated fully and dealt with in accordance with the COPE guidelines.

## ARTICLE TYPES

*British Journal of Nutrition* publishes the following: Research Articles, Review Articles, Systematic Reviews, Horizons in Nutritional Science, Workshop Reports, Invited Commentaries, Letters to the Editor, Obituaries, and Editorials.

Research Articles, Reviews, Systematic Reviews, Horizons Articles, Letters to the Editor and Workshop Reports should be submitted to http://mc.manuscriptcentral.com/bjn. Please contact the Editorial Office on bjn.edoffice@cambridge.org regarding any other types of article.

### Review Articles

BJN is willing to accept critical reviews that are designed to advance knowledge, policy and practice in nutritional science. Current knowledge should be appropriately contextualised and presented such that knowledge gaps and research needs can be characterised and prioritised, or so that changes in policy and practice can be proposed along with suggestions as to how any changes can be monitored. The purpose or objective of a review should be clearly expressed, perhaps as question in the Introduction, and the review's conclusions should be congruent with the initial objective or question. Reviews will be handled by specialist Reviews Editors. Please contact the Editorial Office with any queries regarding the submission of potential review articles. All reviews, including systematic reviews and meta-analyses, should present the

uncertainties and variabilities associated with the papers and data being reviewed; in particular BJN cautions against uncritical acceptance of definitions and non-specific global terminology, the advice of advisory bodies, and reference ranges for example.

**Reviews**: These articles are written in a narrative style, and aim to critically evaluate a specific topic in nutritional science.

**Horizons in Nutritional Science**: These are shorter than Review articles and aim to critically evaluate recent novel developments that are likely to produce substantial advances in nutritional science. These articles should be thought-provoking and possibly controversial.

**Systematic Reviews and meta-analyses**: The journal endorses the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) Statement, a guideline to help authors report a systematic review and meta-analysis (see British Medical Journal (2009) 339, b2535). A systematic review or meta-analysis of randomised trials and other evaluation studies should follow the PRISMA guidelines.

### Letters to the Editor

Letters are invited that discuss, criticise or develop themes put forward in papers published in BJN. They should not, however, be used as a means of publishing new work. Acceptance will be at the discretion of the Editorial Board, and editorial changes may be required. Wherever possible, letters from responding authors will be included in the same issue as the original article.

## DETAILED MANUSCRIPT PREPARATION INSTRUCTIONS

### Language

Papers submitted for publication must be written in English and should be as concise as possible. We recommend that authors have their manuscript checked by someone whose first language is English before submission, to ensure that submissions are judged at peer review exclusively on academic merit.

We list a number of third-party services specialising in language editing and / or translation, and suggest that authors contact as appropriate. Use of any of these services is voluntary, and at the author's own expense.

Spelling should generally be that of the *Concise Oxford Dictionary* (1995), 9th ed. Oxford: Clarendon Press. Authors are advised to consult a current issue in order to make themselves familiar with BJN as to typographical and other conventions, layout of tables etc. Sufficient information should be given to permit repetition of the published work by any competent reader of BJN.

Published examples of BJN article types can be found below:

Research Article
Review Article
Horizons Article
Letter to the Editor

### Authorship

The Journal conforms to the International Committee of Medical Journal Editors (ICMJE) definition of authorship, as described by P.C. Calder (*Br J Nutr* (2009) **101**, 775).

The contribution of individuals who were involved in the study but do not meet these criteria should be described in the Acknowledgments section.

### Ethical standards

The required standards for reporting studies involving humans and experimental animals are detailed in an Editorial by G.C. Burdge (*Br J Nutr* (2014) **112**).

***Experiments involving human subjects***

The notice of contributors is drawn to the guidelines in the World Medical Association (2000) Declaration of Helsinki: ethical principles for medical research involving human subjects, with notes of clarification of 2002 and 2004 (http://www.wma.net/en/30publications/10policies/b3/), the *Guidelines on the Practice of Ethics*

*Committees Involved in Medical Research Involving Human Subjects* (3rd ed., 1996; London: The Royal College of Physicians) and the Guidelines for the ethical conduct of medical research involving children, revised in 2000 by the Royal College of Paediatrics and Child Health: Ethics Advisory Committee (*Arch Dis Child* (2000) **82**, 177–182). Articles reporting randomised trials must conform to the standards set by the Consolidated Standards of Reporting Trials (CONSORT) consortium.

*Required disclosures:* A paper describing any experimental work on human subjects must include the following statement in the Experimental Methods section: "This study was conducted according to the guidelines laid down in the Declaration of Helsinki and all procedures involving human subjects/patients were approved by the [insert name of the ethics committee; a specific ethics number may be inserted if you wish]. Written [or Verbal] informed consent was obtained from all subjects/patients. [Where verbal consent was obtained this must be followed by a statement such as: Verbal consent was witnessed and formally recorded]." For clinical trials, the trial registry name, registration identification number, and the URL for the registry should be included.

**PLEASE NOTE:** From 1 October 2014, as a condition for publication, all randomised controlled trials that involve human subjects submitted to BJN for review must be registered in a public trials registry. A clinical trial is defined by the ICMJE (in accordance with the definition of the World Health Organisation) as any research project that prospectively assigns human participants or groups of humans to one or more health-related interventions to evaluate the effects on health outcomes. Registration information must be provided at the time of submission, including the trial registry name, registration identification number, and the URL for the registry.

***Experiments involving the use of other vertebrate animals***

Papers that report studies involving vertebrate animals must conform to the 'ARRIVE Guidelines for Reporting Animal Research' detailed in Kilkenny *et al***. (***J Pharmacol Pharmacother* (2010) **1**,94-99) and summarised at www.nc3rs.org.uk. Authors must ensure that their manuscript conforms to the checklist that is available from the nc3Rs website. The attention of authors is drawn particularly to the ARRIVE guidelines point 3b ('Explain how and why the animal species and model being used can address the scientific objectives and, where appropriate, the study's relevance to human biology', point 9c ('Welfare-related assessments and interventions that were carried out prior to, during, or after the experiment') and point 17a ('Give details of all important adverse events in each experimental group'). The Editors will not accept papers reporting work carried out involving procedures that cause or are considered likely to cause distress or suffering which would confound the outcomes of the experiments, or experiments that have not been reviewed and approved by an animal experimentation ethics committee or regulatory organisation.

*Required disclosures:* Where a paper reports studies involving vertebrate animals, authors must state in the Experimental Methods section the institutional and national guidelines for the care and use of animals that were followed and that all experimental procedures involving animals were approved by the [insert name of the ethics committee or other approving body; wherever possible authors should also insert a specific ethics/approval number].

## Manuscript Format

The requirements of BJN are in accordance with the Uniform Requirements for Manuscripts Submitted to Biomedical Journals produced by the ICMJE.

Typescripts should be prepared with 1.5 line spacing and wide margins (2 cm), the preferred font being Times New Roman size 12. At the ends of lines, words should not be hyphenated unless hyphens are to be printed. **Line numbering and page numbering are required.**

Manuscripts should be organised as follows:

***Cover Letter***

Papers should be accompanied by a cover letter including a brief summary of the work and a short explanation of how it advances nutritional science. The text for the cover letter should be entered in the appropriate box as part of the online submission process.

***Title Page***

The title page should include:

1. The title of the article;
2. Authors' names;

3. Name and address of department(s) and institution(s) to which the work should be attributed for each author;
4. Name, mailing address, email address, telephone and fax numbers of the author responsible for correspondence about the manuscript;
5. A shortened version of the title, not exceeding 45 characters (including letters and spaces) in length;
6. At least four keywords or phrases (each containing up to three words).

Authors' names should be given without titles or degrees and one forename may be given in full. Identify each author's institution by a superscript number (e.g. A.B. Smith[1]) and list the institutions underneath and after the final author.

If the paper is one of a series of papers that have a common main title followed by a subtitle specific to the individual paper, numbering should not be used to indicate the sequence of papers. The format should be 'common title: specific subtitle', with a short common title, e.g. 'Partitioning of limiting protein and energy in the growing pig: testing quantitative rules against experimental data'.

***Abstract***
Each paper must open with an unstructured abstract of **not more than 250 words**. The abstract should be a single paragraph of continuous text without subheadings outlining the aims of the work, the experimental approach taken, the principal results (including effect size and the results of statistical analysis) and the conclusions and their relevance to nutritional science.

***Introduction***
It is not necessary to introduce a paper with a full account of the relevant literature, but the introduction should indicate briefly the nature of the question asked and the reasons for asking it. It should be **no longer than two manuscript pages**.

***Experimental methods***
The methods section must include a subsection that describes the methods used for statistical analysis (see the section on statistical analysis in the appendix below) and the sample size must be justified by the results of appropriate calculations and related to the study outcomes.

For studies involving humans subjects or experimental animals, the Methods section must include a subsection that reports the appropriate ethical approvals for the study (see Ethical Standards above).

All analytical procedures must be accompanied by a statement of within and between assay precision.

*PCR analysis:* Where experiments involve measurement of mRNA including microarray analysis, for analysis of individual genes, mRNA should be measured by quantitative RTPCR. A statement about the quality and integrity of the RNA must be provided together with the results of eletrophoretic analysis of the purity of the PCR products. Unless published elsewhere, full details of the oligonuceoltide primers and of the PCR protocol must be stated either in the text or in Supplementary Material. The stability of reference genes used for normalisation of PCR data must be reported for the experimental conditions described. Where possible, analysis of mRNA levels should be accompanied by assessment of either protein levels or activities.

*Microarray analysis:* Studies involving microarray analysis of mRNA must conform to the "Minimum Information about a Microarray Experiment" (MIAME) guidelines including deposition of the raw data in an appropriate repository (the Access Code must be state din the Methods). All microarray experiments must be accompanied by appropriate validation by quantitative RTPCR.

***Results***
These should be given as concisely as possible, using figures or tables as appropriate. Data must not be duplicated in tables and figures.

***Discussion***
While it is generally desirable that the presentation of the results and the discussion of their significance should be presented separately, there may be occasions when combining these sections may be beneficial. Authors may also find that additional or alternative sections such as 'conclusions' may be useful. The discussion should be **no longer than five manuscript pages**.

***Acknowledgments***
Here you may acknowledge individuals or organizations that provided advice and/or support (non-financial). Formal financial support and funding should be listed in the following section.

***Financial Support***
Please provide details of the sources of financial support for all authors, including grant numbers. For example, "This work was supported by the Medical research Council (grant number XXXXXXX)". Multiple grant numbers should be separated by a comma and space, and where research was funded by more than one agency the different agencies should be separated by a semi-colon, with "and" before the final funder. Grants held by different authors should be identified as belonging to individual authors by the authors' initials. For example, "This work was supported by the Wellcome Trust (A.B., grant numbers XXXX, YYYY), (C.D., grant number ZZZZ); the Natural Environment Research Council (E.F., grant number FFFF); and the National Institutes of Health (A.B., grant number GGGG), (E.F., grant number HHHH)".

This disclosure is particularly important in the case of research that is supported by industry. Support from industry not only includes direct financial support for the study but also support in kind such as provision of medications, equipment, kits or reagents without charge or at reduced cost and provision of services such as statistical analysis; all such support must be disclosed here and if no such support was received this must be stated.
Where no specific funding has been provided for research, please provide the following statement: "This research received no specific grant from any funding agency, commercial or not-for-profit sectors."

In addition to the source of financial support, please state whether the funder contributed to the study design, conduct of the study, analysis of samples or data, interpretation of findings or the preparation of the manuscript. If the funder made no such contribution, please provide the following statement: "[Funder's name] had no role in the design, analysis or writing of this article."

***Conflict of Interest***
Please provide details of all known financial, professional and personal relationships with the potential to bias the work. Where no known conflicts of interest exist, please include the following statement: "None."

For more information on what constitutes a conflict of interest, please see the International Committee of Medical Journal Editors (ICMJE) guidelines.

***Authorship***
Please provide a very brief description of the contribution of each author to the research. Their roles in formulating the research question(s), designing the study, carrying it out, analysing the data and writing the article should be made plain.

***References***
Number references 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. References cited only in tables and figure legends should be numbered in sequence from the last number used in the text and in the order of mention of the individual tables and figures in the text.

Names and initials of authors of unpublished work should be given in the text as 'unpublished results' and not included in the References.

At the end of the paper, on a page(s) separate from the text, references should be listed in numerical order using the Vancouver system. When an article has more than three authors only the names of the first three authors should be given followed by '*et al*.' The issue number should be omitted if there is continuous pagination throughout a volume. Titles of journals should appear in their abbreviated form using the NCBI LinkOut page. References to books and monographs should include the town of publication and the number of the edition to which reference is made. References to material available on websites should include the full Internet address, and the date of the version cited.

Examples of correct forms of references are given below.

*Journal articles*
1. Setchell KD, Faughnan MS, Avades T *et al*. (2003) Comparing the pharmacokinetics of daidzein and genistein with the use of 13C-labeled tracers in premenopausal women. *Am J Clin Nutr* **77**, 411–419.

2. Barker DJ, Winter PD, Osmond C *et al*. (1989) Weight in infancy and death from ischaemic heart disease. *Lancet* **ii**, 577–580.
3. Forchielli ML & Walker WA (2005) The role of gut-associated lymphoid tissues and mucosal defence. *Br J Nutr* **93**, Suppl. 1, S41–S48.
4. Skurk T, Herder C, Kraft I *et al*. (2004) Production and release of macrophage migration inhibitory factor from human adipocytes. *Endocrinology* (Epublication ahead of print version).

*Books and monographs*
5. Bradbury J (2002) Dietary intervention in edentulous patients. PhD Thesis, University of Newcastle.
6. Ailhaud G & Hauner H (2004) Development of white adipose tissue. In *Handbook of Obesity. Etiology and Pathophysiology*, 2nd ed., pp. 481–514 [GA Bray and C Bouchard, editors]. New York: Marcel Dekker.
7. Bruinsma J (editor) (2003) *World Agriculture towards 2015/2030: An FAO Perspective*. London: Earthscan Publications.
8. World Health Organization (2003) *Diet, Nutrition and the Prevention of Chronic Diseases*. *Joint WHO/FAO Expert Consultation*. *WHO Technical Report Series* no. 916. Geneva: WHO.
9. Keiding L (1997) *Astma, Allergi og Anden Overfølsomhed i Danmark – Og Udviklingen 1987–199I* (*Asthma, Allergy and Other Hypersensitivities in Denmark, 1987–1991*). Copenhagen, Denmark: Dansk Institut for Klinisk Epidemiologi.

*Sources from the internet*
10. Nationmaster (2005) HIV AIDS – Adult prevalence rate. http://www.nationmaster.com/graph-T/hea_hiv_aid_adu_pre_rat (accessed June 2013).

***Figures***
Figures should be supplied as separate electronic files. Figure legends should be grouped in a section at the end of the manuscript text. Each figure should be clearly marked with its number and separate panels within figures should be clearly marked (a), (b), (c) etc. so that they are easily identifiable when the article and figure files are merged for review. Each figure, with its legend, should be comprehensible without reference to the text and should include definitions of abbreviations. The nature of the information displayed in the figures (e.g. mean (SEM)) and the statistical test used must be stated.

We recommend that only TIFF, EPS or PDF formats are used for electronic artwork. Other non-preferred but usable formats are JPG, PPT and GIF files and images created in Microsoft Word. Note that these non-preferred formats are generally NOT suitable for conversion to print reproduction. For further information about how to prepare your figures, including sizing and resolution requirements, please see our artwork guide.

In curves presenting experimental results the determined points should be clearly shown, the symbols used being, in order of preference, ○, ●, Δ, ▲, □, ■, ×, +. Curves and symbols should not extend beyond the experimental points. Scale-marks on the axes should be on the inner side of each axis and should extend beyond the last experimental point. Ensure that lines and symbols used in graphs and shading used in histograms are large enough to be easily identified when the figure size is reduced to fit the printed page. Statistically significant effects should be indicated with symbols or letters.

Colour figures will be published online free of charge, and there is a fee of £350 per figure for colour figures in the printed version. If you request colour figures in the printed version, you will be contacted by CCC-Rightslink who are acting on our behalf to collect colour charges. Please follow their instructions in order to avoid any delay in the publication of your article.

Images submitted with a manuscript should be minimally processed; some image processing is acceptable (and may be unavoidable), but the final image must accurately represent the original data. Grouping or cropping of images must be identified in the legend and indicated by clear demarcation. Please refer to the Office of Research Integrity guidelines on image processing in scientific publication. Authors should provide sufficient detail of image-gathering procedures and process manipulation in the Methods sections to enable the accuracy of image presentation to be assessed. Authors should retain their original data, as Editors may request them for comparison during manuscript review.

***Tables***
Tables should be placed in the main manuscript file at the end of the document, not within the main text. Be sure that each table is cited in the text. Tables should carry headings describing their content and should be comprehensible without reference to the text. Tables should not be subdivided by ruled lines.

The dimensions of the values, e.g. mg/kg, should be given at the top of each column. Separate columns should be used for measures of variance (SD, SE etc.), the ± sign should not be used. The number of decimal places used should be standardized; for whole numbers 1.0, 2.0 etc. should be used. Shortened forms of the words weight (wt) height (ht) and experiment (Expt) may be used to save space in tables, but only Expt (when referring to a specified experiment, e.g. Expt 1) is acceptable in the heading.

Footnotes for table legends are given in the following order: (1) abbreviations, (2) superscript letters, (3) symbols. Abbreviations are given in the format: RS, resistant starch. Abbreviations in tables must be defined in footnotes in the order that they appear in the table (reading from left to right across the table, then down each column). Symbols for footnotes should be used in the sequence: *†‡§‖¶, then ** etc. (omit * or †, or both, from the sequence if they are used to indicate levels of significance).

For indicating statistical significance, superscript letters or symbols may be used. Superscript letters are useful where comparisons are within a row or column and the level of significance is uniform, e.g. '$^{a,b,c}$Mean values within a column with unlike superscript letters were significantly different ($P$<0·05)'. Symbols are useful for indicating significant differences between rows or columns, especially where different levels of significance are found, e.g. 'Mean values were significantly different from those of the control group: *$P$<0·05, **$P$<0·01, ***$P$<0·001'. The symbols used for $P$ values in the tables must be consistent.

***Supplementary material***
Additional data (e.g. data sets, large tables) relevant to the paper can be submitted for publication online only, where they are made available via a link from the paper. The paper should stand alone without these data. Supplementary Material must be cited in a relevant place in the text of the paper.

Although Supplementary Material is peer reviewed, it is not checked, copyedited or typeset after acceptance and it is loaded onto the journal's website exactly as supplied. You should check your Supplementary Material carefully to ensure that it adheres to journal styles. Corrections cannot be made to the Supplementary Material after acceptance of the manuscript. Please bear this in mind when deciding what content to include as Supplementary Material.

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### Accepted Manuscripts

PDF proofs are sent to authors in order that they make sure that the paper has been correctly set up in type. Only changes to errors induced by typesetting/copy-editing or typographical errors will be accepted.

Corrected proofs should be returned within 2 days by email to:

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A PDF file of the paper will be supplied free of charge to the corresponding author of each paper, and offprints may be ordered on the order form sent with the proofs.

## CONTACT

Prospective authors may contact the Editorial Office directly on +44 (0) 1223 325977 (telephone) or bjn.edoffice@cambridge.org (email).

# APPENDIX: MATHEMATICAL MODELLING, STATISTICS AND NOMENCLATURE

## Mathematical modelling of nutritional processes

Papers in which mathematical modelling of nutritional processes forms the principal element will be considered for publication provided: (a) they are based on sound biological and mathematical principles; (b) they advance nutritional concepts or identify new avenues likely to lead to such advances; (c) assumptions used in their construction are fully described and supported by appropriate argument; (d) they are described in such a way that the nutritional purpose is clearly apparent; (e) the contribution of the model to the design of future experimentation is clearly defined.

## Units

Results should be presented in metric units according to the International System of Units (see Quantities, Units and Symbols in Physical Chemistry, 3rd ed. (2007) Cambridge: RSC Publishing), and Metric Units, Conversion Factors and Nomenclature in Nutritional and Food Sciences (1972) London: The Royal Society – as reproduced in *Proceedings of the Nutrition Society* (1972) **31**, 239–247). SI units should be used throughout the paper. The author will be asked to convert any values that are given in any other form. The only exception is where there is a unique way of expressing a particular variable that is in widespread use. Energy values must be given in Joules (MJ or kJ) using the conversion factor 1 kcal = 4.184 kJ. If required by the author, the value in kcal can be given afterwards in parentheses. Temperature is given in degrees Celsius (ºC). Vitamins should be given as mg or µg, not as IU.

For substances of known molecular mass (Da) or relative molecular mass, e.g. glucose, urea, Ca, Na, Fe, K, P, values should be expressed as mol/l; for substances of indeterminate molecular mass (Da) or relative molecular mass, e.g. phospholipids, proteins, and for trace elements, e.g. Cu, Zn, then g/l should be used. The 24 h clock should be used, e.g. 15.00 hours.

Units are: year, month, week, d, h, min, s, kg, g, mg, µg, litre, ml, µl, fl. To avoid misunderstandings, the word litre should be used in full, except in terms like g/l. Radioactivity should be given in becquerels (Bq or GBq) not in Ci. 1 MBq = 27·03 µCi (1Bq = 1 disintegration/s).

## Statistical treatment of results

Data from individual replicates should not be given for large experiments, but may be given for small studies. The methods of statistical analysis used should be described, and references to statistical analysis packages included in the text, for example: Statistical Analysis Systems statistical software package version 6.11 (SAS Institute, Cary, NC, USA). The description should provide enough information for a statistician with access to the data to reproduce the results presented. Information such as analysis of variance tables should be given in the paper only if they are relevant to the discussion. A statement of the number of replicates, their average value and some appropriate measure of variability is usually sufficient. Authors must state whether their data follow a Gaussian distribution or not, and the choice of statistical tests must be consistent with the distribution of the data.

***Justification for the sample size must be given***. If the study is based on a power calculation, details of this should be provided including the desired effect size and power as well as the estimate of variability that was used.

Comparisons between means can be made by using either confidence intervals (CI) or significance tests. The most appropriate of such measures is usually the standard error of a difference between means (SED) or the standard errors of the means (SEM). The SEM represents the uncertainty associated with the estimation of a given mean and is not directly related to the SED or comparisons among means in mixed models as it is in fixed effects models. The SED estimates the uncertainty associated with the difference between two means; because it is used in various mean comparisons tests, SED can be implied within the tests *per se*. The standard deviation (SD) is more useful only when there is specific interest in the variability of individual values and no treatment means are being compared. The sample size (n per treatment) should also be stated in text or in the table. Standard analysis of variance assumes homogeneous variance. Unless there is heterogeneous variance, as tested by an appropriate statistic, or there is unequal n, a pooled SEM or SED simplifies tables and is preferred. The number of decimal places quoted should be sufficient but not excessive. If data transformations are being used, text should clearly state which variables have been transformed in which way and how that was decision was reached (e.g., tests for normality, diagnostic plots).

Authors should consider whether their study is rather of explorative (hypothesis-generating) or confirmative (hypothesis-testing) nature. This is particularly important when results from multiple tests are being presented, which can be the case when various treatments are being compared, multiple endpoints are considered, or different subgroups are being analysed. Such multiple testing issues occur often in exploratory studies, and authors should take care not to overstate findings in these situations. At least the number of significant results should be compared to the number of tests compared, where 1 in 20 findings would be expected by chance alone. Methods that control certain error rates (experiment-wise error rate, false discovery rate, etc…) such as post-hoc tests can be used in this context, but are not obligatory, as long as the exploratory nature of the results is made clear. In confirmative studies, pre-planned comparisons or primary endpoints should be stated upfront and analysed by appropriate tools such as contrast testing for pre-planned comparisons. Unnecessary multiple testing corrections with respect to secondary comparisons or endpoints should be avoided to not compromise the power of the study.

Measurements on the same experimental unit over time or in different sections of tissue generally are not independent. If the repeated measures are taken from the same animal or human subject, which are expected to be randomly chosen to represent a population, an appropriate mixed model should be fitted while investigating the best covariance of error structures. All major statistical software packages offer a wide variety of structures; the one chosen should be stated.

If comparisons between means are made using CI, the format for presentation is, e.g. 'difference between means 0·73 (95 % CI 0·314, 1·36) g'. If significance tests are used, a statement that the difference between the means for two groups of values is (or is not) statistically significant should include the level of significance attained, preferably as an explicit *P* value (e.g. *P*=0·016 or *P*=0·32) rather than as a range (e.g. *P*<0·05 or *P*>0·05). It should be stated whether the significance levels quoted are one-sided or two-sided (when relevant). Where a multiple comparison procedure is used, a description or explicit reference should be given. Where appropriate, a superscript notation may be used in tables to denote levels of significance; similar superscripts should denote lack of a significant difference.

When the method of analysis is unusual, or if the experimental design is at all complex, further details (e.g., experimental plan, raw data, confirmation of assumptions, analysis of variance tables, etc.) should be included. Adequate detail should be provided for a subsequent reader to interpret and potentially repeat the approach used. For example, the statistical model should be provided or described in adequate detail, and all blocking factors and criteria should be provided. Regressions should provide appropriate estimates of parameter uncertainty (not necessarily provided by graphing software).

## Chemical formulas

These should be written as far as possible on a single horizontal line. With inorganic substances, formulas may be used from first mention. With salts, it must be stated whether or not the anhydrous material is used, e.g. anhydrous $CuSO_4$, or which of the different crystalline forms is meant, e.g. $CuSO_4.5H_2O$, $CuSO_4.H_2O$.

## Descriptions of solutions, compositions and concentrations

Solutions of common acids, bases and salts should be defined in terms of molarity (M), e.g. 0.1 M-$NaH_2PO_4$. Compositions expressed as mass per unit mass (w/w) should have values expressed as ng, µg, mg or g per kg; similarly for concentrations expressed as mass per unit volume (w/v), the denominator being the litre. If concentrations or compositions are expressed as a percentage, the basis for the composition should be specified (e.g. % (w/w) or % (w/v) etc.). The common measurements used in nutritional studies, e.g. digestibility, biological value and net protein utilization, should be expressed as decimals rather than as percentages, so that amounts of available nutrients can be obtained from analytical results by direct multiplication. See *Metric Units, Conversion Factors and Nomenclature in Nutritional and Food Sciences*. London: The Royal Society, 1972 (para. 8).

## Cell lines

The Journal expects authors to deposit cell lines (including microbial strains) used in any study to be published in publicly accessible culture collections, for example, the European Collection of Cell Cultures (ECACC) or the American Type Culture Collection (ATCC) and to refer to the collection and line or strain numbers in the text (e.g. ATCC 53103). Since the authenticity of subcultures of culture collection specimens that are distributed by individuals cannot be ensured, authors should indicate laboratory line or strain designations and donor sources as well as original culture collection identification numbers.

## Gene nomenclature and symbols

The use of symbols and nomenclature recommended by the HUGO Gene Nomenclature Committee is encouraged. Information on human genes is also available from Entrez Gene, on mouse genes from the Mouse Genome Database and on rat genes from the Rat Genome Database.

## Nomenclature of vitamins

Most of the names for vitamins and related compounds that are accepted by the Editors are those recommended by the IUNS Committee on Nomenclature. See *Nutrition Abstracts and Reviews* (1978) **48**A, 831–835.

| ***Acceptable name*** | ***Other names**** |
|---|---|
| *Vitamin A* | |
| Retinol | Vitamin $A_1$ |
| Retinaldehyde, retinal | Retinene |
| Retinoic acid (all-trans or 13-cis) | Vitamin $A_1$ acid |
| 3-Dehydroretinol | Vitamin $A_2$ |
| *Vitamin D* | |
| Ergocalciferol, ercalciol | Vitamin $D_2$ calciferol |
| Cholecalciferol, calciol | Vitamin $D_3$ |
| *Vitamin E* | |
| α-, β- and γ-tocopherols plus tocotrienols | |
| *Vitamin K* | |
| Phylloquinone | Vitamin $K_1$ |
| Menaquinone-n (MK-n)† | Vitamin $K_2$ |
| Menadione | Vitamin $K_3$, menaquinone, menaphthone |
| *Vitamin $B_1$* | |
| Thiamin | Aneurin(e), thiamine |
| *Vitamin $B_2$* | |
| Riboflavin | Vitamin G, riboflavine, lactoflavin |
| *Niacin* | |
| Nicotinamide | Vitamin PP |
| Nicotinic acid | |
| *Folic Acid* | |
| Pteroyl(mono)glutamic acid | Folacin, vitamin $B_c$ or M |
| *Vitamin $B_6$* | |
| Pyridoxine | Pyridoxol |
| Pyridoxal | |
| Pyridoxamine | |
| *Vitamin $B_{12}$* | |
| Cyanocobalamin | |
| Hydroxocobalamin | Vitamin $B_{12a}$ or $B_{12b}$ |
| Aquocobalamin | |
| Methylcobalamin | |
| Adenosylcobalamin | |
| *Inositol* | |
| *Myo*-inositol | *Meso*-inositol |
| *Choline* | |
| *Pantothenic acid* | |
| *Biotin* | Vitamin H |
| *Vitamin C* | |
| Ascorbic acid | |
| Dehydroascorbic acid | |

*Including some names that are still in use elsewhere, but are not used by BJN.
†Details of the nomenclature for these and other naturally-occurring quinones should follow the Tentative Rules of the IUPAC-IUB Commission on Biochemical Nomenclature (see *European Journal of Biochemistry* (1975) **53**, 15–18).

The terms **vitamin A**, **vitamin C** and **vitamin D** may still be used where appropriate, for example in phrases such as 'vitamin A deficiency', 'vitamin D activity'.

The term **vitamin E** should be used as the descriptor for all tocol and tocotrienol derivatives exhibiting qualitatively the biological activity of α-tocopherol. The term **tocopherols** should be used as the generic descriptor for all methyl tocols. Thus, the term **tocopherol** is not synonymous with the term **vitamin E**.

The term **vitamin K** should be used as the generic descriptor for 2-methyl-1,4-naphthoquinone (menaphthone) and all derivatives exhibiting qualitatively the biological activity of phylloquinone (phytylmenaquinone).

The term **niacin** should be used as the generic descriptor for pyridine 3-carboxylic acid and derivatives exhibiting qualitatively the biological activity of nicotinamide.

The term **vitamin $B_6$** should be used as the generic descriptor for all 2-methylpyridine derivatives exhibiting qualitatively the biological activity of pyridoxine.

Regarding **folate**, due to the wide range of C-substituted, unsubstituted, oxidized, reduced and mono- or polyglutamyl side-chain derivatives of pteroylmonoglutamic acid that exist in nature, it is not possible to provide a complete list. Authors are encouraged to use either the generic name or the correct scientific name(s) of the derivative(s), as appropriate for each circumstance.

The term **vitamin $B_{12}$** should be used as the generic descriptor for all corrinoids exhibiting qualitatively the biological activity of cyanocobalamin. The term **corrinoids** should be used as the generic descriptor for all compounds containing the corrin nucleus and thus chemically related to cyanocobalamin. The term **corrinoid** is not synonymous with the term **vitamin $B_{12}$**.

The terms **ascorbic acid** and **dehydroascorbic acid** will normally be taken as referring to the naturally-occurring L-forms. If the subject matter includes other optical isomers, authors are encouraged to include the L- or D- prefixes, as appropriate. The same is true for all those vitamins which can exist in both natural and alternative isomeric forms.

Weight units are acceptable for the amounts of vitamins in foods and diets. For concentrations in biological tissues, SI units should be used; however, the authors may, if they wish, also include other units, such as weights or international units, in parentheses. See *Metric Units, Conversion Factors and Nomenclature in Nutritional and Food Sciences* (1972) paras 8 and 14–20. London: The Royal Society.

## Nomenclature of fatty acids and lipids

In the description of results obtained for the analysis of fatty acids by conventional GLC, the shorthand designation proposed by Farquhar JW, Insull W, Rosen P, Stoffel W & Ahrens EH (*Nutrition Reviews* (1959), **17**, Suppl.) for individual fatty acids should be used in the text, tables and figures. Thus, 18 : 1 should be used to represent a fatty acid with eighteen carbon atoms and one double bond; if the position and configuration of the double bond is unknown. The shorthand designation should also be used in the abstract. If the positions and configurations of the double bonds are known, and these are important to the discussion, then a fatty acid such as linoleic acid may be referred to as *cis*-9,*cis*-12-18 : 2 (positions of double bonds related to the carboxyl carbon atom 1). However, to illustrate the metabolic relationship between different unsaturated fatty acid families, it is sometimes more helpful to number the double bonds in relation to the terminal methyl carbon atom, *n*. The preferred nomenclature is then: 18 : 3*n*-3 and 18 : 3*n*-6 for α-linolenic and γ-linolenic acids respectively; 18 : 2*n*-6 and 20 : 4*n*-6 for linoleic and arachidonic acids respectively and 18 : 1*n*-9 for oleic acid. Positional isomers such as α- and γ-linolenic acid should always be clearly distinguished. It is assumed that the double bonds are methylene-interrupted and are of the *cis*-configuration (see Holman RT in *Progress in the Chemistry of Fats and Other Lipids* (1966) vol. 9, part 1, p. 3. Oxford: Pergamon Press). Groups of fatty acids that have a common chain length but vary in their double bond content or double bond position should be referred to, for example, as $C_{20}$ fatty acids or $C_{20}$ PUFA. The modern nomenclature for glycerol esters should be used, i.e. triacylglycerol, diacylglycerol, monoacylglycerol *not* triglyceride, diglyceride, monoglyceride. The form of fatty acids used in diets should be clearly stated, i.e. whether ethyl esters, natural or refined fats or oils. The composition of the fatty acids in the dietary fat and tissue fats should be stated clearly, expressed as mol/100 mol or g/100 g total fatty acids.

## Nomenclature of micro-organisms

The correct name of the organism, conforming with international rules of nomenclature, should be used. If desired, synonyms may be added in parentheses when the name is first mentioned. Names of bacteria should conform to the current Bacteriological Code and the opinions issued by the International Committee on Systematic Bacteriology. Names of algae and fungi must conform to the current International Code of Botanical Nomenclature. Names of protozoa should conform to the current International Code of Zoological Nomenclature.

## Nomenclature of plants

For plant species where a common name is used that may not be universally intelligible, the Latin name in italics should follow the first mention of the common name. The cultivar should be given where appropriate.

## Other nomenclature, symbols and abbreviations

Authors should consult recent issues of BJN for guidance. The IUPAC rules on chemical nomenclature should be followed, and the recommendations of the Nomenclature Committee of IUBMB and the IUPAC-IUBMB Joint Commission on Biochemical Nomenclature and Nomenclature Commission of IUBMB in *Biochemical Nomenclature and Related Documents* (1992), 2nd ed., London: Portland Press (http://www.chem.qmul.ac.uk/iupac/bibliog/white.html). The symbols and abbreviations, other than units, are essentially those listed in *British Standard* 5775 (1979–1982), *Specifications for Quantities, Units and Symbols*, parts 0–13. Day should be abbreviated to d, for example 7 d, except for 'each day', '7th day' and 'day 1'.

Elements and simple chemicals (e.g. Fe and $CO_2$) can be referred to by their chemical symbol (with the exception of arsenic and iodine, which should be written in full) or formula from the first mention in the text; the title, text and table headings, and figure legends can be taken as exceptions,. Well-known abbreviations for chemical substances may be used without explanation, thus: RNA for ribonucleic acid and DNA for deoxyribonucleic acid. Other substances that are mentioned frequently (five or more times) may also be abbreviated, the abbreviation being placed in parentheses at the first mention, thus: lipoprotein lipase (LPL), after that, LPL, and an alphabetical list of abbreviations used should be included. Only accepted abbreviations may be used in the title and text headings. If an author's initials are mentioned in the text, they should be distinguished from other abbreviations by the use of stops, e.g. 'one of us (P. J. H.)…'. For UK counties the official names given in the *Concise Oxford Dictionary* (1995) should be used and for states of the USA two-letter abbreviations should be used, e.g. MA (not Mass.) and IL (not Ill.). Terms such as 'bioavailability' or 'available' may be used providing that the use of the term is adequately defined.

Spectrophotometric terms and symbols are those proposed in *IUPAC Manual of Symbols and Terminology for Physicochemical Quantities and Units* (1979) London: Butterworths. The attention of authors is particularly drawn to the following symbols: m (milli, $10^{-3}$), µ (micro, $10^{-6}$), n (nano, $10^{-9}$) and p (pico, $10^{-12}$). Note also that ml (millilitre) should be used instead of cc, µm (micrometre) instead of µ (micron) and µg (microgram) instead of γ.

Numerals should be used with units, for example, 10 g, 7 d, 4 years (except when beginning a sentence, thus: 'Four years ago...'); otherwise, words (except when 100 or more), thus: one man, ten ewes, ninety-nine flasks, three times (but with decimal, 2.5 times), 100 patients, 120 cows, 136 samples.

## Abbreviations

The following abbreviations are accepted without definition by BJN:

| | |
|---|---|
| ADP (GDP) | adenosine (guanosine) 5'-disphosphate |
| AIDS | acquired immune deficiency syndrome |
| AMP (GMP) | adenosine (guanosine) 5'-monophosphate |
| ANCOVA | analysis of covariance |
| ANOVA | analysis of variance |
| apo | apolipoprotein |
| ATP (GTP) | adenosine (guanosine) 5'-triphosphate |
| AUC | area under the curve |
| BMI | body mass index |
| BMR | basal metabolic rate |

| | |
|---|---|
| bp | base pair |
| BSE | bovine spongiform encephalopathy |
| CHD | coronary heart disease |
| CI | confidence interval |
| CJD | Creutzfeldt-Jacob disease |
| CoA and acyl-CoA | co-enzyme A and its acyl derivatives |
| CV | coefficient of variation |
| CVD | cardiovascular disease |
| Df | degrees of freedom |
| DHA | docosahexaenoic acid |
| DM | dry matter |
| DNA | deoxyribonucleic acid |
| dpm | disintegrations per minute |
| EDTA | ethylenediaminetetra-acetic acid |
| ELISA | enzyme-linked immunosorbent assay |
| EPA | eicosapentaenoic acid |
| Expt | experiment (for specified experiment, e.g. Expt 1) |
| FAD | flavin-adenine dinucleotide |
| FAO | Food and Agriculture Organization (except when used as an author) |
| FFQ | food-frequency questionnaire |
| FMN | flavin mononucleotide |
| GC | gas chromatography |
| GLC | gas–liquid chromatography |
| GLUT | glucose transporter |
| GM | genetically modified |
| Hb | haemoglobin |
| HDL | high-density lipoprotein |
| HEPES | 4-(2-hydroxyethyl)-1-piperazine-ethanesulfonic acid |
| HIV | human immunodeficiency virus |
| HPLC | high-performance liquid chromatography |
| Ig | immunoglobulin |
| IHD | ischaemic heart disease |
| IL | interleukin |
| IR | infra red |
| Kb | kilobases |
| $K_m$ | Michaelis constant |
| LDL | low-density lipoprotein |
| MHC | major histocompatibility complex |
| MRI | magnetic resonance imaging |
| MS | mass spectrometry |
| MUFA | monounsaturated fatty acids |
| NAD+, NADH | oxidized and reduced nicotinamide-adenine dinucleotide |
| NADP+, NADPH | oxidized and reduced nicotinamide-adenine dinucleotide phosphate |
| NEFA | non-esterified fatty acids |
| NF-κB | nuclear factor kappa B |
| NMR | nuclear magnetic resonance |
| NS | not significant |
| NSP | non-starch polysaccharide |
| OR | odds ratio |
| PAGE | polyacrylamide gel electrophoresis |
| PBS | phosphate-buffered saline |
| PCR | polymerase chain reaction |
| PG | prostaglandin |
| PPAR | peroxisome proliferator-activated receptor |
| PUFA | polyunsaturated fatty acids |
| RDA | recommended dietary allowance |
| RER | respiratory exchange ratio |
| RIA | radioimmunoassay |
| RMR | resting metabolic rate |
| RNA, mRNA etc. | ribonucleic acid, messenger RNA etc. |
| rpm | revolutions per minute |
| RT | reverse transcriptase |

| | |
|---|---|
| SCFA | short-chain fatty acids |
| SDS | sodium dodecyl sulphate |
| SED | standard error of the difference between means |
| SFA | saturated fatty acids |
| SNP | single nucleotide polymorphism |
| TAG | triacylglycerol |
| TCA | trichloroacetic acid |
| TLC | thin-layer chromatography |
| TNF | tumour necrosis factor |
| UN | United Nations (except when used as an author) |
| UNICEF | United Nations International Children's Emergency Fund |
| UV | ultra violet |
| VLDL | very-low-density lipoprotein |
| $V_{O2}$ | $O_2$ consumption |
| $V_{O2max}$ | maximum $O_2$ consumption |
| WHO | World Health Organization (except when used as an author) |

Use of three-letter versions of amino acids in tables: Leu, His, etc.
CTP, UTP, GTP, ITP, as we already use ATP, AMP etc.

## Disallowed words and phrases

The following are disallowed by BJN:

deuterium or tritium (use $^2H$ and $^3H$)
c.a. or around (use approximately or about)
canola (use rapeseed)
ether (use diethyl ether)
free fatty acids (use NEFA)
isocalorific/calorie (use isoenergetic/energy)
quantitate (use quantify)
unpublished data or observations (use unpublished results)