



American Society for Nutrition Guide for Authors

[The Journal of Nutrition \(JN\)](#), [The American Journal of Clinical Nutrition \(AJCN\)](#), [Advances in Nutrition: An International Review Journal \(Advances\)](#), and [Current Developments in Nutrition \(CDN\)](#) are owned by the American Society for Nutrition (ASN) and published by Elsevier.

Submission Procedures

ASN’s journals now use a hassle-free submission process for initial submissions, allowing authors to submit manuscripts with minimal formatting. Only at revision will authors be asked to format their manuscript in compliance with journal style. An optional [manuscript template](#) with detailed guidance is provided to support compliance with formatting requirements at revision. Manuscript submissions should be made using the respective manuscript submission sites listed below.

Table 1: Resources for publishing in ASN’s journals.

Journal	Article Submission Site	Email Support
 THE JOURNAL OF NUTRITION	<u>JN submissions</u>	<u>JN support</u>
 The American Journal of CLINICAL NUTRITION	<u>AJCN submissions</u>	<u>AJCN support</u>
 Advances in Nutrition <small>AN INTERNATIONAL REVIEW JOURNAL</small>	<u>Advances submissions</u>	<u>Advances support</u>
 Current Developments in Nutrition	<u>CDN submissions</u>	<u>CDN support</u>

If you have questions about submitting or encounter problems in the submission or peer review process, you can contact each journal's respective editorial office using the e-mails listed in Table 1. Support is also available via phone, chat, or e-mail 24 hours/day from Elsevier's [Journal Article Publishing Support Center](#). Questions related to the submission of a manuscript or changes in a manuscript submission should be submitted by the manuscript corresponding author. All correspondence from journal staff regarding a manuscript submission will be directed to the manuscript corresponding author.

Peer Review

ASN's journals use a single-anonymous review process, meaning that reviewers are aware of the authors' identity, but the reviewers' identities are not disclosed. Letters to the Editor, Editorials, Corrections, Great Debates in Nutrition, and New Developments from Federal Colleagues may be reviewed only by the Editors. Review of articles published From the American Society for Nutrition is overseen by ASN's Board of Directors. All other content is sent to outside experts for review. Manuscript decisions can be appealed by writing to the Editor who issued the decision letter. As necessary, appeals may be escalated to the Editor-in-Chief. All published content is optimized for search engine recognition, indexed in multiple databases, and archived in [CLOCKSS](#).

Accepted Manuscript Publication

Most articles are published shortly after manuscript acceptance as Articles in Press as "journal pre-proofs." It will be replaced by the "uncorrected proofs," followed by the "corrected proofs," before publishing into a journal issue. Digital Object Identifiers (DOIs) are assigned when the first version of the manuscript publishes and are never changed. More information about article versions published can be found [here](#). *CDN* sends articles to PubMed for indexing at manuscript acceptance, and ASN's other journals send content after copyediting. Articles are updated on PubMed upon publication into a journal issue.

Types of Manuscripts

Original Research Articles

Original research manuscripts are the cornerstone of *JN*, *AJCN*, and *CDN*. Manuscripts should have a well-defined hypothesis and report on reproducible, quantifiable outcomes. All research papers will be reviewed with ASN's traditionally rigorous peer review, which includes evaluation of the study design, novelty, potential impact to the field, and interest to the broad nutrition community. *CDN* places comparatively less emphasis on novelty. In accordance with the [Clinical Trial Registration](#)

[Statement from the International Committee of Medical Journal Editors \(ICMJE\)](#) all clinical trials published in ASN journals must be registered in an ICMJE-approved public trials registry at or before the onset of participant enrolment. Approved registries can be found on the [ICMJE FAQ page](#).

Reviews

All ASN journals welcome rigorous, balanced reviews on topics of interest to the field. If you have a concern about whether your topic fits within the scope of the journal, please contact the journal's editor. All review articles undergo the same peer-review and editorial process as original research reports.

Systematic Reviews and Meta-analyses

All ASN journals publish systematic reviews with or without meta-analyses. *JN*, *AJCN*, and *CDN* classify these articles as original research. Other reviews involving reanalysis of published data such as scoping or umbrella reviews also will be considered. Systematic reviews must be pre-registered in [PROSPERO](#).

Editorials

Editorials on concurrently published original research articles containing noteworthy findings are published at the invitation of Associate Editors or the Editor-in-Chief. The Editorials section also may be used to present ASN-related articles on nutritional science and education.

Perspectives

Articles that advance a particular viewpoint will be considered Perspectives, but they must acknowledge alternate views. Perspectives should be written within the context of an informed consideration of the state of the art of the topic. Views should be defended with published literature to the extent possible.

Letters to the Editor

Letters to the Editor may be submitted via the journal's manuscript submission system. Letters are expected to provide substantive comments on papers published in the journal within the previous 6 months. ASN's research journals generally do not publish Letters to the Editor based on opinion pieces such as editorials, perspectives, or commentaries, as these are clearly the opinions of the authors. ASN discourages inclusion of unpublished data in Letters to the Editor. The Letter and a

reply, if appropriate, are published together whenever possible. Letters, including up to 10 references, are limited to 1000 words, and will be reviewed prior to acceptance. All Letters to the Editor must include a conflict-of-interest statement indicating sources of funding.

Publication Charges

ASN is pleased to announce that all page and color charges were dropped effective January 1, 2023. Submission fees will not be reinstated, meaning that there will be no charge to publish under the subscription model in ASN’s hybrid journals, *AJCN* and *JN*. Per manuscript fees are assessed to publish under an open access license in all ASN journals. Open access licenses are optional for *JN* and *AJCN* but all content published in *Advances* and *CDN* is published open access.

Standard ASN member and non-member rates are listed below. Authors in developing countries may qualify for a waiver or discount through the [Research4Life program](#). Additional discounts may apply. For a full list of available discounts, please visit each journal’s Open Access page.

Table 2: Publication fees for ASN’s journals

	<i>JN</i>	<i>AJCN</i>	<i>Advances</i>	<i>CDN</i>
Submission fee	\$0	\$0	\$0	\$0
Page charges	\$0	\$0	\$0	\$0
Color charge	\$0	\$0	\$0	\$0
Open Access License*	Optional	Optional	Required	Required
ASN Members	\$4000	\$4000	\$4000	\$3200
ASN Non-members**	US\$5000	US\$5000	US\$5000	US\$4000
Open Access page	here	here	here	here

*Open access licenses are optional in *JN* and *AJCN*, but required by *Advances* and *CDN*. Note that research funder requirements may mandate a specific license and journal types. Listed fees exclude taxes.

**Non-members can receive a 20% by joining the [American Society for Nutrition](#). See rates in Table 2.

Still have questions about publication fees? Contact publications@nutrition.org.

Manuscript Preparation

[American Society for Nutrition](#) (ASN) journal editors know first-hand the amount of time and effort it takes to generate the highest quality research. That is why we have introduced a streamlined first submission policy. Original submissions are now hassle-free, with limited formatting requirements. ASN journal editors have worked to create a single ASN Journal style so that authors can seamlessly transfer submissions between ASN journals with little need for formatting edits. Adhering to ASN guidelines for formatting will be expected only for revised manuscripts. This approach should facilitate original submissions to ASN journals and reduce the workload for authors. However,

Conflict of Interest statements for each author, continuous line numbers, page numbers, and clinical trial or systematic review registration numbers (PROSPERO), where applicable, must be included with initial submissions. AJCN requires, and *JN and CDN* encourage, authors to include a health research report checklist and participant flowchart with all initial research submissions. Checklists are listed by the [EQUATOR network](#). Other formatting requirements will be addressed with requests for revisions. Authors may choose to use this [manuscript submission template](#) to support compliance with formatting requirements.

Formatting

Prepare your revised manuscript, including figure legends and tables, in Microsoft Word format. The manuscript should be formatted as follows: 216 x 279 mm (8½ x 11 in) or ISO A4 (212 x 297 mm), with margins of at least 2.5 cm (1 in); use double-spacing and 12-point font throughout. Do not justify the right margin. The abstract and text pages should have consecutive line numbers in the left margin beginning in the abstract and ending before the reference section.

For optimum legibility we recommend that you use only certain fonts in your document: Times, Times New Roman, Courier, Helvetica, Arial, and the Symbol font for special characters.

Cover Letter

Corresponding authors may choose to submit a cover letter, which can be added to the Comments field. The editors encourage authors to use the cover letter to explicitly indicate the novelty or other noteworthy features of their submission.

Third-party Permissions

To reproduce any third-party material, including tables, figures, or images in an article, authors must obtain permission from the copyright holder and be compliant with any requirements the copyright holder may have pertaining to this reuse. When seeking to reproduce any kind of third-party material, authors should request the following:

- non-exclusive rights to reproduce the material in the specified article and journal;
- electronic rights, preferably for use in any form or medium;
- the right to use the material for the life of the work; and
- world-wide English-language rights.

It is particularly important to clear permission for use in online versions of ASN journals. We cannot accept permissions which carry a time limit because we retain journal articles as part of our online journal archive.

Guidance for obtaining permissions is available at

<https://www.elsevier.com/about/policies/copyright/permissions>.

Manuscript Requirements

Original Research Articles should include the sections listed below.

1. Title Page
2. Abstract
3. Introduction
4. Methods
5. Results
6. Discussion
7. Acknowledgments, statement of authors' contributions to manuscript, and data sharing plan
8. References

1. Title Page

The title page (which can be longer than 1 page) must include;

- a. Title of the article;
- b. The names of all authors (first name, middle initial, last name);
- c. Author Affiliations (departmental and institutional) at the time the research was done;
- d. Disclaimers, if any;
- e. Sources of support for the work; include sponsor names along with explanations of the role of those sources if any in study design; collection, analysis, and interpretation of data; writing of the report; any restrictions regarding the submission of the report for publication; or a statement declaring that the supporting source had no such involvement or restrictions regarding publication;
- f. Corresponding Author's name, mailing address, telephone number, and e-mail address; and
- g. An alphabetized list of abbreviations and their definitions for all non-standard abbreviations used in the text, if there are 3 or more.

2. Abstract

A properly constructed and informative abstract is helpful for the initial editorial review of the submitted manuscript. Abstracts are limited to 300 words. Original research articles must include a structured abstract that is written in complete sentences and includes the following headings:

- *Background*: Provide 1 or 2 sentences that explain the context of the study.
- *Objective*: State the precise objective, the specific hypothesis to be tested, or both.
- *Methods*: Describe the study design, including the use of cells, animal models, or participants. Identify the control. Identify specific methods, procedures, and if appropriate, statistical analysis used. Describe interventions, if used.
- *Results*: Report the most important findings, including results of statistical analyses.
- *Conclusions*: Summarize in 1 or 2 sentences the primary outcomes of the study, including their potential clinical importance, if relevant (avoid generalizations). Include the participants, animals, or cells studied.
- (If applicable) Clinical Trial Registry number and website where it was obtained (please provide a direct link to the trial page, preferably the English-language version).
- (If applicable) Registry and registry number for systematic reviews or meta-analyses. An appropriate registry for systematic reviews and meta-analyses is [PROSPERO](#).
- (*Advances* only) add a 1-2 sentence Statement of Significance indicating explicitly what is truly new in the present work compared to work already published in the field.

Review articles, perspectives, special articles, and reports should include an unstructured abstract that states the purpose of the article and emphasizes the major concepts and conclusions.

To increase discoverability, any standard or non-standard abbreviations used in the abstract (except for gene and protein names, for brevity) should be defined in the abstract at first mention.

Below the abstract, provide 5–10 keywords or short phrases, including the group or organism studied, that will help to increase the discoverability of your manuscript; do not use adjectives. Terms that are fundamental to your manuscript but are not included in your manuscript title or abstract are especially important to include to increase discoverability by indexing services such as PubMed.

Please note that during manuscript submission, you will be asked to supply keywords to assist the editors in identifying suitable reviewers for your manuscript. Keywords for reviewer searches should include the terms most fundamental to your manuscript and may differ from your list of keywords for publication.

3. Introduction

Describe clearly the background to the research conducted and the specific objectives. This should not be a comprehensive review of the literature, however. State the specific objective or hypothesis of the study. Do not include methods, data, results, or conclusions from the work being reported.

4. Methods

Documentation of methods and materials used should be sufficient to permit replication of the research. Describe clearly the experimental design including the control and experimental group and provide eligibility and exclusion criteria and details of randomization. Define all group designations parenthetically at first mention [for example, “control (CON) and high-fat (HF) group”] and include definitions for these abbreviations in the abbreviation footnote on the title page. Describe the methods for, and success of, any masking (blinding) of observations. Report any complications of experimental treatments. For meta-analysis, describe detailed statistical approaches for the combination of data, sensitivity analyses, and testing for potential bias.

State the product name and manufacturer of specialized materials, diets, chemicals, and instruments and other equipment, where appropriate. Specify kits, analyzers, and commercial laboratories used. Identify precisely all drugs and chemicals used, including generic names, dosages, and routes of administration. If trade names for drugs and chemicals are included, give the manufacturer’s name. Do not use trademark names, such as Teflon, as generic terms. Give references for established methods, including statistical methods; provide references and brief descriptions of methods that have been published but are not well known; and describe new or substantially modified methods, giving reasons for using them and evaluating their limitations.

Animal Diets. Composition of control and experimental diets must be presented. When a diet composition is published for the first time in an ASN journal, provide complete information on all components in a table. If previously described in an ASN journal, a reference may be cited. State specifically any modifications made to the published diet compositions. The proximate composition of closed formula diets should be given as amounts of energy, protein, fat, carbohydrate, and fiber. For diets varying in energy density, include percent energy contributions from protein, fat, and carbohydrate. Vitamin and mineral mixture compositions should be included using units and nomenclature as described below. For discussion of the formulation of purified animal diets, refer to the following publications.

- Pellizzon MA and Ricci MR. [Choice of Laboratory Rodent Diet May Confound Data Interpretation and Reproducibility](#). *Curr Dev Nutr* 2020;4:nzaa031.
- Baker DH. [Problems and pitfalls in animal experiments designed to establish dietary requirements for essential nutrients](#). *J Nutr* 1986;116:2339–49.
- American Institute of Nutrition. [Report of the American Institute of Nutrition ad hoc committee on standards for nutritional studies](#). *J Nutr* 1977;107:1340–48.
- American Institute of Nutrition. [Second report of the ad hoc committee on standards for nutritional studies](#). *J Nutr* 1980;110:1726.
- American Institute of Nutrition. [Guidelines for describing diets for experimental animals](#). *J Nutr* 1987;117:16–7.
- American Institute of Nutrition. [AIN-93 purified diets for laboratory rodents: final report of the American Institute of Nutrition ad hoc writing committee on the reformulation of the AIN-76A rodent diet](#). *J Nutr* 1993;123:1939–51.

The experimental diets should differ from the control diets only in the nutrient(s) being investigated. Nonpurified diets generally should not be used as control diets in rodent species; rodents fed these diets generally should be included for reference only and their data should not be included in the statistical analysis.

The Editors encourage authors to read "[A guide for authors and readers of the American Society for Nutrition Journals on the proper use of *P* values and strategies that promote transparency and improve research reproducibility](#)."

5. Results

Present your results in a logical sequence in the text, tables, and figures. Do not present specifics of data more than once and do not duplicate data from tables or figures in the text. Do not present identifiable data from individual participants except for very compelling reasons. Report losses to observation (such as dropouts from a clinical trial). Use boldface for the first mention of each table or figure.

6. Discussion

Emphasize concisely the important aspects of the study and the conclusions that follow from them. Do not repeat in detail data or other material given in the Introduction or Results. Include the implications of the findings and their limitations and relate the observations to other relevant studies. Link conclusions with the goals of the study and avoid unqualified statements and

conclusions that are not completely supported by the data. Avoid claiming priority and alluding to work that has not been completed. State new hypotheses and recommendations when warranted by the results and label them clearly as such.

7. Acknowledgements

Acknowledge only persons who have made substantive contributions to the study. Technical assistance and advice may be acknowledged. Include only named individuals in this section.

Statement of authors' contributions to manuscript. Authors must indicate their contribution(s) to the manuscript in the Acknowledgments section. Use the relevant descriptors listed below unless the author performed a function that is not covered by one of these. All manuscripts, including reviews, must indicate who is responsible for design, writing, and final content and must include a statement affirming that all authors have read and approved the manuscript. The initials of all authors must be included.

1. designed research (project conception, development of overall research plan, and study oversight).
2. conducted research (hands-on conduct of the experiments and data collection).
3. provided essential reagents, or provided essential materials (applies to authors who contributed by providing animals, constructs, databases, etc., necessary for the research).
4. analyzed data or performed statistical analysis.
5. wrote paper (only authors who made a major contribution).
6. had primary responsibility for final content.
7. other (use only if categories above are not applicable; describe briefly).
8. All authors have read and approved the final manuscript. For single-authored research papers and reviews, please state: The sole author had responsibility for all parts of the manuscript.

Please do not include "obtained funding." The initials of authors who received grants may be included in the footnote on the title page regarding Support. An example is:

AX, RFG, and PGY designed research; RFG and QC conducted research; PT analyzed data; and AX, PGY and QC wrote the paper. PGY had primary responsibility for final content. All authors read and approved the final manuscript.

Data Sharing. ASN editors encourage authors to share raw data. Authors must state after the Acknowledgements one of the following:

1. Data described in the manuscript, code book, and analytic code will be made publicly and freely available without restriction at [URL link].
2. Data described in the manuscript, code book, and analytic code will be made available upon request pending [e.g., application and approval, payment, other].
3. Data described in the manuscript, code book, and analytic code will not be made available because [specify reason].

This journal encourages you to cite underlying or relevant datasets in your manuscript by citing them in your text and including a data reference in your Reference List. Data references should include the following elements: author name(s), dataset title, data repository, version (where available), year, and global persistent identifier. Add [dataset] immediately before the reference so we can properly identify it as a data reference. The [dataset] identifier will not appear in your published article. If you are sharing data, you are encouraged to cite the data in your manuscript and reference list.

For more information on depositing, sharing and using research data and other relevant research materials, visit the research data page at <https://www.elsevier.com/authors/author-resources/research-data>.

Clinical trials that began enrolling participants on or after 1 January 2019 must include a data sharing plan in the trial's registration.

8. References

ASN journals' reference format is consistent with the [NLM's International Committee of Medical Journal Editors \(ICMJE\) Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals: Sample References](#) webpage and detailed in the [NLM's Citing Medicine, 2nd edition](#). Number references consecutively in the order in which they are first mentioned in the text. For a standard journal article with more than 6 authors, please list the first 6 authors before using "et al."; list all authors when there are 6 or fewer. In the text, identify references by Arabic numerals in parentheses before the punctuation, not as superscripts. When references are called out in the text by author, use as appropriate: Author (#), Author 1 and Author 2 (#), or Author 1 et al. (#). Authors are encouraged to number citations appearing in tables and figure legends according to the first call out of the table or figure in the text. Supplementary Material should have a separate Supplementary References section if papers not cited in the manuscript are included.

Guidance on citing software can be found at [Recognizing the value of software: a software citation guide](#). Avoid citing published abstracts as references. If a published abstract must be cited, include “(abstr)” at the end of the reference. Abstracts from scientific meetings not published in peer-reviewed journals may not be used as references. Unpublished observations and personal communications (written, not oral) may not be used as references but may be inserted in parentheses with the full names of the responsible researchers, their institutional affiliation, and the year of the observation or communication. Authors are responsible for obtaining written permission from everyone so cited and for providing to the Editor a copy of the permission, if requested. Doctoral dissertations may be used as references. Include manuscripts accepted but not yet published; designate journal name followed by “(in press).” Report foreign titles in the original language, identify the language, and provide the English translation in parentheses. The references must be verified by the author against the original documents.

Journal Style

Articles are copyedited according to American Society for Nutrition journal style, the International Committee of Medical Journal Editors’ [“Recommendations for the Conduct, Reporting, Editing and Publication of Scholarly Work in Medical Journals,”](#) and the style manual of the Council of Science Editors (Scientific style and format: the CSE manual for authors, editors, and publishers. 8th ed. Chicago: The University of Chicago Press; 2014).

Use active voice whenever possible. Use past tense when describing and discussing the experimental work on which the article is based. Reserve present tense for reference to existing knowledge or prevailing concepts and for stating conclusions from the experimental work. Clearly differentiate previous knowledge and new contributions.

Use “sex” when referring to biological factors and “gender” when referring to gender identity, or psychosocial or cultural factors. The terms “male” and “female” are preferable to “man” and “woman.”

ASN strongly recommends the use of “people-first language”. This includes describing individuals as people with a medical condition rather than as diseases or disabilities. Terms such as “adults with obesity” and “children with diabetes” are preferred over “obese adults” and “diabetic children”. For more information consult [“Use of people-first language with regard to obesity”](#) *Am J Clin Nutr* 2018;108:201 or [“The Effect of Words on Health and Diabetes”](#) *Diabetes Spectrum* 2017;30:11-16.

Race and ethnicity are important concepts in the nutrition literature, but race is essentially a social and not biologic concept, and race and ethnicity should not be conflated. Attempts to describe the racial background of the population studied, or conclusions drawn, should be made accordingly, and should include other social factors that might explain a paper's findings. "Ethnicity" should describe traditions, lifestyle, language, diet, and values, and "ancestry" should describe ancestry informative markers (AIM) based on genetic or genomic data. When race, ethnicity and/or ancestry are described, authors should specify what methods were used for these classifications. For a more detailed description of this topic please see [Race, ethnicity, and racism in the nutrition literature: an update for 2020](#) and [The Reporting of Race and Ethnicity in Medical and Science Journals](#).

Units of Measure

Metric units are required (e.g., m, kg, and L for length, weight, and volume, respectively), as is the Celsius scale (°C). For reporting data, use of SI units (le Système Internationale d'Unités) is preferred (e.g., mmol/L, g/L) but not mandatory. Conventional units such as mg/dL and mg/mL are acceptable, using L, not l, for liter. Energy may be expressed in kilocalories or joules; the conversion factor for converting kilocalories to kilojoules is 4.184. Do not report energy in Calories with a capital C; use kcal, MJ, or kJ instead. Use units for the same analyte/compound consistently throughout the manuscript. Placing an alternate unit parenthetically in the text or giving conversion factors in table footnotes or figure legends is acceptable and required for conventional units such as pound, cup, teaspoon, mile, etc. Useful websites are:

- SI conversions: [Online Conversion](#)
- SI conversions: [Wikipedia - Conversion of Units](#)
- Clinical SI conversions: [JCS Clinical Laboratory Units Conversion](#)

Abbreviations

Use [standard abbreviations](#) in manuscripts without definition in the text. Standard abbreviations, however, should be defined at first mention in the abstract. Other common standard abbreviations are listed in [Scientific Style and Format](#). Standard gene and protein symbols, as defined in the species-specific databases below listed under Nomenclature, should be defined at 1st mention in the text and included in the overall alphabetized abbreviation footnotes. Standard gene and protein symbols should not be defined in the abstract, figure legend, or table footnotes unless they are not used in the text and are not included in the overall abbreviation footnote.

Each nonstandard (author-defined) abbreviation should be defined in the abstract (except protein and gene names, for brevity) and in the text at first mention. If three or more nonstandard abbreviations are used in the text, prepare an abbreviation footnote. The footnote will be associated with the first abbreviated term in the text and should be an alphabetized listing of all author-defined abbreviations and their definitions. Group designations should be defined parenthetically at first mention [for example, “control (CON) and high-fat (HF) group”] and included in the abbreviation footnote. Abbreviations should not be followed by a period. Use the standard abbreviations for SI prefixes found in [Young](#) and in [Table 2](#) and those for units of measure in [Table 3](#).

All nonstandard abbreviations, including group or treatment designations, used in a table or table title must be defined alphabetically in a footnote to the table title. Similarly, all nonstandard abbreviations, including group or treatment designations, used in a figure or figure legend must be defined alphabetically at the end of the figure legend.

Nomenclature

In general, ASN journals follow the nomenclature policies of the IUPAC-IUB Joint Commission on Biochemical Nomenclature. The vitamin nomenclature is summarized at [J Nutr 1990:120:12-19](#), and the amino acid nomenclature is summarized at [J Nutr. 1987:117:15](#). Authors are responsible for ensuring that their terminology conforms with these policies. For fatty acids, use the ω or n system consistently with a colon to separate the chain length and number of bonds (e.g., 18:2 n -6, 20:5 n -3, 18:2 ω -6, 20:5 ω -3). For guidelines on gene and protein nomenclature, authors should consult the following websites.

- Proteins: [ExpASY](#): Swiss Bioinformatics Resource Portal
- Human: [HUGO Gene Nomenclature Committee](#) (HGNC)
- Mouse: [Mouse Genome Nomenclature Committee](#) (MGNC)
- Rat: [Rat Genome and Nomenclature Committee](#) (RGNC)
- Bovine: [Bovine Genome Database](#) (BGD)
- Chicken and other avians: [Chicken Gene Nomenclature Committee](#) (CGNC)
- Xenopus and other amphibian: [Xenbase](#)
- [Vertebrate Gene Nomenclature Committee](#) (VGNC)
- Zebrafish and other piscine: [Zebrafish Model Organism Database](#)
- *Drosophila*: [Flybase: A Database of *Drosophila* Genes & Genomes](#)

Tables and Figures

Cite tables and figures sequentially in the text with the first citation of each table and figure in bold font. Each table and figure legend should contain enough detail (including statistical methods employed) that the content is intelligible without reference to the text and can be used independently from the text in presentations and teaching.

Tables

Tables must be included in the text file following the references, and each table should begin on a new page. Please do not upload tables as separate files. Each table should have a title that clearly but concisely describes the treatments and experimental cells, animals, or participants. Information concerning methods or explanatory material can be included in footnotes to the table. For footnotes, use superscript Arabic numerals. Clearly indicate units of measure after the variable in rows, above the first value in each column, or centered over all columns to which the unit applies. Show statistics of variability (e.g., SD, pooled SEM) and the significance of differences among the data, as well as the number of independent observations (n) associated with the data presented.

Figures

Submit each figure in a separate file. Compile figure titles and legends on one or more pages in the manuscript's text file rather than on the figure itself, but include figure keys on figures, within the bounds of the graphs or on X-axes, not in legends. Figure titles should concisely describe the animals, cells, or participants studied and treatments but are not required to call out panels. For figures with 2 or more panels, describe each panel in the legend, beginning with the panel letter. Minimize repetition of methodology, but specific assay conditions can be given.

Submit all panels of a multipanel figure on a single page, aligning the panels horizontally and/or vertically with one another. Minimize white space within and between panels. Label each panel, A, B, C, D, etc., without the word "figure" or the figure number, in the upper-left corner of the panel.

Label axes clearly with variables and where appropriate, units of measure. Show significant differences using symbols or letters. Remove outer boxes and background horizontal or vertical lines from figures and figure panels.

Although ASN journals are not printed, all articles are composed in multiple formats, including PDF. For figures to appear proportionate to the text on the composed PDF, reduced text size should be

approximately 8 points. You may have to enlarge the digital file to view the figure at these dimensions. Most figures can be composed in a single column of text that is less than 8.5 cm.

There is no charge for the use of color in figures.

Image Resolution

If a figure is very small in the manuscript submission system-generated PDF file, the resolution of the figure file likely is not high enough. Upload a higher resolution figure before approving the PDF.

Electronic Artwork

General points

- Make sure you use uniform lettering and sizing of your original artwork.
- Embed the fonts used if the application provides that option.
- Aim to use the following fonts in your illustrations: Arial, Courier, Times New Roman, Symbol, or use fonts that look similar.
- Number the illustrations according to their sequence in the text.
- Use a logical naming convention for your artwork files.
- Provide captions to illustrations separately.
- Size the illustrations close to the desired dimensions of the published version.
- Submit each illustration as a separate file.
- Ensure that color images are accessible to all, including those with impaired color vision.

A detailed guide in electronic artwork is available at <https://www.elsevier.com/authors/author-schemas/artwork-and-media-instructions>.

You are urged to visit this site; some excerpts from the detailed information are given here.

Formats

- If your electronic artwork is created in a Microsoft Office application (Word, PowerPoint, Excel) then please supply 'as is' in the native document format.
- Regardless of the application used other than Microsoft Office, when your electronic artwork is finalized, please 'Save as' or convert the images to one of the following formats (note the resolution requirements for line drawings, halftones, and line/halftone combinations given below):

- EPS (or PDF): Vector drawings, embed all used fonts.
- TIFF (or JPEG): Color or grayscale photographs (halftones), keep to a minimum of 300 dpi.
- TIFF (or JPEG): Bitmapped (pure black & white pixels) line drawings, keep to a minimum of 1000 dpi.
- TIFF (or JPEG): Combinations bitmapped line/half-tone (color or grayscale), keep to a minimum of 500 dpi.

Please do not:

- Supply files that are optimized for screen use (e.g., GIF, BMP, PICT, WPG); these typically have a low number of pixels and limited set of colors;
- Supply files that are too low in resolution;
- Submit graphics that are disproportionately large for the content.

Conflicts of Interest

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Supplementary Data

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