

CLINICAL SCIENCE

1991

Guidance for Authors

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1. POLICY OF THE JOURNAL

1.1. Scope

Clinical Science publishes papers in the field of clinical investigation, provided they are of a suitable standard and contribute to the advancement of knowledge in this field. The term 'clinical investigation' is used in its broadest sense to include studies in animals and the whole range of biochemical, physiological, immunological and other approaches that may have relevance to disease in man. Studies which are confined to normal subjects, or animals, or are purely methodological in nature may be acceptable. The material presented should permit conclusions to be drawn and should not be only of a preliminary nature. The journal publishes four types of manuscript, namely invited Editorial Reviews, Full Papers, Rapid Communications and Correspondence. In addition, *Clinical Science* publishes abstracts of the proceedings of the Medical Research Society (as Supplements) and also the Society's Annual Guest Lecture.

1.2. The Editorial Board

The Board comprises Editors for the Medical Research Society and the Biochemical Society and a Chairman and two Deputy Chairmen who are drawn alternately from the two Societies. Members of the Board retire after a maximum of 5 years; the Chairman serves in his capacity for 2 years. The membership of the Board is designed to cover as wide a range of interests as possible.

The main function of the Board is to decide on the acceptability of submitted papers, but it also deals with general matters of editorial policy. Financial policy is dealt with separately by the Committee of Management.

1.3. The editorial process

A submitted paper is first read by the Chairman or one of the Deputy Chairmen of the Editorial Board who then sends it to an Editor. The latter considers the paper in detail and sends it to one or more referees (who remain anonymous) from outside the membership of the Board. The Editor returns it with his recommendation to the Chairman who then writes formally to the authors. The ultimate responsibility of acceptance for publication lies with the Chairman. If the Chairman is for any reason unavailable, a Deputy Chairman assumes this function.

1.4. Ethics of investigations

(a) Human subjects. Authors must state in the text of their paper the manner in which they have complied, where necessary, with the recommendations on human investigations published in the Medical Research Council report of 1962/63 (*Br. Med. J.* 1964; **ii**, 178–80). Consent **must** be obtained from each patient or subject after full explanation of the purpose, nature and risks of all procedures used, and the fact that such consent has been given should be recorded in the paper. Papers should also state that the Ethical Committee of the Institution in which the work was performed has given approval to the protocol.

(b) Animals. Care must always be taken to ensure that experimental animals do not suffer unnecessarily. Authors must state in the text the anaesthetic procedures used in full, and all precautions they took to ensure that the animals did not suffer unduly during and after the experimental procedure.

The Editorial Board will not accept papers where the ethical aspects are, in the Board's opinion, open to doubt.

1.5. Originality of papers

Submission of a paper to the Editorial Board is taken to imply that it reports work that has not been published in either the same or a substantially similar form, that it is not under consideration for publication elsewhere and that, if accepted for publication by *Clinical Science*, it will not be published elsewhere in the same form, either in English or in any other language, without the consent of the Editorial Board. This does not usually apply to previous publication of oral communications in brief abstract form. In such cases authors should enclose copies of the abstracts or previous publications. The author, or in the case of multiple authorship the authors, will be asked to sign a statement vesting the copyright in the publishers. Requests for consent for reproduction of material published in *Clinical Science* should be addressed to the Editorial Manager.

2. SUBMISSION OF MANUSCRIPTS: GENERAL INFORMATION AND FORMAT

2.1. General

Papers submitted for publication should be sent to the
► Editorial Manager, *Clinical Science*, 59 Portland Place, London W1N 3AJ, U.K. (telephone 071-637 5873; facsimile 071-323 1136).

The submission should contain four copies (of which three may be photocopies, except for half-tone Figures) of the typescript, Tables, Figures etc. The authors should retain one copy of the paper. Typescripts produced on dot-matrix printers that are not of 'near letter quality' may be unacceptable. The Editorial Board does not accept responsibility for damage or loss of papers submitted, although great care is taken to ensure safety and confidentiality of the typescript during the editorial process. In the case of multiple authorship, the covering letter should

indicate that the approval of all co-authors has been obtained and should be signed by all authors.

Papers should be presented so that they are intelligible to the non-specialist reader of the journal. This is particularly important in highly specialized fields and a very brief résumé of the current state of knowledge is usually helpful. Certain types of material, e.g. mathematical formulations requiring more than trivial derivations, should be given in a separate Appendix.

Where the reader is referred to previous works by the same author(s) for important details relevant to the present work, copies or reprints of the publication should be sent with the typescript. This is of particular importance in relation to methodology.

The dates of receipt and acceptance of the paper will be published. If the paper has to be returned to the authors for revision and is not resubmitted within 3 months, the date of receipt will be revised accordingly and the revised paper may be treated as a new submission. It is emphasized that badly presented or unduly long papers will be returned for revision and delays in publication will be inevitable. Similar delays will be incurred if the typescript is not prepared strictly in accordance with the instructions detailed below.

Typescripts of rejected work will not be returned to authors unless a specific request for the return has been made at the time of submission.

2.2. Full papers

The authors should refer to a current issue of *Clinical Science* to make themselves familiar with the general layout. Concise presentation is very important for rising costs are a severe constraint on space. **The length of manuscript and the number of Figures and Tables must be kept to a minimum.** Extensive Tables of data can be deposited with the Royal Society of Medicine (see 2.6). *Guidance for Authors* is usually published in the January issue of the journal, and revised periodically.

Typescripts should be, in general, arranged as follows:

(a) *Title page.* Title: this should be as informative as possible, since titles of papers are being increasingly used in indexing and coding for information storage and retrieval. The title should indicate the species in which the observations reported have been made. The numbering of parts in a series of papers is not permitted.

List of authors' names (degrees and appointments are not required).

Laboratory or Institute of origin.

Key words: for indexing the subject of the paper; they should, if possible, be selected from the current issues of 'Medical Subject Headings' (MeSH), produced by the *Index Medicus*.

Short title: for use as a running heading in the printed text; it should not exceed forty-five characters and spaces and should not contain any abbreviations.

Author for correspondence: the name and address of the author to whom queries and requests for reprints should be sent.

(b) *Summary.* This should be a brief statement arranged in **numbered paragraphs** of what was done, what

was found and what was concluded, and should rarely exceed 250 words. Abbreviations should be avoided as far as possible and must be defined. Statistical and methodological details including exact doses should also be avoided unless they are essential to the understanding of the Summary.

(c) *Introduction*. This should be comprehensible to the general reader and should contain a clear statement of the reason for doing the work, but should not include either the findings or the conclusions.

(d) *Methods*. The aim should be to give sufficient information in the text or by reference to permit the work to be repeated without the need to communicate with the author.

(e) *Results*. This section should not include material appropriate to the Discussion section.

(f) *Discussion*. This should not contain results and should be pertinent to the data presented.

(g) *Acknowledgments*. These should be as brief as possible.

(h) *References*. See p. v for the correct format.

(i) *Figures and Tables*. See p. iv.

2.3. Rapid communications

The passage of these papers through the editorial process will be expedited and contributors are encouraged to take advantage of this facility when rapid publication is of importance and when material can be presented concisely. Rapid Communications should describe completed work and should not be merely a preliminary communication.

To achieve rapid publication only a decision will be given, not an editorial report. In addition, authors of accepted Rapid Communications will not be sent proofs. Rejection of a paper submitted as a Rapid Communication does not preclude its re-submission as a full paper for publication in *Clinical Science*, in which event the paper would be reviewed and reports provided with the editorial decision in the normal way.

Rapid Communications should be similar in format to full papers, except that they must occupy not more than four printed pages. This is about 3000 words, with appropriate deductions (at the rate of 1000 words/page) for Figures and Tables.

2.4. Correspondence

Letters containing original observations or critical assessments of material published in *Clinical Science*, including Editorial Reviews, will be considered for the Correspondence section of the journal. Letters should be no longer than 750 words, with one Figure or Table and up to six references, or 1000 words maximum without a Figure or Table. Letters relating to material previously published in *Clinical Science* should be submitted within 6 months of the appearance of the article concerned. They will be sent to the authors for comment and both the letter and any reply by the author will be published together. Further correspondence arising therefrom will also be

considered for publication. Consideration will also be given to publication of letters on ethical matters.

2.5 Editorial reviews

These are normally commissioned. However, unsolicited reviews will be considered. Prospective authors should first submit a synopsis of their proposed review rather than the full typescript.

2.6. Arrangements for large amounts of information

It is impracticable to publish very large sets of individual values or very large numbers of diagrams, and under these circumstances a summary of the information only should be included in the paper. The information from which the summary was derived should be submitted with the typescript and, if the latter is accepted, the Editor may ask for a copy of the full information and diagrams to be deposited with the Librarian, the Royal Society of Medicine, 1 Wimpole Street, London W1M 8AE, who will issue copies on request. Experience has shown that such requests are frequently received.

2.7. Proof corrections

These are expensive and corrections of other than printers' errors may have to be charged to the author.

2.8. Offprints

Twenty-five offprints are supplied free and additional copies may be obtained at terms, based upon the cost of production, that will be given with the proofs. All offprints should be ordered when the proofs are returned (except for Rapid Communications, where they should be ordered when the subedited typescript is returned).

2.9. Availability on MEDLINE

Summaries of papers in *Clinical Science* are available on the MEDLINE system run by the National Library of Medicine, National Institutes of Health, Bethesda, Maryland, U.S.A.

3. MISCELLANEOUS NOTES

3.1. Abbreviations

Abbreviations should be avoided; if used they must be defined at the first mention; new abbreviations should be coined only for unwieldy names which occur frequently. Abbreviations should not appear in the title and short title nor, if possible, in the Summary. A list of accepted abbreviations is on p. vi. Numbers, not initials, should be used for patients and subjects.

3.2. Anatomical nomenclature

This should follow the recommendations of the International Anatomical Nomenclature Committee (Nomina anatomica. 3rd ed. Amsterdam: Excerpta Medica Foundation, 1966).

3.3. Animals, plants and micro-organisms

The full binomial specific names should be given at first mention for all experimental animals other than common

laboratory animals. The strain and, if possible, the source of laboratory animals should be stated. Thereafter in the text, single letter abbreviations may be given for the genus; if two genera with the same initial letter are studied, abbreviations such as *Staph.* and *Strep.* should be used.

3.4. Buffers and salts

The acidic and basic components should be given, together with the pH. Alternatively, a reference to the composition of the buffer should be given. Further details are provided in *Biochem. J.* 1991; **273**, 1–18.

When describing solutions containing organic anions and their parent acids, the salt designator (e.g. lactate, urate, oxalate) should be used in preference to the name of the acid (lactic, uric, oxalic) unless it is certain that virtually all of the acid is in the undissociated form.

The composition of incubation media should be described, or a reference to the composition should be given.

3.5. Computer modelling

Papers concerned primarily with computer modelling techniques are acceptable provided that use of such techniques leads to a clear choice between two or more alternative hypotheses, or to the formulation of a new hypothesis amenable to experimental challenge or verification, or provides some new insight into the behaviour of a particular physiological system. Extensive technical details of hardware and software should not be given.

3.6. Doses

Doses of drugs should be expressed in mass terms, e.g. milligrams (mg) or grams (g), and also (in parentheses) in molar terms, e.g. mmol, mol, where this appears to be relevant. Molecular weights of many drugs may be found in *The Merck index*. 10th ed. Rahway, NJ, U.S.A.: Merck and Co. Inc. 1983.

3.7. Enzymes

Nomenclature should follow that given in *Enzyme nomenclature* (London and New York: Academic Press, 1984) and its supplements (*Eur. J. Biochem.* 1986; **157**, 1–26, and 1989; **179**, 489–533). The Enzyme Commission (EC) number should be quoted at the first mention. Where an enzyme has a commonly used informal name, this may be employed after the first formal identification. A unit of enzyme activity should preferably be expressed as that amount of material which will catalyse transformation of 1 mol of the substrate/s under defined conditions, including temperature and pH. This gives the unit of the amount of enzyme named the katal (symbol kat). Alternatively, or when the natural substrate has not been fully defined, activity should be expressed in terms of units of activity relative to that of a recognized reference preparation, assayed under identical conditions. Activities of enzymes should normally be expressed as units/ml or units/mg of protein.

3.8. Evaluation of measurement procedures

When a new measuring procedure has been used, or when an established procedure has been applied in a novel fashion, an estimate of the precision of the procedure should be given. This should, as far as possible, indicate what sources of variation have been included in this estimate, e.g. variation of immediate replication, variation within different times of day, or from day to day etc.

If the precision of measurement varies in proportion to the magnitude of the values obtained, it can best be expressed as the coefficient of variation; otherwise it should be expressed by an estimate of the (constant) standard error of a single observation, or by estimates of several points within the range of observed values.

When recovery experiments are described the approximate ratio of the amount added to the amount already present and the stage of the procedure at which the addition was made should be stated.

3.9. Figures and Tables

Their number should be kept to a minimum. Their appropriate position in the paper should be indicated in the margin of the text. References to Figures and Tables should be in Arabic numerals, e.g. Fig. 3, and they should be numbered in order of appearance. In general, the same data should not be presented in both a Figure and a Table.

Figures, with captions attached, should be supplied as original drawings or photographs together with photocopies. All Figures should have their number and the authors' names written in pencil on the back; the top of the Figure should be indicated with a pencilled arrow. Acceptable symbols for experimental points are ●, ▲, ■, ○, △, □. The symbols × or + must be avoided. The same symbols must not be used for two curves where the points might be confused. For scatter diagrams, solid symbols are preferred. When a particular variable appears in more than one Figure, the same symbol should be used for it throughout, if possible.

Curves should not be drawn beyond the experimental points, nor should axes extend appreciably beyond the data. Only essential information that cannot readily be included in the legend should be written within the Figure.

Figures for half-tone reproduction should be submitted as glossy prints. Four copies (not photocopies) of each print should be provided.

Tables should be typed separately from the text. They should have an underlined title followed by any legend.

Captions for the Figures, and titles and legends for the Tables, should make them **readily understandable** without reference to the text. Adequate statistical information, including that on regression lines, should be included in Figure captions where appropriate.

3.10. Footnotes

These should be avoided as far as possible but where they are used in Tables they should be identified by the symbols * † ‡ § || ¶, in that order.

3.11. Isotope measurements

The information given should include (a) conditions of radioactivity counting, e.g. infinitely thick, infinitely thin; (b) the nature of the phosphor used in liquid-scintillation counting; (c) details of corrections made to the observed count rate, e.g. for 'quenching' or 'cross-over'; (d) standard deviation of the results or a statement of the minimum total counts above background collected and the background value.

In general the specific radioactivity of the starting materials should be given, preferably in terms of radioactivity per unit weight or, for stable isotopes, as atoms % excess.

Pending the general introduction of SI units radioactivity should continue to be expressed in terms of the curie (Ci) followed by the corresponding figure in terms of the becquerel (Bq: disintegrations/s), in parentheses, and suitably rounded.

3.12. Radionuclide applications in man

If new or modified radionuclide applications in man are described, an estimate of the maximal possible radiation dose to the body and critical organs should be given.

For the time being this can continue to be expressed in rems, but with the corresponding figure in sieverts (Sv) given in parentheses after it.

3.13. Methods

In describing certain techniques, namely centrifugation (when the conditions are critical), chromatography and electrophoresis, authors should follow the recommendations published by the Biochemical Society (currently, *Biochem. J.* 1991; **273**, 1–18).

3.14. Nomenclature of disease

This should follow the International classification of disease (8th revision. Geneva: World Health Organization, 1969) as far as possible.

3.15. Powers in Tables and Figures

Care is needed where powers are used in Table headings and in Figures to avoid numbers with an inconvenient number of digits. For example: (i) an entry '2' under the heading $10^3 k$ means that the value of k is 0.002; an entry '2' under the heading $10^{-3} k$ means that the value of k is 2000. (ii) A concentration 0.00015 mol/l may be expressed as 0.15 under the heading 'concn. (mmol/l)' or as 150 under the heading 'concn. ($\mu\text{mol/l}$)' or as 15 under the heading ' $10^5 \times \text{concn. (mol/l)}$ ', but not as 15 under the heading 'concn. (mol/l $\times 10^{-5}$)'.

3.16. References

The 'Vancouver' system is used: references in the text are numbered consecutively in the order in which they are first mentioned, the numerals being given in brackets, e.g. [22]. References cited in Figure legends or Tables only should be numbered in a sequence determined by the position of the first mention in the text of the Figure or Table. References should be listed in numerical order and

the names of all authors of a paper should be given (except where there are seven or more when only the first three should be listed and et al. added), with the full title of the paper and the source details in full including the first and last page numbers, e.g.

2. Knox, A.J., Britton, J.R. & Tattersfield, A.E. Effect of vasopressin on bronchial reactivity to histamine. *Clin. Sci.* 1989; **77**, 467–71.

When the quotation is from a book, the following format should be used, giving the relevant pages or chapter number:

20. Armitage, P. *Statistical methods in medical research.* Oxford: Blackwell Scientific Publications, 1983.
21. Ghatei, M.A. & Bloom, S.R. Enteroglucagon in man. In: Bloom, S.R. & Polak, J.M., eds. *Gut hormones.* Edinburgh: Churchill Livingstone, 1981: 332–8.

References to 'personal communications' and 'unpublished work' should appear in the text only and not in the list of references. The name and initials of the source of information should be given. When the reference is to material that has been accepted for publication but has not yet been published, this should be indicated in the list of references by 'In press' together with the name of the relevant journal and, if possible, the expected date of publication. If such a citation is of major relevance to the manuscript submitted for publication authors are advised that the editorial process might be expedited by the inclusion of a copy of such work. In the case of quotations from personal communications the authors should state in the covering letter that permission for quotation has been obtained.

3.17. Solutions

Concentrations of solutions should be described where possible in molar terms (mol/l and subunits thereof), stating the molecular particle weight if necessary. Values should not be expressed in terms of normality or equivalents. Mass concentration should be expressed as g/l or subunits thereof, for example mg/l or $\mu\text{g/l}$. For solutions of salts, molar concentration is always preferred to avoid ambiguity as to whether anhydrous or hydrated compounds are used. Concentrations of aqueous solutions should be given as mol/l or mol/kg (g/l or g/kg if not expressed in molar terms) rather than % (w/v) or % (w/w). It should always be made clear whether concentrations of compounds in a reaction mixture are final concentrations or the concentrations in solutions added.

3.18. Spectrophotometric data

The term 'absorbance' [$\log(I_0/I)$] should be used rather than 'optical density' or 'extinction'. The solvent, if other than water, should be specified. Symbols used are: A , absorbance; a , specific absorption coefficient (litre $\text{g}^{-1} \text{cm}^{-1}$) (alternatively use $A_{1\%}^{1\text{cm}}$); ϵ , molar absorption coefficient (the absorbance of a molar solution in a 1 cm light-path) (litre $\text{mol}^{-1} \text{cm}^{-1}$, not $\text{cm}^2 \text{mol}^{-1}$).

3.19. Spelling

Clinical Science uses as standards for spelling the Concise or Shorter Oxford dictionary of current English (Oxford: Clarendon Press) and Butterworth's medical dictionary (London: Butterworths).

3.20. Statistics

Papers are frequently returned for revision (and their publication consequently delayed) because the authors use inappropriate statistical methods. Two common errors are the use of means, standard deviations and standard errors in the description and interpretation of grossly non-normally distributed data and the application of *t*-tests for the significance of difference between means in similar circumstances, or when the variances of the two groups are non-homogeneous. In some circumstances it may be more appropriate to provide a 'scattergram' than a statistical summary. Authors are recommended to consult the statistical guidelines presented by Altman *et al.* in 'Statistical guidelines for contributors to medical journals' Br. Med. J. 1983; **286**, 1489-93.

The type of statistical test used should be stated in the Methods section. A reference should be given for the less commonly encountered statistical tests. The format for expressing mean values and standard deviations or standard errors of the mean is, for example: mean cardiac output 10.4 l/min (SD 1.2; *n* = 11). Degrees of freedom should be indicated where appropriate. Levels of significance are expressed in the form $P < 0.01$.

3.21. Trade names

The name and address of the supplier of special apparatus and of biochemicals should be given. In the case of drugs, approved names should always be given with trade names and manufacturers in parentheses.

4. UNITS: THE SI SYSTEM

The recommended Système International (SI) units (see Quantities, units and symbols in physical chemistry, Oxford: Blackwell Scientific Publications Ltd, 1988) are used by *Clinical Science*. **All papers submitted should use these units** except for blood pressure values, which should be expressed in mmHg, and gas tensions, where values at the author's discretion may be given in mmHg (with kPa in parentheses) or as kPa (with mmHg in parentheses). Airways pressure should be expressed in kPa. Where molecular weight is known, the amount of a chemical or drug should be expressed in mol or in an appropriate subunit, e.g. mmol. Energy should be expressed in joules (J).

The basic SI units and their symbols are as follows:

Physical quantity	Name	Symbol
length	metre	m
mass	kilogram	kg
time	second	s
electric current	ampere	A
thermodynamic temperature	kelvin	K
luminous intensity	candela	cd
amounts of substance	mole	mol

The following are examples of derived SI units:

Physical quantity	Name	Symbol	Definition
energy	joule	J	$\text{kg m}^2 \text{s}^{-2}$
force	newton	N	$\text{kg m s}^{-2} = \text{J m}^{-1}$
power	watt	W	$\text{kg m}^2 \text{s}^{-3} = \text{J s}^{-1}$
pressure	pascal	Pa	$\text{kg m}^{-1} \text{s}^{-2} = \text{N m}^{-2}$
electric charge	coulomb	C	A s
electric potential difference	volt	V	$\text{kg m}^2 \text{s}^{-2} \text{A}^{-1} = \text{J A}^{-1} \text{s}^{-1}$
electric resistance	ohm	Ω	$\text{kg m}^2 \text{s}^{-3} \text{A}^{-2} = \text{V A}^{-1}$
electric conductance	siemens	S	$\text{kg}^{-1} \text{m}^{-2} \text{s}^3 \text{A}^2 = \Omega^{-1}$
electric capacitance	farad	F	$\text{A}^2 \text{s}^3 \text{kg}^{-1} \text{m}^{-2} = \text{A s V}^{-1}$
frequency	hertz	Hz	s^{-1}
volume	litre	l	10^{-3}m^3

The word 'litre' has been accepted as a special name for cubic decimetre (1 litre = 1 dm³).

Both the basic and derived SI units, including the symbols of derived units that have special names, may be preceded by prefixes to indicate multiples and sub-multiples. The prefixes should be as follows:

Multiple	Prefix	Symbol	Multiple	Prefix	Symbol
10 ⁶	mega	M	10 ⁻³	milli	m
10 ³	kilo	k	10 ⁻⁶	micro	μ
10 ²	hecto	h*	10 ⁻⁹	nano	n
10	deka	da	10 ⁻¹²	pico	p
10 ⁻¹	deci	d*	10 ⁻¹⁵	femto	f
10 ⁻²	centi	c*			

*To be avoided where possible (except for cm).

Compound prefixes should not be used, e.g. 10⁻⁹ m should be represented by 1 nm, not 1 m μ m.

Notes:

- Full stops are not used after symbols.
- Minutes (min), hours (h), days and years will continue to be used in addition to the SI unit of time [the second (s)].
- The solidus may be used in a unit as long as it does not have to be employed more than once, e.g. mmol/l is acceptable, but ml/min/kg is not, and should be replaced by ml min⁻¹ kg⁻¹.

5. ABBREVIATIONS, CONVENTIONS, DEFINITIONS, SYMBOLS AND SPECIAL COMMENTS

Standard symbols and abbreviations that have been accepted by international bodies can be used without definition and are indicated by an asterisk; this list also shows selected abbreviations in the form of groups of capital letters (e.g. ALA, ECF, MCHC) which when used must be defined in the text as indicated on p. iii. The standard abbreviations for amino acids are only for use in Figures and Tables or for peptide sequences.

absorbance	<i>A</i>	dates	e.g. 11 August 1970
acceleration due to gravity	<i>g</i>	dead-space minute ventilation	\dot{V}_D
adenosine 3':5'-cyclic mono-phosphate	cyclic AMP*	dead-space volume	V_D
adenosine 5'-phosphate	AMP*	degrees, Celsius or centigrade	°C
adenosine 5'-pyrophosphate	ADP*	deoxy (prefix)	not desoxy
adenosine triphosphatase	ATPase*	deoxycorticosterone	DOC
adenosine 5'-triphosphate	ATP*	deoxycorticosterone acetate	DOCA
adrenoceptor (<i>see also</i> blocking agents)		deoxyribonucleic acid	DNA*
adrenocorticotrophic hormone	ACTH	dialysate	diffusate preferred; 'dialysate' should be clearly defined
alanine	Ala	diethylaminoethylcellulose	DEAE-cellulose*
alternating current	a.c.*	differential of <i>x</i> with respect to time	\dot{x} (= dx/dt)
alveolar minute ventilation	\dot{V}_A	1,25-dihydroxycholecalciferol	1,25-(OH) ₂ D ₃
alveolar to arterial oxygen tension difference	($P_{AO_2} - P_{aO_2}$)	dilute	dil.
aminolaevulinic acid	ALA	2,3-diphosphoglycerate	2,3-DPG
ampere	A	direct current	d.c.*
angiotensin	ANG; reference amino acid abbreviations are used as prefix within brackets: e.g. [Sar ¹ , Val ⁵ , Ala ⁸]ANG	disintegrations/min	d.p.m.*
	<i>not used</i> ; express in nm (1 Ångstrom = 10 ⁻¹ nm)	disintegrations/s	d.p.s.*
Ångstrom (Å)		dissociation constant	
antidiuretic hormone	ADH (when referring to the physiological secretion)	acidic	K_a
arginine	Arg	apparent	e.g. K'_a
arteriovenous	a - v: <i>permitted</i> in Figures and Tables	basic	K_b
asparagine	Asn	minus log of	pK
aspartic acid	Asp	doses	avoid Latin designations such as b.d. and t.i.d.
atmosphere (unit of pressure)	<i>not used</i> ; express in kPa (1 atmosphere = 101.325 kPa)	dyne	dyn; used for vascular resistance
		elastance	E ; express in Pa m ⁻³
becquerel	Bq (1 d.p.s.)	electrocardiogram	ECG*
blocking agents	e.g. β-adrenoceptor antagonists preferred	electroencephalogram	EEG*
blood pressure	express in mmHg	electromotive force	e.m.f.*
blood urea nitrogen	<i>not used</i> ; recalculate as urea, express in mmol/l	electron spin resonance	e.s.r.*
blood volume	BV	electronvolt	eV (for radiation energies)
body temperature and pressure, saturated	BTPS*	▶ enzyme-linked immunosorbent assay	e.l.i.s.a.*
▶ bovine serum albumin	BSA*	equation	eqn.
British Pharmacopoeia	write in full and give edition calc. (in Tables only)	equivalents (amount of a chemical)	<i>not used</i> ; recalculate in molar terms
calculated	<i>not used</i> ; recalculate as kilojoules (1 'Calorie' = 4.184 kJ)	erythrocyte count	express as 10 ¹² cells/l
'Calorie' (= 1000 cal)		erythrocyte sedimentation rate	ESR
carbon dioxide output (in respiratory physiology)	\dot{V}_{CO_2} ; express in ml STP/min	ethanol, ethanolic	not ethyl alcohol or alcoholic
cardiac frequency	f_c ; in beats/min	ethylenediaminetetra-acetate	EDTA*
cardiac output	express in l/min	'ethylene glycol bis(aminoethyl ether)tetra-acetate'	EGTA*
centimetre	cm	exchangeable	Na _e , K _e etc. for total exchangeable sodium, potassium etc.
clearance of <i>x</i>	C_x	Experiment (with reference numeral)	Expt.; plural, Expts.
coenzyme A and its acyl derivatives	CoA* and acyl-CoA*	expired minute ventilation	\dot{V}_E
compare	cf.	extinction	<i>use</i> absorbance
complement fractions	C1-C9*	extracellular fluid	ECF
compliance (respiratory physiology)	<i>C</i> ; express in l kPa ⁻¹	extracellular fluid volume	ECFV
concentrated	conc.	extraction ratio of <i>x</i> (renal)	E_x
concentration	concn.; may be denoted []; e.g. plasma [HCO ₃]	Figure (with reference numeral)	Fig.; plural, Figs.
conductance (respiratory physiology)	<i>G</i> ; express in l s ⁻¹ kPa ⁻¹	filtered load of <i>x</i> (renal)	F_x
correlation coefficient	<i>r</i>	follicle-stimulating hormone	FSH
counts/min, counts/s	c.p.m.*, c.p.s.*	forced expiratory volume in 1.0 s	FEV _{1.0}
cubic centimetres	<i>use</i> ml	fractional concentration in dry gas	<i>F</i>
curie	Ci (1 Ci = 3.7 × 10 ¹⁰ d.p.s.)	fractional disappearance rate	<i>k</i> (as in $A = A_0 e^{-kt}$)
cycle/s	Hz	frequency of respiration	f_R ; in breaths/min
cysteine	Cys	functional residual capacity	FRC
		gas-liquid chromatography	g.l.c.*
		gas transfer factor	<i>T</i> ; in mmol min ⁻¹ kPa ⁻¹
		glomerular filtration rate	GFR
		glutamic acid	Glu
		glutamine	Gln
		glutathione	GSH (reduced); GSSG (oxidized)
		glycine	Gly
		gram(me)	g

gravitational field, unit of (9.81 m s ⁻²)	g	metre	m
gray	Gy (100 rads)	Michaelis constant	K_m
growth hormone	GH; if human, hGH	micromole	μmol
haematocrit	not allowed; <i>use</i> packed cell volume (PCV)	micron (10 ⁻⁶ m)	μm ; <i>not</i> μ
haemoglobin	Hb; express in g/dl	milliequivalent	<i>not used</i> ; give amount in mmol
half-life	$t_{1/2}$	millilitre	ml
hertz (s ⁻¹)	Hz	millimetre of mercury	mmHg; for blood pressure and, at authors' discretion, for gas tensions: see p. vi (1 mmHg = 0.133 kPa)
high-pressure (or high-perfor- mance) liquid chroma- tography	h.p.l.c.*	millimolar (concentration)	mmol/l; <i>not</i> mM
histidine	His	millimole	mmol
hour	h	minimum	min.
human chorionic gonadotropin	hCG	minute (60 s)	min
human placental lactogen	hPL	molal	mol/kg
hydrocortisone	<i>use</i> cortisol	molar (concentration)	mol/l; <i>not</i> M
hydrogen ion activity	aH; express in nmol/l	molar absorption coefficient	ϵ (the absorbance of a molar solution in a 1 cm light-path)
minus log of	pH	mole	mol
25-hydroxycholecalciferol	25-(OH)D ₃	▶ molecular mass	express in Da or kDa
hydroxyproline	Hyp	▶ molecular mass (relative)	M_r (no units)
immunoglobulins	IgA, IgD, IgE, IgG, IgM*	nicotinamide-adenine dinucleotide	NAD if oxidation state not indicated*
injection routes:	<i>use</i> abbreviations only in Figures	nicotinamide-adenine dinucleotide phosphate	NAD ⁺ if oxidized* NADH if reduced* NADP if oxidation state not indicated* NADP ⁺ if oxidized* NADPH if reduced*
intra-arterial	i.a.	normal	should not be used to denote the concentration or osmo- larity of a solution
intramuscular	i.m.	normal temperature and pressure	<i>use</i> standard temperature and pressure (STP*)
intraperitoneal	i.p.	nuclear magnetic resonance number (in enumerations)	n.m.r.*
intravenous	i.v.	observed	no. (in Tables only)
subcutaneous	s.c.	ohm	obs. (in Tables only)
international unit	i.u. (definition and reference should be given for un- common or ambiguous applications, e.g. enzymes)	ornithine	Ω
intracellular fluid	ICF	ortho- orthophosphate (inorganic)	Orn
intracellular fluid volume	ICFV	osmolarity	σ - P _i *
ionic strength	I	oxygen uptake per minute (in respiratory physiology)	express in osmol (or mosmol)/l
isoleucine	Ile	packed cell volume	$\dot{V}O_2$; express in ml STP/min
isotonic	<i>not used</i> ; specify composition of fluid, e.g. NaCl, 150 mmol/l	page, pages	PCV
isotopically labelled com- pounds	e.g. [U- ¹⁴ C]glucose, [1- ¹⁴ C]glu- cose, sodium [1- ¹⁴ C]acetate; <i>use</i> [¹³¹ I]-labelled albumin, <i>not</i> [¹³¹ I]albumin for simple molecules: ¹⁴ CO ₂ , ³ H ₂ O	<i>para</i> - <i>para</i> -aminohippurate	p., pp.
joule	J	partial pressure	<i>p</i> -
katal	kat	e.g. alveolar, of O ₂	PAH
kilogram(me)	kg	arterial, of CO ₂	<i>P</i> ; express in either kPa or mmHg (see p. vi)
kilopond	<i>not used</i> ; 1 kilopond = 9.8067 N	capillary, of O ₂	P_{AO_2}
lactate dehydrogenase	LDH	end-tidal, of CO ₂	P_{ACO_2}
leucine	Leu	mixed venous, of CO ₂	P_{capO_2}
leucocyte count	express as 10 ⁹ cells/l	pascal	P_{ETCO_2}
lipoproteins (serum)		per	$P_{\bar{V}CO_2}$
high density	HDL	per cent	Pa
low density	LDL	petroleum ether	/
very low density	VLDL	phenylalanine	%
litre	l (write in full if confusion with the numeral 1 is possible)	plasma renin activity	<i>not used</i> ; <i>use</i> light petroleum and give boiling range
logarithm (base 10)	log	plasma volume	Phc
logarithm (base e)	ln	poise	express as pmol of angiotensin I h ⁻¹ ml ⁻¹
luteinizing hormone	LH	polyacrylamide-gel electro- phoresis	PV
lysine	Lys	potential difference	1 poise = 10 ⁻¹ N s m ⁻²
maximum	max.	power output	PAGE*
mean corpuscular haemoglobin	MCH; express in pg	precipitate	p.d.
mean corpuscular haemoglobin	MCHC; express in g/dl	pressure	W (1 kpm/min = 0.1635 W)
concentration			ppt.
mean corpuscular volume	MCV; express in fl (1 μm^3 = 1 fl)		<i>P</i> ; express in kPa (except for blood pressures and gas tensions: see p. vi); 1 kPa = 7.5 mmHg
▶ median effective dose	ED ₅₀ *		
median lethal dose	LD ₅₀ *		
melting point	m.p.		
messenger RNA	mRNA*		
<i>meta</i> -	<i>m</i> -		
methanol, methanolic	<i>not</i> methyl alcohol		
methionine	Met		

probability of an event being due to chance alone	<i>P</i>	sulphydryl	<i>use</i> thiol or SH
proline	Pro	sum	Σ
protein-bound iodine (plasma)	PBI	Svedberg unit	S
pulmonary capillary blood flow	\dot{Q}_c	temperature (absolute)	<i>T</i>
pyrophosphate (inorganic)	PP _i *	(empirical)	<i>t</i>
rad (radiation dose; 10 ⁻⁵ J absorbed/g of material)	not abbreviated (100 rads = 1 Gy)	temperature, thermodynamic	K
▶ radioimmunoassay	r.i.a.*	thin-layer chromatography	t.l.c.*
red blood cell	<i>use</i> erythrocyte; express counts as 10 ¹² cells/l	threonine	Thr
relative band speed (partition chromatography)	<i>R_f</i>	thyrotrophic hormone	TSH
rem	100 ergs/s × quality factor	thyrotrophin-releasing hormone	TRH
renin	<i>see</i> plasma renin activity	tidal volume	<i>V_T</i>
residual volume	RV	time (symbol)	<i>t</i>
resistance (rheological)	<i>R</i> ; express in kPa l ⁻¹ s	time of day	e.g. 18.15 hours
respiratory exchange ratio (pulmonary)	<i>R</i>	total lung capacity	TLC
respiratory quotient (metabolic)	RQ	torr	not used; <i>use</i> kPa (1 torr = 0.133 kPa)
revolutions	rev.	tryptophan	Trp
rev./min	<i>not</i> r.p.m.; <i>use g</i> if possible (see p. vii)	tubular maximal reabsorptive capacity for x	<i>T_{m, x}</i>
ribonucleic acid	RNA*	tyrosine	Tyr
röntgen	R	ultraviolet	u.v.*
saline	define at first mention [e.g. NaCl solution (154 mmol/l)]	urinary concentration of x	<i>U_x</i>
saturation	<i>S</i> , e.g. SaO_2 for arterial oxygen saturation (see partial pressure for other analogous abbreviations)	valency	e.g. Fe ²⁺ , <i>not</i> Fe ⁺⁺
second (time)	s	valine	Val
serine	Ser	variance ratio	<i>F</i>
sievert	Sv (1 J/kg × quality factor)	vascular resistance	express in kPa l ⁻¹ s (with value in dyn s cm ⁻⁵ in parentheses); primary values of differential vascular pressure (mmHg) and flow (l/min) should always also be given in Tables or text as appropriate
solvent systems	e.g. butanol/acetic acid/water (4:1:1, by vol.), butanol/acetic acid (4:1, v/v)	velocity	<i>v</i> express as m s ⁻¹
sodium dodecyl sulphate	SDS*	venous admixture	\dot{Q}_{va}
species	sp., plural spp.	veronal	used only for buffer mixtures; otherwise use 5,5'-diethylbarbituric acid
specific activity	sp. act. Confusion must be avoided between e.g. specific radioactivity and the specific activity of an enzyme	viscosity, dynamic	η
specific conductance of airways	sGaw; express in s ⁻¹ kPa ⁻¹	viscosity, kinematic	<i>v</i>
standard deviation	SD*	vital capacity	VC
standard error of the mean	SEM*	volt	V
standard temperature and pressure	STP*	volume of blood (in cardio-respiratory physiology)	<i>Q</i> ; <i>use Q̇</i> for blood flow rate
steroid nomenclature	<i>see</i> Biochem. J. 1969; 113, 5–28; 1972; 127, 613–7	watt	W
		wavelength	λ
		weight	wt.
		white blood cell	<i>use</i> leucocyte; express counts as 10 ⁹ cells/l