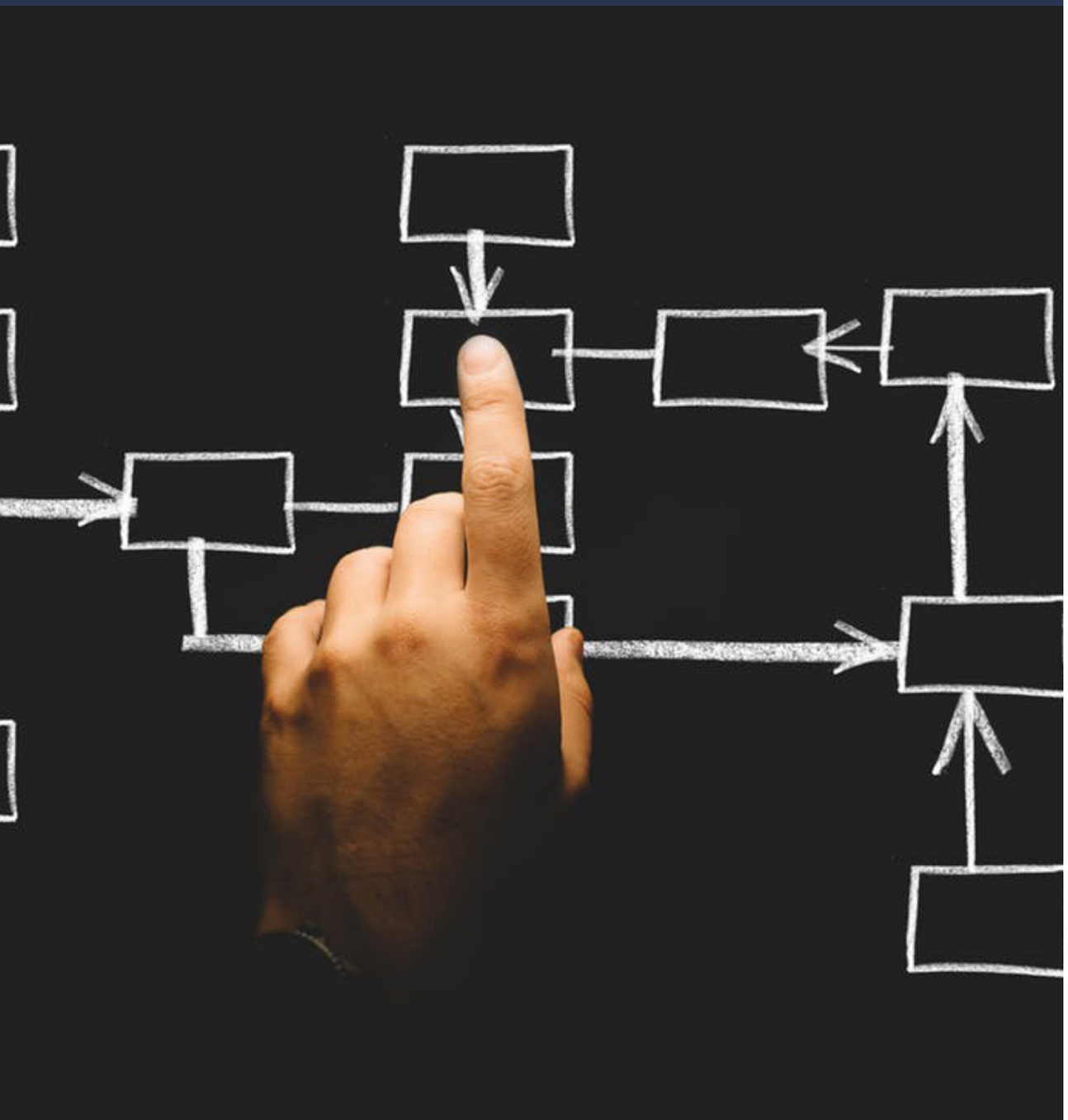
Advances in Clinical and Experimental Medicine

TOOLBOX FOR AUTHORS

Advances in Clinical and Experimental Medicine

Stylebook in a nutshell

www.advances.umed.wroc.pl



A. TECHNICAL ISSUES

Structure of the manuscript

Our journal accepts 2 types of manuscripts – original papers and reviews. Both have to be structured, i.e., divided into sections (each with a section title) and – if necessary – subsections.

Structure of original papers is strictly regulated in our journal. Each manuscript of this kind should be divided into 6 sections:

- Background;
- Objectives;
- Materials and methods;
- Results;
- Discussion (with a Limitations subsection, discussing the limitations of the study);
- Conclusions.

If one or more of these section are missing, the editor will ask for an appropriate adjustment of the text.

The above sections can contain subsections deemed necessary by the authors – there are no limitations regarding their number or titles, although the authors should bear in mind 2 issues:

1. A subsection should contain not only 1 sentence but at least 1 full paragraph.

2. Dividing subsections into further subsection and subsections to subsections usually renders the structure of the article overtly cumbersome – 3 levels of division (section, subsections and sub-subsections) seems to be rational, but deeper structuring the text ceases to fulfill its task.

Structure of review articles can be more flexible and follow the natural course of the argument – it should begin with an introduction and end with Limitations and Conclusions, but the following sections can be titled according to their contents.

Anonymization of the manuscript

The manuscript must be prepared in a way that ensures authors' identities are concealed. Only then the double-blind review evaluation is possible – the reviewers receive anonymized manuscripts and the authors do not learn who the reviewers were. The Editorial System we use allows the editors to contact you and they of course will know your identities. The reviewers receive only the manuscript itself – their access level in the Editorial System doesn't allow them to check who the authors are. Therefore, the authors' identities can be disclosed only in the manuscript itself – and consequently, the manuscript must be completely anonymized.

How to prepare a blinded manuscript?

1. Remove authors' names and affiliations from the main text. Sometimes the file containing the main body of the manuscript begins with a list of authors and affiliations. Such data should be registered in the Editorial System, but under no circumstances should appear in the manuscript itself.

2. Remove the information about funding sources from the main body – it can directly or indirectly reveal the authors' identities.

3. Acknowledgements shouldn't be included in the main text – it's easy to find out who you are when one knows with whom you work with or who your superior is.

4. Also, references can be self-identifying – and such a mistake often escapes authors' attention. Thus, phrases like "as we have shown before" should be replaced with impersonal phrases like "it has been shown before".

5. Last but not least – when revising the manuscript at the reviewer's request, do not sign your responses.

Figures, graphs and charts

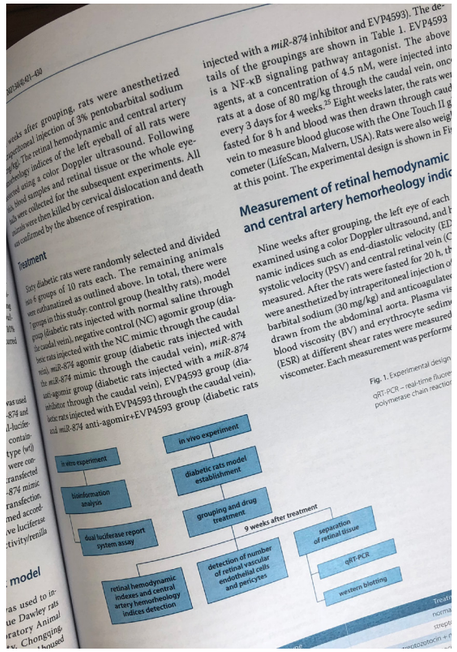
Although vector graphics and bitmaps may appear the same, technically, they are different files with different characteristics.

When to use vector graphics?

« For graphs, charts and other graphic representations of numeric values, because we can enlarge them without quality loss and modify their fonts.

How to generate vector graphics?

« Use MS Word (DOC and DOCX), MS Excel (XLS, XLSX) or MS Power Point (PPT, PPTX). Then you can export graphics to EPS, AI or PDF.
« If you want to make the task of our DTP operators easier, upload source files from CorelDraw or Statistica.


injected with a *miR-874* inhibitor and EVP4593). The details of the groupings are shown in Table 1. EVP4593 is a NF-κB signaling pathway antagonist. The above agents, at a concentration of 4.5 nM, were injected into rats at a dose of 80 mg/kg through the caudal vein, once every 3 days for 4 weeks.[25] Eight weeks later, the rats were fasted for 8 h and blood was then drawn through caudal vein to measure blood glucose with the One Touch II glucometer (LifeScan, Malvern, USA). Rats were also weighed at this point. The experimental design is shown in Fig. 1.

Measurement of retinal hemodynamic and central artery hemorheology indic

Nine weeks after grouping, the left eye of each rat was examined using a color Doppler ultrasound, and hemodynamic indices such as end-diastolic velocity (EDV), peak systolic velocity (PSV) and central retinal vein (CRV) flow were measured. After the rats were fasted for 20 h, they were anesthetized by intraperitoneal injection of 3% pentobarbital sodium (30 mg/kg) and anticoagulated with heparin. Then, barbital sodium (30 mg/kg) and anticoagulated with heparin. Then, blood was drawn from the abdominal aorta. Plasma viscosity (PV), whole blood viscosity (BV) and erythrocyte sedimentation rate (ESR) at different shear rates were measured with a cone-plate viscometer. Each measurement was performed

Fig. 1. Experimental design
qRT-PCR – real-time fluorescence quantitative polymerase chain reaction

When to use bitmaps?

« For photographs, USG, RTG and CT images or screenshots.

How to generate vector graphics?

« The most common bitmap formats are TIFF, BMP, GIF, PCX, and JPG.
« Look at pixels, not megabytes (at least 100 pixels per 1 cm).

For easier typesetting and quicker online publication:

« Do not to save bitmaps as vector graphics.
« Do not save descriptions within the figure. Create another, editable layer, or paste your image into the MS Word document and then add descriptions.
« Avoid JPG format for bitmaps, because data compression can affect image quality.
« If you have generated figures as vector graphics, never submit them as bitmaps.
« If your figures contain many individual pictures, submit each as a separate bitmap.

Citation style

Please select AMA style when preparing references for our journal. Correcting inappropriate references takes much time – you will help us a lot if you follow these 6 simple rules:

1. Use only numbered references within the text, with the numbers corresponding with the enumeration of according positions on the reference list. Converting Harvard-style references into numbered ones by the editors is cumbersome and prone to mistakes.

2. Number all in-text references in consecutive order using superscript Arabic numerals to cite material.

3. Provide DOI numbers. If DOI is unavailable, provide PMID and an URL (the latter together with access date).

4. Provide titles of the journals using Index Medicus abbreviations (of course, if such abbreviation exists for a given title).

5. Do not translate titles of articles and books published in language other than English if the author or publisher did not provide the English title themselves. In such cases, use the original title (if the original article/book was published in alphabet other than Latin one, a transcription should be given).

6. If the cited article has up to 6 authors, all names of the authors should be listed. If there are more than 6 authors, list the first 3 and add "et al.".

REMEMBER!

Remove reference list from the main body of the manuscript and upload it into the Editorial System as a separate file.

What may happen if you leave the list just after Conclusions? Doubled, not identical lists, which makes editors wonder: Which one is final? Which one is correct? Many questions, confusion and stress follow.

Abstract, main body, reference list, tables, figures and their captions are merged during editing and typesetting process. Don't worry – your manuscript will comprise them all!

Tables

Tables allow for presenting numerical or other data in a form more clear than a narrative text – provided they are perspicuous and well-conceived themselves. Here are some suggestions how to design tables and how to avoid frequent mistakes.

1. Tables should be submitted as separate files, not embedded into the main body of the manuscript.

2. References to Tables should be placed according to the sequence of citing them in the manuscript.

3. Allowed formats of files containing tables are as follows: XLS, XLSX, DOC, and DOCX. Tables shouldn't be submitted as graphic files (JPG, TIFF).

4. Tables cannot contain empty cells – both in the head and in the main body of the table. Such empty cells distort the understanding of the table because they look as an error or cause adjacent cells to merge visually. The authors should use prescribed notation to show that a given cell deliberately does not convey any information – either a hyphen (–) or an appropriate abbreviation (NS – not significant, NA – not applicable, etc.).

5. Tables simply shouldn't be too large. A very extensive table is cumbersome in typesetting; sectioning a table into several pages forces the readers to switch between these pages if they want to compare data placed far apart within the table. Some authors submit tables so wide that they don't fit into a single page at all – and even into a spread (2 facing pages). In word processors, it's possible to decrease the font size to fit a table into a page; while typesetting a journal, such manipulations are not possible. Furthermore, the reader can simply get lost in a very large table. Generally speaking, table should give a general notion of a specific aspect of the discussed issue, while analyzing a very large table is more similar to using mathematical or statistics tables. To sum up: If a table seems too vast, consider presenting the data in 2 or more smaller tables.

ORCID

Open Researcher and Contributor ID (ORCID) is a widely accepted unique identifier for researchers. It's a simple numerical identifier (like tax ID number) that won't change over your lifetime. If you wish to publish in Advances in Clinical and Experimental Medicine, ORCID is mandatory not only for the corresponding author, but also for all coauthors.

Why is it so important?

« Many personal names are not unique, e.g., there are many John Smiths in the world.
« Names can often change (e.g., with marriage).
« There are some cultural differences in name order, e.g., Korean names are written with the family name first.
« There are many different writing systems, e.g., Russian names should be transliterated into English.

You can apply for an ORCID free of charge using a simple registration form:

https://orcid.org/

The whole process takes only 1 minute.

B. CHECKLISTS

STROBE checklist

Before submitting results of observational studies to Advances in Clinical and Experimental Medicine, you should consider the structure of the article suggested by STROBE (Strengthening the Reporting of Observational Studies in Epidemiology).

This 22-item checklist was created to help authors ensure high-quality presentation of the study, ascertain a clear presentation of the work and provide readers with appropriate information. Please report the page number in your manuscript where you consider each of the items from the checklist. If you have not included this information, you should revise your manuscript or write "N/A".

For more information, click the link:

https://www.strobe-statement.org/index.php?id=-available-checklists&fbclid=IwAR2py71Pqg4ll4xKrYgWeV6t6ZQmPeImyUjlH7lHQJ0VBc7ntGLi4Lk_Ux8

CONSORT checklist

Before submitting results of randomized controlled trials to Advances in Clinical and Experimental Medicine, you should consider the structure of the article suggested by CONSORT (Consolidated Standards of Reporting Trials). In this 25-item checklist, authors need to state how the study was designed, analyzed and interpreted.

Please report the page number in your manuscript where you consider each of the items from the checklist. If you have not included this information, you should revise your manuscript or write "N/A".

For more information, click the link:

http://www.consort-statement.org/

PRISMA checklist

Before submitting systematic reviews and meta-analyses to Advances in Clinical and Experimental Medicine, you should consider the structure of the article suggested by PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses). This 27-item checklist guides authors on how to develop a systematic review protocol and what to include when writing a review.

Please report the page number in your manuscript where you consider each of the items from the checklist. If you have not included this information, you should revise your manuscript or write "N/A".

For more information, click the link:

http://prisma-statement.org/PRISMAStatement/Checklist.aspx

CASP checklist

CASP (Critical Appraisals Skills Programme) is a set of checklists which help authors prepare and design, among others, systematic reviews, randomized controlled trials or cohort studies. Each checklist contains 10 questions. The first 2 screening questions are only "yes" or "no" and only if both answers are positive, authors should move on to the following points on the list.

For more information, click the link:

https://casp-uk.net/casp-tools-checklists/

It is obligatory to refer to the EQUATOR site as a reference in selecting the appropriate checklist for the study: https://www.equator-network.org/. The checklist needs to be uploaded it the Editorial System separately.

C. LINGUISTIC ISSUES

Before submission, please follow EASE guidelines for authors and translators:

1. Wherever scientific terms are not necessary, use commonly known words, but avoid colloquial and idiomatic expressions, or phrasal verbs.

2. Use the past tense when describing how you performed your study and what you found or what other researchers did.

3. Use the present tense in general statements and interpretations (e.g., statistical significance, conclusions) or when writing about the content of your article (tables and figures).

4. Do not write about yourself "the author(s)". Write "we" or "I", or use expressions like "in this study", "our results" or "in our opinion".

5. Write "in this study" only if you mean your new results. If you mean a publication mentioned in a previous sentence, write "that study".

6. Remember that in scientific texts the word "which" should be used in non-defining clauses, while "that" in defining clauses.

Full EASE guidelines are available online:

http://www.ease.org.uk/.../2015/12/EASE-Guidelines_2016.pdf

The most common language mistakes

This is the list of the most common language mistakes noticed by our American editors.

1. Abbreviations in titles (expandind them will help with work being found and possible citations).

2. Forgetting about articles (e.g., a, the)

3. Using too many conjunctions in a single sentence (e.g., and, but, if, or).

4. Excessively long or very short paragraphs. A paragraph should be around 5–10 sentences long and discuss 1 particular aspect relevant to the study.

5. Wordiness. A single sentence should not exceed 3 lines (maximum).

6. Incorrect use of transitional phrases (e.g., moreover, furthermore, however).

7. Forgetting about commas to break up longer sentences.

8. Repetitive wording or discussion, e.g., each paragraph starting with: Smith et al. showed that […]. Jones et al. reported that […]. Evans et al. found that […].

9. Inconsistent use of abbreviations. If an abbreviation is introduced, the same one should continue to be used throughout the text.

10. Writing "statistical analysis" instead of "statistical analyses". Normally more than 1 analysis is carried out.

11. Forgetting about statements of significance, e.g.: Values where $p < 0.05$ were considered statistically significant.

12. Using decimal commas rather than decimal periods.

Title of the paper

Titles should be concise, informative and include key points of the work.

Use subtitles only if it is necessary to amplify the title. The main title should be able to stand alone.

MISTAKE: Sleep patterns: Differences between elderly men and women

CORRECT TITLE: Differences in sleep patterns in elderly men and women

Expand and initialize genus and species.

MISTAKE: Outbreaks of **C. pneumoniae** in nursing homes

CORRECT TITLE: Outbreaks of ***Chlamydophila pneumoniae*** in nursing homes

Avoid questions, because they are more appropriate for opinion pieces, not for research articles.

MISTAKE: Avoidable delays? Factors that affect physician wait times in inner-city clinics

CORRECT TITLE: Factors that affect physician wait times in inner-city clinics

Spell out all numbers if they appear at the beginning of a title.

MISTAKE: **5-year** survival among patients with advanced skin, renal and lung cancer treated with nivolumab

CORRECT TITLE: **Five-year** survival among patients with advanced skin, renal and lung cancer treated with nivolumab

Jargon

Academic writing should be correct, concise and precise. It is best to avoid too informal, vague, exaggerated, or subjective language. Below we present some common mistakes (and how to correct them).

MISTAKE: The baseline **exam** took place in a mobile unit equipped with ophthalmologic devices.

CORRECT SENTENCE: The baseline **examination** took place in a mobile unit equipped with ophthalmologic devices.

MISTAKE: Human T-lymphotropic virus 1-associated myelopathy can occur in individuals predisposed to pneumonia and **urinary infections**.

CORRECT SENTENCE: Human T-lymphotropic virus 1-associated myelopathy can occur in individuals predisposed to pneumonia and **urinary tract infections**.

MISTAKE: Laboratory findings were within the **normal** range.

CORRECT SENTENCE: Laboratory findings were within the **reference** range.

MISTAKE: The patient's blood **sugar** level was 37 mg/dL and her protein level was 25.0 g/dL.

CORRECT SENTENCE: The patient's blood **glucose** level was 37 mg/dL and her protein level was 25.0 g/dL.

MISTAKE: A 78-year-old woman with a **congenital heart** and a history of high blood pressure and **heart attack** was admitted to the hospital and **prepped** for surgery.

CORRECT SENTENCE: A 78-year-old woman with a **congenital heart disease** and a history of high blood pressure and **myocardial infarction** was admitted to the hospital and **prepared** for surgery.

Potentially offensive language

Avoid labeling people with their disabilities or diseases.

MISTAKE: The study included **32 asthmatics and 30 diabetics**.

CORRECT SENTENCE: The study included **32 patients with asthma and 30 patients with diabetes**.

Avoid the term "elderly" as a noun because it connotes a stereotype.

MISTAKE: The study examined the incidence of stroke in **the elderly**.

CORRECT SENTENCE: The study examined the incidence of stroke in **elderly patients**.

Avoid describing persons as victims.

MISTAKE: **Patients suffering from AIDS** were treated with potent antiretroviral therapy.

CORRECT SENTENCE: **Patients with AIDS** were treated with potent antiretroviral therapy.

Avoid common-gender "pronouns".

MISTAKE: Each patient revealed that **s/he** had been engaging in rigorous exercise immediately before experiencing heart palpitations.

CORRECT SENTENCE: The patients revealed that **they** had been engaging in rigorous exercise immediately before experiencing heart palpitations.

Redundant words

Successful medical writing should be precise, so please expresses your ideas without unnecessary wordiness. Here, we present common mistakes and ideas how to correct them:

MISTAKE: The rash on his skin was red **in color** and rough **in texture**.

CORRECT SENTENCE: The rash was **red and rough**.

MISTAKE: **It goes without saying that** the newly approved drug **will produce an inhibitory effect on** the AIDS-related symptoms.

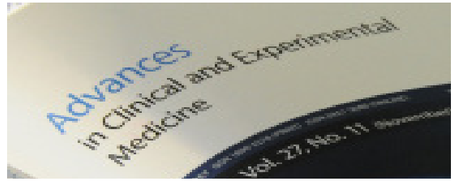
CORRECT SENTENCE: The newly approved drug **will inhibit** the AIDS-related symptoms.

MISTAKE: He obtained a **completely** comprehensive medical history for each **individual** patient.

CORRECT SENTENCE: He obtained a comprehensive medical history for each patient.

MISTAKE: Research **in the field of genetics** has increased since the completion of the fifth human genome map.

CORRECT SENTENCE: Research **in genetics** has increased since the completion of the fifth human genome map.



Incorrect use of language

Each of the following sentences contains 1 usage error. Can you identify them?

MISTAKE: A lymphomatous leptomeningeal involvement was ruled out by **negative** cerebral, spinal and cranial magnetic resonance imaging.

CORRECT SENTENCE: A lymphomatous leptomeningeal involvement was ruled out by **negative findings** from cerebral, spinal and cranial magnetic resonance imaging.

EXPLANATION: Examinations and laboratory tests are not negative or positive. These adjectives apply to observations, results or findings.

MISTAKE: Pericarditis has been reported as a rare **side effect** in patients treated with low doses of methotrexate for various benign conditions but not with high doses in aggressive lymphomas.

CORRECT SENTENCE: Pericarditis has been reported as a rare **adverse effect** in patients treated with low doses of methotrexate for various benign conditions but not with high doses in aggressive lymphomas.

EXPLANATION: Side effect is a secondary consequence of therapy implemented to correct a medical condition. Because a side effect can be either beneficial or harmful, it is better to use the term "adverse effect".

MISTAKE: Shortly after week 2, most of the smaller ulcers were almost completely re-epithelialized, and **fewer** than 50% of the larger ulcers remained.

CORRECT SENTENCE: Shortly after week 2, most of the smaller ulcers were almost completely reepithelialized, and **less** than 50% of the larger ulcers remained.

EXPLANATION: Use "fewer" for numbers and "less" for volume or mass. In percentages and money, use "less" rather than "fewer".

MISTAKE: Study participants were selected from a birth cohort study of individuals younger than 21 **years of age**.

CORRECT SENTENCE: Study participants were selected from a birth cohort study of individuals younger than 21 **years**.

EXPLANATION: When the terms "older" and "younger" are used, age is implied, so the term "of age" is redundant.

Capitalization

Capitalize proper names of the eponym, but not the common nouns that follow.

MISTAKE: After extensive testing, the physician determined that the infant had Chediak–Higashi **Syndrome**.

CORRECT SENTENCE: After extensive testing, the physician determined that the infant had Chediak–Higashi **syndrome**.

Do not capitalize common words derived from proper nouns.

MISTAKE: The patient began to demonstrate **Parkinsonian** symptoms in his late 50s.

CORRECT SENTENCE: The patient began to demonstrate **parkinsonian** symptoms in his late 50s.

Do not capitalize the words from which you derive an acronym (unless these words are proper names).

MISTAKE: In 1985, Bruce Beutler identified and purified **Tumor Necrosis Factor (TNF)**.

CORRECT SENTENCE: In 1985, Bruce Beutler identified and purified **tumor necrosis factor (TNF)**.

Do not capitalize compass directions (unless they are generally accepted terms for regions).

MISTAKE: The patient sample was mainly from **Southern** Missouri.

CORRECT SENTENCE: The patient sample was mainly from **southern** Missouri.

REMEMBER!

Southern blot was named after Edwin Southern. Therefore:

MISTAKE: Using the **southern** blot hybridization technique, 2 cases of 'neoplastic angioendotheliosis' were examined for immunoglobulin gene rearrangements.

CORRECT SENTENCE: Using the **Southern** blot hybridization technique, 2 cases of 'neoplastic angioendotheliosis' were examined for immunoglobulin gene rearrangements.

Problems with punctuation

Do not use a comma between 2 or more measures of the same dimension (e.g., time).

MISTAKE: The patient was **12 years, 3 months** of age.

CORRECT SENTENCE: The patient was **12 years 3 months** of age.

Do not use a colon immediately after the verb "include".

MISTAKE: Other therapies that have been tried **include:** systemic corticosteroids, topical retinoids, nicotinamide, pentoxifylline, aspirin and dipyridamole, clofazimine, hyperbaric oxygen, and fumaric acid esters.

CORRECT SENTENCE: Other therapies that have been tried **include** systemic corticosteroids, topical retinoids, nicotinamide, pentoxifylline, aspirin and dipyridamole, clofazimine, hyperbaric oxygen, and fumaric acid esters.

Do not enclose in quotation marks words or phrases following "so-called".

MISTAKE: Treatment of **so-called "crush syndrome"** includes resolution of limb swelling and reduction of edema.

CORRECT SENTENCE: Treatment of **so-called crush syndrome** includes resolution of limb swelling and reduction of edema.

Do not use apostrophes when you form the plurals of numerals.

MISTAKE: The study examined women in their early **40's** who had undergone hysterectomies in the previous 5 years.

CORRECT SENTENCE: The study examined women in their early **40s** who had undergone hysterectomies in the previous 5 years.

Do not use a quotation mark when you use a non-English word or when you mention or define a term.

MISTAKE: PubMed was searched for the following keywords: **"diabetes," "high blood pressure," "heart disease," and "overweight"**.

CORRECT SENTENCE: PubMed was searched for the following keywords: **diabetes, high blood pressure, heart disease, and overweight**.

British and US English spelling

Our journal publishes only articles written in US English. This is not obvious, as many renowned scientific publishers around the world adhere to the rules of British English and many authors can be used to them. However, consequence in choosing one form of English is a mark of professionalism of the journal, so we cannot respect authors' preferences in this matter.

The differences between American English and other forms of this language encompass vocabulary and spelling as well as grammar, but in scientific writing, the former disparities are more important.

Here's a summary of the most important spelling differences between American and British English:

're' and 'er'

BrE centimetre	AmE centimeter
BrE centre	AmE center

'lyse' and 'lyze'

BrE analyse	AmE analyze
BrE catalyse	AmE catalyze
BrE paralyse	AmE paralyze

'our' and 'or'

BrE tumour	AmE tumor
BrE labour	AmE labor
BrE behaviour	AmE behavior

'oe' and 'e'

BrE coeliac	AmE celiac
BrE dyspnoea	AmE dyspnea
BrE oedema	AmE edema
BrE aetiology	AmE etiology

other differences:

BrE ageing	AmE aging
BrE fulfil	AmE fulfill
BrE per cent	AmE percent

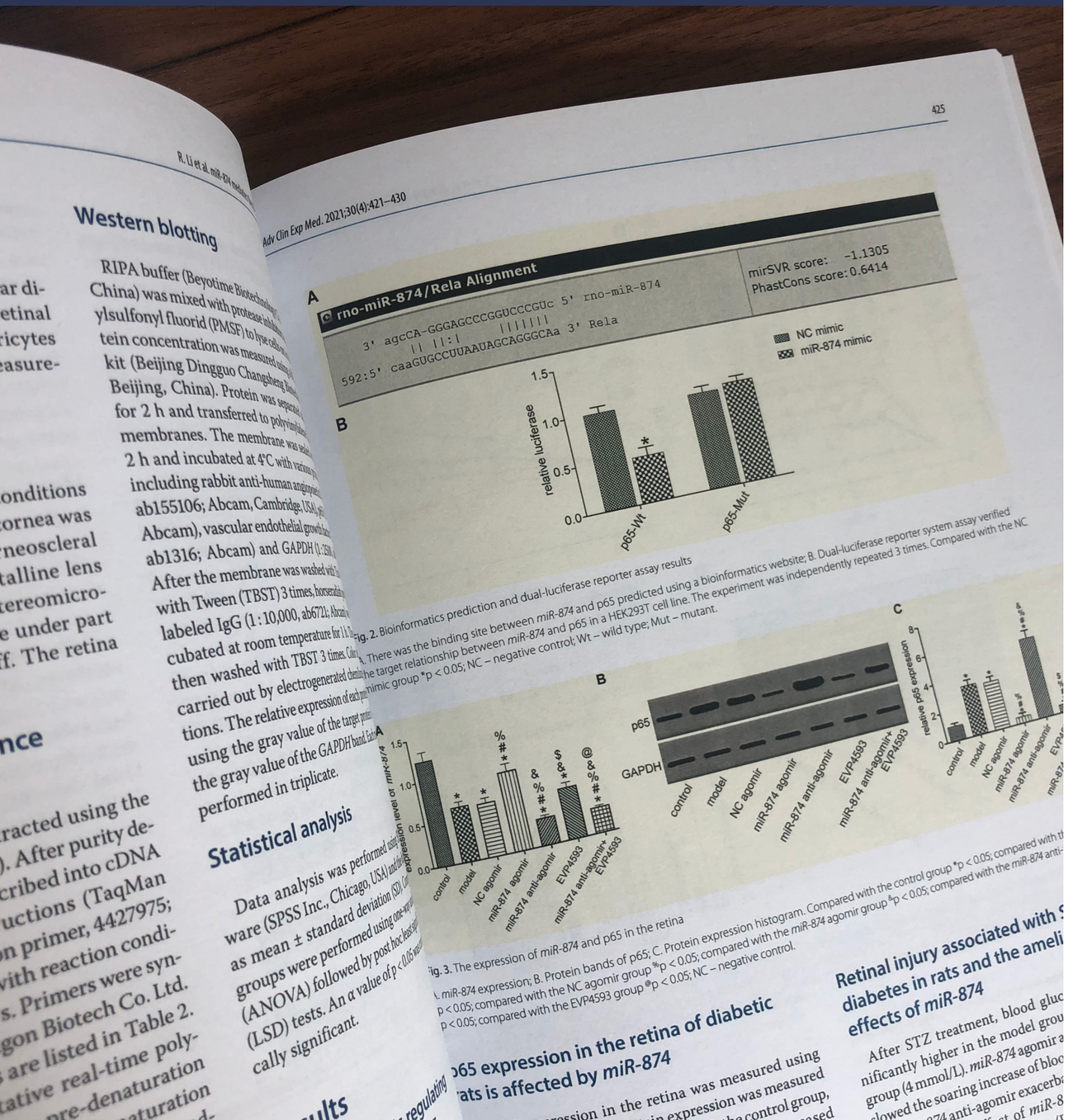
There are words where British writers prefer a single l and Americans a double l. In American usage, the spelling of words is usually not changed when they form the main part (not prefix or suffix) of other words, especially in newly formed words and in words whose main part is in common use. Words with this spelling difference include willful, skillful, thralldom, appall, fulfill, fulfillment, enrollment, installment, etc.

Abbreviations and acronyms

Abbreviations should not be used unless they appear at least 3 times in the text. Nonstandard abbreviations should be avoided, as well as confusing abbreviations (e.g., SD standing for something else than standard deviation).

Do not use abbreviations in manuscript titles (except when space considerations require otherwise) or figure legends and table titles. In rare cases when the abbreviation is more familiar than the expansion, the abbreviation alone can be used (e.g., DNA).

Expand each abbreviation when it appears in the text for the first time and then consequently use only the abbreviation when the given term appears. When the expansion and the abbreviation are used alternately, the editors will have to unify them in the whole manuscript.



D. STATISTICS: common mistakes

Presenting and analyzing only the p-value

In general, strong attention is often paid to p-value only. Effect size is frequently omitted when means and/or medians are compared. Effect size measures should also be provided, e.g., differences between 2 means (if a sample mean was used as an estimator of the location parameter), odds ratios (ORs), correlation coefficients, relative risk (RR), coefficient of determination in regression (R^2) analysis, etc. For most of the presented effect sizes, their confidence intervals (CIs) will be required to be reported on standard significance coefficient, e.g., $\alpha = 0.05$, so 95% CI is appropriate in most cases ($0.01 \leq \alpha \leq 0.1$). The results should be statistically described using basic description statistics, e.g., min, max, median (Me), mean, 1st and 3rd quartile, standard deviation (SD), median absolute deviation, number of observations, etc.

Faulty usage of basic description statistics

Parametric statistics (mean, SD) are sometimes improperly used for a description of a variable with abnormal data distribution. Sample size is often presented not clearly , e.g., "at least 5".

Presenting numerical results in tables

When the aim of a table is presenting differences between medians, means, etc., using figures would be much more communicative for a reader. Table headers are often too general, too "passive", not indicating the problem that is presented there. Explanations included in table headers or footers are often insufficient, which renders a table non-self-explainable.

Choosing between parametric and nonparametric methods

This key element of statistical analyses is one of the 2 most important weaknesses of the submitted manuscripts.

Parametric test are very often run without checking if test assumptions are met (e.g., normal distribution, variance homogeneity, etc.). As it is a key element of reliable statistical analysis, the results should be clearly presented in a supplementary table.

Parametric tests are overused. They are used even when a sample size is 3. However, normality test performed with the use of 3 data is completely unreliable.

An example:

The data set: 1, 2, 25

Shapiro–Wilk test: W = 0.78, p = 0.07

Conclusion: OK, it is normal distribution (!)

Parametric methods are preferred over nonparametric rank tests. If data do not meet the criteria for preferred parametric method, e.g., observations are not symmetrically distributed or heavy one-tailed, data should be transformed first (e.g., with Box–Cox method) and information about the type of the transformation must be included in the Statistical analysis section.

Failing to perform multiple comparison (ANOVA, Kruskal–Wallis, etc.)

A table with full results of the ANOVA is often lacking. Usually, post hoc tests are reported insufficiently, only focusing to threshold p-values (0.05, 0.01) instead of presenting a full table of post hoc test results.

Unplanned (a posteriori) comparisons made when the data are analyzed using ANOVA

In case of data analyzed with ANOVA, predefined (a priori) comparisons (contrasts) are preferred over unplanned (a posteriori) comparisons. Whenever the k conditions (level of a factor) can be arranged from the smallest to the largest level, polynomial orthogonal contrasts should be used and tested on 1 degree of freedom in nominator, instead of multiple comparisons after omnibus test of ANOVA one obtained as significant. Full tables of ANOVA must be included either in the main text or in supplementary materials, but supplementary files are preferred.

Using box and whisker plots rather than bar plots

Contrary to our clear recommendations, the bar plots are overused when the figures are aimed at comparing central tendencies (means, medians). Instead of bar plots, box and whisker plots showing 95% CI should be used, because they allow to identify statistically significant differences (roughly, but easily).

Authors should avoid presenting comparisons of different groups by plotting bar plots with means and SDs (as well as the standard error of the mean, SEM) as whiskers. Such information must be presented in tables. When a sample size is sufficient, box-and-whiskers plots can be used to graphically describe and compare the data. Otherwise, points can be presented individually on the plot with average level (mean, median, etc.). In descriptive statistics, a box plot or boxplot (also known as box and whisker plot) is a type of chart used to visually show the distribution of numerical data and skewness through displaying the data quartiles (or percentiles) and averages. Box plots show the five-number summary of a set of data, including the minimum score, 1st (lower) quartile, median, 3rd (upper) quartile, and maximum score.

More on box plots:

http://www.simplypsychology.org/boxplots.html

Reporting p-values without the test name, df, the test values, etc.

It is one of the 2 most important weaknesses of the manuscripts submitted. Often, the results of the statistical analysis are reported based on p-value only. It hampers easy following the paper contents, and very often it makes assessing the quality of the analyses impossible. It is important especially when several different tests are used in a paper. The test names, df, N, test values, etc., also often lack in figure captions and table headers, which makes them non-self-explainable.

Inappropriate statistical values presentation

The p-values are often presented in full length regardless of the number of decimal places, e.g., $p = 0.47965415$, also when the p-value is very small, e.g., $p = 0.0000855$. The p-values must be presented as first 4 decimal places, e.g., $p = 0.47965415$ expressed as $p = 0.4796$. In case of very low values, e.g., $p = 0.0000855$, p-values must be expressed as $p < 0.0001$. Authors should avoid performing too many and unnecessary statistical comparisons with hypothesis testing. Instead, effect sizes should be presented with confidence intervals. Nonsignificant results must also be reported to avoid bias in publications and future meta-analyses.

When statistics funded on degrees of freedom (df) were used (t-test, ANOVA, χ^2 test, etc.), authors must report not only p-values but also degrees of freedom (df).

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