



Ten Tips for Performing Your First Peer Review: The Next Step for the Aspiring Academic Plastic Surgeon

Martin Frensdø, MD, PhD^{1,2}  Andreas Frithioff, MD^{1,2} Steven Arild Wuyts Andersen, MD, PhD^{1,2} 

¹Copenhagen Academy for Medical Education and Simulation, Center for HR & Education, Region H, Copenhagen, Denmark

²Department of Otorhinolaryngology, Head & Neck Surgery and Audiology, Rigshospitalet, Copenhagen University Hospital, University of Copenhagen, Copenhagen, Denmark

Address for correspondence Martin Frensdø, Department of Plastic and Reconstructive Surgery, Herlev University Hospital, Copenhagen, Denmark and Copenhagen Academy for Medical Education and Simulation, Rigshospitalet, Blegdamsvej 9, Copenhagen, DK-2100, Denmark (e-mail: martin.frendoe-soerensen.01@hotmail.com).

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Abstract

Performing the first peer review of a plastic surgical research article can be an overwhelming task. However, it is an essential scholarly skill and peer review is used in a multitude of settings: evaluation of journal articles, conference abstracts, and research proposals. Furthermore, peer reviewing provides more than just the opportunity to read and help improve other's work: peer reviewing can improve your own scientific writing. A structured approach is possible and recommended.

In these ten tips, we provide guidance on how to successfully conduct the first peer reviews. The ten tips on peer reviewing concern: 1) Appropriateness: are you qualified and prepared to perform the peer review? 2) Familiarization with the journal and its reviewing guidelines; 3) Gathering first impressions of the paper followed by specific tips for reviewing; 4) the abstract and introduction; 5) Materials, methods, and results (including statistical considerations); and 6) discussion, conclusion, and references. Tip 7 concerns writing and structuring the review; Tips 7 and 8 describe how to provide constructive criticism and understanding the limits of your expertise. Finally, Tip 10 details why—and how—you become a peer reviewer. Peer review can be done by any plastic surgeon, not just those interested in an academic career. These ten tips provide useful insights for both the aspiring and the experienced peer reviewer. In conclusion, a systematic approach to peer reviewing is possible and recommended, and can help you getting started to provide quality peer reviews that contribute to moving the field of plastic surgery forward.

Keywords

- ▶ peer review
- ▶ continuing medical education
- ▶ plastic surgery

Peer review of the academic paper is considered an essential part of the publication process and used to evaluate if the paper is suitable for publication. Peer review has the potential to improve the quality of submitted papers and support

the editorial decision in plastic surgical journals and beyond. However, opponents of peer review highlight that peer review lacks evidence, delays publication, and prevents innovation. Furthermore, reviewers often cannot detect

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scientific misconduct because they are too detached from the data.¹ A Cochrane review concluded that “(...) little empirical evidence is available to support the use of editorial peer review as a mechanism to ensure quality of biomedical research.”² Still, peer review remains a cornerstone in scientific research.

Even though peer review has existed since the 18th century and has been used by most medical journals since the 1950s,^{3,4} there is no clear consensus on its implementation—such as several reviewers, instructions for reviewers, the format of the review, etc. As a result, this varies widely between journals⁵ even within a smaller field such as plastic surgery. However, in most journals, the peer review process includes a preliminary screening by the editorial office, followed by feedback on the manuscript by a varying number of peers. Ultimately, the editor—not the reviewer—decides whether to reject, accept, or suggest a revision of the manuscript.⁶ “Golden rules” and good practice checklists for peer review have been proposed.⁷ Reviewers’ “should do” include timely review, declaration of conflicts of interest, and confidentiality.

As a first-time reviewer, it can be an overwhelming and daunting task to begin peer reviewing. Often, there is little or no formal training and peer review is learned by doing, rather than introduced in a systematic fashion as, for example, part of a PhD program.⁸ Online resources and publications are great sources of information but are often scattered. Besides providing an opportunity to read and help improve the latest research in the field, performing peer reviews and knowing the process have several advantages for the junior researcher: it can also help improve your own scientific writing and beyond as peer review is often used to evaluate grant applications, conference papers, and abstracts.

In the paper “How to review a paper for Archives of Plastic Surgery, communicate as a reviewer, and handle disagreements with authors,” Kim addresses basic tasks for peer reviewers in *Archives of Plastic Surgery*.⁹ In the present paper, we aim to supplement Kim’s paper with some practical perspectives, providing a junior reviewer with 10 tips for a structured and pragmatic approach to peer reviewing.

Ten Tips

Tip 1: Appropriateness

When being offered the opportunity to review, first consider if you are familiar with the subject, the area of research, the methodology, or other key aspects. If the information provided in the invitation to review (e.g., the abstract) is not sufficient to make this decision, write the editorial office and ask them to provide the necessary details. Second, ensure that you have time to do the review within the deadline stated in the invitation or ask if the deadline can be postponed. The mean time spent performing a peer review has been reported to be 3 hours (range, 0.5–16 hours, $n = 113$),¹⁰ but as a first-time reviewer, expect your first peer review to take a whole day.¹¹ The mean total evaluation period in *Archives of Plastic Surgery* was 15.7 days from 2013 to 2018.¹² It is highly advisable that you do not postpone starting your

peer review close to the deadline as you most likely will need to read through current literature and key references. If you are unable to review the paper, many journals appreciate suggestions for alternative reviewers.¹³ Finally, before accepting the invitation to review, consider if you have any conflicts of interest that could influence your review; if in doubt, contact the journal editor and declare these in your review notes to the editorial office at the time of submission. It is imperative to keep content confidential.

Optimally, you are familiar with the journal because you read it regularly and have previously submitted your work to the journal yourself or even published one or more articles in the journal. If this is not the case, consider if the journal is well established and legitimate before you spend time performing a peer review. We discourage peer reviewing for predatory journals.¹⁴ Find some of the journal’s recent publications and note the topic areas and studies published. It is important that you know the aims and scope of the journal as well as the type of studies the journal considers for publication—this information is generally found on the journal’s Web site. Also, note who the journal’s intended readership is and use it as a lens for your review: Are the readers mainly clinicians or theorists? Are they generalists or specialists within a particular subspecialized field (or geography)?

Tip 2: Pragmatic Practicalities and Reviewing the Journal-Specific Guidelines

The International Committee of Medical Journal Editors (ICMJE; previously known as the Vancouver Group) recommendations have brief sections on the peer review process and the role of the peer reviewer,¹⁵ but there is no validated or generally accepted instrument for ensuring a comprehensive review. Refer to the journal’s guidelines for authors and/or reviewers if any; these can be found on the journals’ Web site or will be mentioned in the invitation for review. Note that some journals require reviewers to structure their review in a particular way or answer specific questions in addition to providing the review. For many types of studies, relevant reporting guidelines exist¹⁶ (e.g., the PRISMA guidelines for systematic reviews¹⁷ or CONSORT^{17,18} guidelines for randomized trials). Knowledge on reporting guidelines is essential both as a reviewer and as an author ensuring the quality of the studies. Statistical guidelines can help assess the comprehensiveness of the statistical reporting.¹⁹ We therefore strongly recommend checking the EQUATOR network Web site for an overview of reporting guidelines (<http://www.equator-network.org>). However, most important is to always keep a systematic approach that ensures you address key aspects of the paper.

Tip 3: Gather First Impressions

Read or skim the manuscript to get an overview of the paper, the research question, and methods, before diving into the specifics. Consider if the conditions of Tip 1 are still met, particularly sufficient familiarity with the subject. After skimming the paper, identify and consider whether the paper has a clear research question. Ideally, this should be

evident from every part of the paper rather than be meticulously extracted from reading between the lines. A good paper pivots on a clear research question or hypothesis and this guides the entire paper and should be immediately obvious at the first read. Next, consider if this research question matters to the readership of the journal: clinicians, peer researchers, policymakers, patients, or other stakeholders by asking the questions: Is there a gap in this research area and does the paper fill this gap? Does the paper contribute to the current debate in the field or challenge existing paradigms? Is the title easy to understand and does it adequately reflect the research question? When reading through the paper, was the language fluent and easy to understand or would the paper need language editing before publication? These first impressions are important to sum up when providing your review.

You are now ready to systematically review the paper and the next three tips walk you through important considerations when reviewing different parts of the paper.

Tip 4: The Abstract and the Introduction

After the initial quick read of the paper, systematically dive into the specific sections of the paper, beginning with the abstract. First of all, does the abstract follow the journal guidelines (structured with specific headings or unstructured)? Next, does it adequately reflect the main points and content of the paper? It is important to consider the agreement between abstract and main text in the introduction, the materials and methods, results, discussion, and/or conclusion sections. This may require that you return to the abstract after reviewing these sections in detail. Thoroughly read the introduction: does it provide sufficient background to understand the relevance of the research question? Does the introduction draw on current literature—and are there any omissions of relevant studies you are aware of? Is it apparent why there is a need for the study and what will it potentially add to the current knowledge in this field? The excellent introduction section funnels toward a clear objective and research question.

Tip 5: The Materials, Methods, and Results

Based on the main research question, consider how the study was performed: is the study design suitable to answer the research question? Are the study subjects representative of the population and sampled adequately with relevant inclusion and exclusion criteria? Consider whether the intervention or exposure is well defined and described in sufficient detail so that peers would be able to reproduce the study. Is there a comparison with another method or a control group, and if so, is it appropriately chosen? Next, are all the outcome measures clear and defined? Are the statistical methods appropriate? Are sample-size calculations relevant? Is ethics approval mentioned? A good materials and methods section provides credibility and reproducibility, making it very clear how the study was conducted.

In the results section, ensure that results are presented for all the outcomes described in the material and methods section—and only for those described. Tables and figures

should aid in interpreting the data and be understandable as stand-alone. Although you might not be an expert in statistics, there are several things that you can look for in any quantitative paper: Do numbers add up in tables and text, and are numbers consistent throughout the paper (abstract, results, figures, tables)? For descriptive statistics, consider if data are continuous, ordinal, or categorical. If continuous data are normally distributed, means and standard deviations are appropriate; for non-normal and ordinal data, medians and ranges are appropriate, whereas categorical data may be expressed as proportions.¹⁹ Percentages should, however, usually be presented with raw numbers as well and estimates with confidence intervals. Beware of *p*-values: numerous *p*-values reported could indicate multiple testing and subgroup analyses that were not prespecified—did the authors account for multiple significance testing?²⁰ Consider the clinical and practical implication of statistically significant findings: Even a significant result may be clinically irrelevant or inconsequential. Take a critical look at the covariables in models: are these based on theory or research hypotheses? If the paper uses advanced statistical methods that are not easily understood or unconventional, it might be appropriate to suggest that the editor obtains a separate statistical review. If you are unfamiliar with a central aspect of the statistical analysis, mention this in your notes to the editor.

Some journals require data sharing. *Archives of Plastic Surgery* also encourages data sharing wherever possible, although there is currently no data sharing policy. Access to the raw data makes it possible for peers to check the data and ensure that the statistical analysis was performed correctly.²¹

Tip 6: The discussion, Conclusion and References

The Discussion section of a manuscript should generally include a brief summary of key findings, an interpretation of the results, provide context to the findings, discuss strengths and limitations, and form a conclusion.²² As a reviewer, ensure that the discussion provides an interpretation of the data and juxtaposition with the current body of literature. The authors should provide potential and credible explanations for their findings. Is it clear what the study adds to current knowledge and what the potential implications of the findings are? Both study strengths and potential weaknesses should be mentioned and, finally, the interpretation and conclusion must be supported by the study's data. Frequently, the impact and generalizability of findings are overstated. Also, look at the references—are they appropriate, do they cite the original source of the statement or finding, and are relevant key papers omitted? Seeking out relevant references, which are not cited is often overlooked by reviewers, including in *Archives of Plastic Surgery*.²³ An exemplary discussion should interpret results balanced and matter-of-fact.

Tip 7: Structure for Writing Your Review

A peer review will always be subjective to some degree and you are asked to assess the manuscript based on your

knowledge and experience. However, you must base your comments on objective findings in the manuscript. A systematic approach to comprehensively reviewing each part of the paper (Tips 4–6) will aid you in doing this. Structure your review either divided by major/minor criticisms organized from the most important to the least, or organize your review section by section. Importantly, always provide constructive criticism (see Tip 8). When writing your review, we recommend beginning with a one-paragraph summary of the paper, why you think the paper is interesting, for whom, and with which implications. This is valuable to the editor and also communicates to the authors that you have read and understood the paper. After the summary, start with any general comments you may have on relevance, content and organization, language, or similar. Finally, provide your specific comments. We recommend numbering your comments as it eases a potential rebuttal and revision. You might not have to make a final recommendation for acceptance/revision/rejection as the editor will make this decision. Nonetheless, many review systems ask a reviewer to make a decision of (accept, require revision, or reject).

Tip 8: Provide Constructive Feedback

When writing your review, think about which type of feedback you as an author would value and remember that one of your key goals as a reviewer is to help the authors improve their work. In most cases, the authors have good intentions with their research and have put substantial effort into conducting the study and drafting the manuscript, so be friendly and respectful and acknowledge their work. Avoid being a malignant and unconstructive reviewer. Constructive feedback is characterized by (1) being specific rather than vague and general and (2) to feed forward with suggestions for direction and improvement. Focus on objective points with specific and labeled references to the manuscript (i.e., page and line number) rather than subjective and unsubstantiated opinions. Give examples: what can be improved and how do you think this can be accomplished? Provide both negative and positive feedback; however, we discourage using the “sandwich” model as it is often misused—i.e., giving unspecific positive praise, then harsh criticism, finished with more (insincere) general praise. Finally, avoid metaphors, analogies, and words that might not translate across cultures and languages.²⁴ There are several politeness strategies for writing compliments and mitigating criticisms including the use of conditionals and hedging. Writing peer review comments more clearly may enhance communication between reviewers and authors.²⁵

Finally, it is usually possible to provide comments directly to the editor, which are not forwarded to the authors. This can be the place to include negative, unconstructive criticisms, and perhaps an opinion that the paper should be outright rejected or even accepted—the reviewer’s job is to help the editor make their final decision.

Tip 9: Always Understand the Limits of Your Expertise

Although you have been asked to do the review based on the expectation that you are knowledgeable on key aspects of the

paper, you might not be an expert on all parts of the manuscript. This is okay; just avoid giving seemingly authoritative feedback on topics that are beyond your expertise.²⁶ If you find a fatal flaw in the initial quick read of the paper or the quality of the paper is appalling, spend 30 minutes writing your argument instead of doing a comprehensive peer review. Reasons for a paper being unsalvageable can include vague or inappropriate methods, faulty design in prospective studies, internal inconsistencies or contradictions, and scientific misconduct such as plagiarism or duplicate publication. Conversely, statistical errors might be corrected. And for your review, remember that a high-quality review does not necessarily have to be lengthy.

Tip 10: Why Become a Peer Reviewer—and How?

Publishing in your field is the main gateway to becoming a peer reviewer. Often, the first invitations to peer review will come from the journals you have published in yourself. As your research gets cited, you will likely get invitations to peer review for other journals as well. Also, many journals provide authors with the opportunity to suggest potential reviewers, so being well known in your research community for example by presenting at conferences and scientific meetings may lead to reviewing requests. Further, the landscape of peer review is changing with new concepts such as open peer review, postpublication peer review, and the option to comment on papers online. At our peer review course (offered as part of the PhD program at the University of Copenhagen, Denmark), we often get asked when to do your first peer review—when are you ready? There is no general answer to this, but most scholars proficient in academic work (i.e., who have completed 3–4 publications as a first author) should be able to contribute as a peer reviewer and are encouraged to do so. Discuss peer-reviewing opportunities with supervisors and colleagues. However, we do not recommend doing your senior colleagues’ peer reviews for them: first of all, you will not be credited for it; second, it is simply dishonest. Most journals provide an option to suggest potential reviewers when declining to review. Otherwise, an e-mail from your colleague to the editorial office suggesting you as a reviewer based on your experience in the field will usually be well received. You could also let your research group know that you are open to being suggested as a peer reviewer if they have to turn down reviewing requests.

Conclusion

Doing your first peer reviews will be a time-consuming and challenging task. The reward of peer reviewing is that you get to read the latest research in your field, contribute as a scholar in improving other’s work, and get valuable insights into what constitutes good scientific writing. This, in turn, will be useful for your work. Our main advice is to keep a systematic approach and provide constructive feedback in your comments. Performing peer reviews is an integral part of being a researcher and should be encouraged.

Author Contributions

Conceptualization: M.F., A.F., S.A.W.A. Data curation: A.F., S.A.W.A. Formal analysis: S.A.W.A. Methodology: M.F., A.F., S.A.W.A. Project administration: M.F., A.F., S.A.W.A. Writing - original draft: M.F., A.F., S.A.W.A. Writing - review & editing: M.F., A.F., S.A.W.A.

Conflict of interest

None declared.

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