How to write
a Scientific Paper

pagepress

www.pagepress.org

Why a scientific format?

The scientific format has a rigid structure that is a means of efficiently communicating scientific findings and allows the paper to be read at several different levels.

Article structure in publishing

Title, **Abstract** and **Keywords**

The **article text** follows the **IMRaD** format, which responds to the questions below:

Introduction: Why was the study undertaken?
What was the purpose of the research?
Methods: When, where, and how was the study done? What materials were used or who was included in the study groups (patients, etc.)?
Results: What did the study find? Was the tested hypothesis true?

and

Discussion: What might the answer imply and why does it matter?
What are the perspectives for future research?
The main text is followed by the Conclusion, Acknowledgements, References and Supporting Materials (optional).

Strategy for Writing

Organizing your manuscript

When you organize your manuscript, the *first thing to consider* is that the **order of sections** *will be very different than the order of items on your checklist*

1. Write the Methods – clearly explain how you carried out your study.
2. Write the Results - decide a logical order that tells a well-defined story, easy to read and understand. Remember: you are *presenting* your results, do not refer to others' citing References in this section.
3. Write the Discussion - here you must respond the question "What the results mean?"
4. Write a clear Conclusion - provide a clear and strong scientific rationale for your research. If appropriate, you can here suggest future experiments / researches.
5. Write a compelling Introduction - convince readers (and Reviewers, and Editors) that your research is useful, and introduce some previous publications on which you based your work.
6. Write the Abstract – keep in mind that this section convinces, or not, researchers to read and cite your article: be concise, descriptive yet interesting.
7. Identify a descriptive but concise Title – it is your first opportunity to attract readers, and remember the first readers are Editors and Referees.
8. Select Keywords for indexing – avoid words already present in the Title, and ones with a too broad meaning.
9. Write the Acknowledgement - include, for example, technical help and assistance in writing, language revision, Funding agency, grants, university projects, etc.
10. Write up the References - cite all the scientific publications on which your work is based.

quick tip

Finalize the *Results* and *Discussion* **before** writing the Introduction. It could sound contradictory, but think about: if the *Discussion* is scarce and inconsistent, how can you solidly demonstrate the scientific significance of your work in the Introduction?

Preparation of Figures and Tables

- Remember that the visual tools of your paper are the first visible and the most efficient way to present your results.
- How to decide between illustrating your data with Figures or Tables? Generally, **Tables** give the actual experimental results, while **Figures** are often used for comparisons of experimental results with those of previous works, or with calculated/theoretical values.
- No illustrations should duplicate the information described elsewhere in the manuscript and remember that the legends have to be self-explanatory.

quick tips

- Never include **long** boring tables or unappealing figures (*e.g.*, chemical compositions of suspension systems or lists of species and abundances). You can include them as supplementary material.
- Unless unavoidable, instead of modifying/adapting previously-published materials, consider that originality and creativeness in preparing tables and figures is regarded as an added value
- Be conscious that presentation consistency is key; before submitting, check once more.

remember

That each journal has its own style guidelines, so always consult the publisher's Guide for Authors, also for the References list and citations format, and for the requested set-up, resolution, etc. for illustrations.