



# How to Peer Review: Easy Guide

## Why serve as a Peer Reviewer

As well as supporting the advancement of science, and providing guidance on how the author can improve their paper, there are also some benefits of peer reviewing to you as a researcher:

- You will get to read some of the latest science in your field well before it is in the public domain
- The critical thinking skills needed during peer review will help you in your own research and writing
- Serving as a peer reviewer looks good on your CV as it shows that your expertise is recognized by other scientists

## Title, Abstract and Key Words

Some questions to ask yourself about the title, abstract and key words are:

- Does the title accurately say what the study was about? If not, can you suggest a different title?
- Does the abstract effectively summarize the manuscript?
- Could the abstract be understood by a researcher outside your specialty?
- Does it include enough information to stand alone? Does the abstract contain information that is unnecessary?
- Is there any information in the abstract that is not in the main text of the manuscript?
- If present, will the key words help readers to find the article? Are they specific, and do they represent the manuscript content?

### For more information

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### Tip

If you suspect image manipulation or believe it would be beneficial to see the uncropped and unedited versions of the images inform the editor in the 'confidential comments' to the editors section. They can then request the original figure files from the authors.

### Tip

Recommendations are usually one of the following: accept manuscript in its current form, publish with minor changes, publish only if major improvements are made, or to reject the paper.

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## Introduction

While reviewing the Introduction, ask the following questions:

- Does it explain the background well enough that researchers outside your specialty can understand it?
- Does it accurately describe current knowledge related to the research question?
- Does the Introduction contain unnecessary information? Can it be made more concise?
- Are the reasons for performing the study clear?
- Are the aims of the study clearly defined and consistent with the rest of the manuscript?
- Have the authors missed any key references that would be important for a reader to access? Make suggestions for additional, relevant references if necessary

## Materials and Methods

### Remember:

- It should be clear from the Methods section how all of the data in the Results section were obtained
- The study system should be clearly described
- In most cases, the experiments should include appropriate controls or comparators.
- The outcomes of the study should be defined, and the outcome measures should be objectively validated
- The methods used to analyze the data must be statistically sound

## Results and Figures

### Remember:

- For figures, check that the plotted parameters are clearly defined
- Table headings and figure legends should be detailed enough that readers can understand the data without reading the main text

## Statistics

Some questions to ask as you review statistical analyses and results are:

- Was the sample size appropriate and/or justified? Did the authors perform a power analysis as part of their study design?
- Did the data meet the assumptions of the tests used?
- Are the individual data points statistically independent?
- Have potential sources of bias (e.g. confounding variables) been considered and accounted for in the analysis?
- Are p-values reported where appropriate?

## Discussion and Conclusion

In the Discussion and Conclusion sections, authors should interpret the results, place them in context of previous findings, and explain what they mean for future research, as well as for possible real-life applications. If the author has not made these points as clear as they should be, note this in your review.

## Writing a reviewer report

Whether you recommend accepting or rejecting the manuscript, keep in mind that one of your goals is to help the authors improve this and future manuscripts—not to make them give up in despair. Avoid overly negative wording or personal comments, point out the main strengths of the manuscript as well as its weaknesses, and suggest specific ways to fix the problems you identify.