



Tips and tricks for how to become a good reviewer

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Abstract

Peer review is an essential process to ensure that scientific articles meet high standards of methodology, ethics and quality. The peer-review process is a part of the academic mission for physicians in the university setting. The work of reviewers is of great value for authors, as it gives constructive criticism and improves manuscript quality before publication. Often, however, reviews are of suboptimal quality. Usually, reviewers do not receive formal training either on how to perform a review or on the peer-review process. In addition, it is generally believed that experienced authors are great reviewers, but this may not always be true. The overarching goal of a review is to make the manuscript better; to help the authors. The purpose of this article is to offer relevant suggestions and provide a checklist on how to perform a useful review.

Introduction

The peer-review process is an essential component in manuscript publication, as it ideally provides an unbiased evaluation of the research. It aims significantly to improve the manuscript, consequently making it suitable for publication [4, 9]. Research is the foundation of the continued growth

of our profession and, as a result, scientific rigor and merit should always be carefully scrutinized prior to manuscript submission and subsequent publication. Peer reviewers must be adept and well versed in overall scientific methodology to provide meaningful and clinically relevant feedback; this includes understanding and having a detailed knowledge of the scientific methods, the current literature, new and emerging technology and techniques and historical studies.

Generally, most reviewers are not formally trained in how to perform a good review. Moreover, one common misconception is that experienced authors make great reviews, which may not always be the case. All potential reviewers, whether novice or experienced, should learn the nuances of the peer-review process through classes or review articles [6]. This article will comprehensively detail how to be a good reviewer and perform a useful peer review.

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Becoming a valuable reviewer

Volunteering for the peer-review process provides many benefits for the reviewer, as well as the authors. Joining a journal's peer-review list demonstrates an acknowledgment of the reviewer's expertise in the field, while allowing the reviewer to remain updated on the latest research in the field. A reviewer must bear in mind that scientific knowledge is constantly moving forward and the most recent scientific studies must, therefore, be evaluated, compared and included. Evaluating manuscripts dealing with novel and

sometimes unique topics may require delving into current literature on the specific topic, broadening the reviewer's knowledge of the topic. This may take some time, but it is time well invested. Additionally, the review process inevitably improves the writing skills of the reviewer, as the reviewer is able critically to evaluate various surgical techniques and topics, as well as different writing styles. Each journal comprehensively evaluates the quality of peer reviews and provide scores for each reviewer [3, 5]. The journals often reward those reviewers that consistently produce excellent reviews and even invite them to join the editorial board and eventually become an associate editor [3].

The role and qualities of a good reviewer

There are several important factors a potential reviewer must consider before agreeing to become a reviewer.

- Be familiar with the journal. Selecting a well-known and respected journal is key, as predatory journals are constantly being created and are looking for editorial board members. These predatory journals publish all content at a fee without a rigorous peer-review process, which allows poor and oftentimes fraudulent data to be published [7]. Honesty is always most important.
- The journal should be within the reviewer's scientific and/or clinical area of expertise. This allows the reviewer to provide a thoughtful, in-depth and expert review of the study methodology, findings and conclusion. It needs to be borne in mind that the methods are what matters most; with no good methods, there will be no reliable results. It also allows the reviewer to stay current on emerging technology in the reviewer's field of study. However, there will be occasions on which the topic falls slightly outside the reviewer's expertise, so a literature review may be required to provide an in-depth review of the topic. As already mentioned, this may take some time, but it will pay well at the end of the day.

Once the reviewer agrees to review for a journal, the reviewer has a responsibility to respond to requests in a timely fashion; this is important. If you decline for some reason, do it right away, without any delay. The reviewer should try to accept all requests, if possible, as long as they fall within the scope of the reviewer's practice. If the reviewer is unable to perform a review due to significant time restraints, a quick decline should be provided to the editor. In fact, this allows the editor to assign a new reviewer in a timely fashion. The reviewer may also suggest alternative, knowledgeable reviewers to help expedite the process. A decision to review should be given within 1–2 days. Once the review is accepted, the reviewer should attempt to complete the review

within 2 weeks. A practical tip is immediately to designate a time slot in your calendar to perform the review.

The reviewer should always perform the review meticulously. A review that is not well done is of no use but, in contrast, even prolongs the review process. If, at the end, a review is not much use, additional reviewers then need to be assigned.

The reviewer should suggest immediate rejection if the manuscript adds no substantial benefit to the current literature, has insufficient or faulty statistics, insufficient sample size, poor writing, is outside the scope of the journal or conclusions are not supported by the data. Many journals use so-called "Rapid Reject" when dealing with these manuscripts. This should always be done without any delay, for example, within 1 week, if possible. As mentioned above, the manuscript is sometimes outside the scope of the journal. In this case, we need to inform the authors in a clear, yet constructive and polite manner.

To produce a good review, the reviewer needs to understand what a good manuscript actually entails. Box 1 shows a checklist all reviewers should follow when evaluating a manuscript.

Box 1: Reviewer's checklist

General writing style	<p>Check that the format is correct. Authors must read and follow Instructions to Authors</p> <p>Be brief and concise! Many of the submitted manuscripts are too long. Scientific writing should be precise and concise not verbose</p> <p>Poor writing is not justified by good science and often cannot be fixed by reviewer's suggestions</p> <p>The reviewer should primarily evaluate the scientific value and quality of the submitted manuscript. However, if the writing is poor, including a large number of spelling and grammar mistakes, this should be seen as a sign of poor due diligence. Clearly, a poorly written manuscript does not increase confidence in the quality of the paper and author group</p> <p>The reviewer should not only correct spelling/grammatical mistakes but also make comments on methodology and missing clarity and make suggestions to add to the scientific value. In the event of numerous typo or grammatical errors, the reviewer can request a thorough linguistic revision rather than acting as a linguistic consultant</p>
Title	<p>A statement which should reflect the main findings of the study</p> <p>Brief and concise</p> <p>May well be controversial</p> <p>No questions should be asked here</p>
Abstract	<p>Concise summary of key data and findings</p> <p>Incorporate the clinical relevance into the conclusion part</p> <p>Level of evidence (if requested by the journal)</p>

Introduction	<p>Brief and concise (not more than one page)</p> <p>Cut out what is supposed to be common knowledge, for instance ... <i>ACL injuries are common in high-level football players... or ...Hip fractures are very common in elderly women...</i> This information only makes the manuscript longer not better</p> <p>Start broadly and thereafter narrow the focus to the main topic studied</p> <p>Need focused aim(s) and a hypothesis for each aim</p> <p>Provide a sound hypothesis or an important literature gap/inconsistency justifying the study</p> <p>Preferably, present only one research question</p>	Discussion	<p>Keep it brief and concise, approximately one to two pages. Do not be verbose. Authors do not have to tell the reader everything that is known. Only discuss your findings in the context of current literature</p> <p>Start the discussion by stating the most important findings of the study</p> <p>Judge and discuss the clinical relevance of the study and not only the statistical significance. How can your findings be helpful in day-to-day practice?</p> <p>Include strengths and limitations</p>
Materials and methods	<p>Most important part of the manuscript</p> <p>Always state ethical approval first</p> <p>Must include sound methodology including recruitment, inclusion/exclusion criteria, follow-up and statistical methods</p> <p>^Present absolute numbers of patients in a flow-chart</p> <p>Statistics should include:</p> <p>^Appropriate and correct statistical tests for given data</p> <p>^Distribution of the data (parametric vs. non-parametric statistics)</p> <p>^Sample size calculation (prospective studies) or effect size</p> <p>^Did the authors perform subgroup analyses? If so, is the sample size adequate?</p> <p>^Adequate consideration of confounding factors</p> <p>^Check carefully for bias</p> <p>^Report the level of statistical significance</p> <p>Check the accuracy of the measurement methods. Does the accuracy allow two or three decimals?</p> <p>Must have a design that is able adequately to test the hypothesis</p> <p>Use subheadings</p> <p>Concisely delineate the type of study (level of evidence)</p> <p>Readers must be able to replicate the study based on your presented methodology</p>	Conclusion	<p>Should be concise and reflect the main findings of the study</p> <p>Include only what is supported by the results of the study</p> <p>^Do not over-interpret your data and do not draw conclusions from data you have not presented</p>
Results	<p>The order of this section should match the order in the materials and methods section</p> <p>Be concise and clear</p> <p>Use subheadings</p> <p>Do not repeat in the text what is presented in tables and figures</p> <p>The results section should perfectly mirror the materials and methods section</p> <p>Tables and figures are often excellent tools to illustrate results, but they should add value to the scope. Use tables and figures for the details, to avoid lengthy text. Rarely, more than three to four tables and figures are necessary</p>	References	<p>Screen the reference list to check that key articles on the topic are included</p> <p>Stay current (try to have 60–70% published within the past 5 years; remember that science is moving quickly). Authors and reviewers should be up to date with the recent literature, not only the classical papers</p> <p>Use correct formatting, including journal abbreviations. References are often incorrectly formatted, not following the journal instructions. This could be seen as a sign of poor due diligence and disrespect</p>
		Figures and tables	<p>Should be able to stand alone (need a legend that describes the table and/or figure). What are the findings? What is relevant? What is new?</p> <p>Should include a figure (e.g., flowchart) discussing reasons and number of patients meeting inclusion/exclusion criteria</p> <p>Are figures of good quality? If drawings are used, have they been produced by a professional media artist and not an amateur?</p>

Reviewer ethics

The reviewer must always remain entirely *unbiased* with regard to the review process, even if the reviewer does not agree with the results and proposed treatment approach, as long as the study methodology and results are sound and reproducible. The review should always be written in a polite and constructive manner, as the authors are colleagues and have invested an extraordinary amount of work in the study.

The reviewer should treat the reviewed manuscript as he would like his own to be treated. The comments that are made should be clear, direct and specific to improve the manuscript.

If the manuscript is rejected, the comments that are provided may allow the authors to improve their manuscript for future submission to another journal. Finally, and most importantly, the reviewer should embrace and enjoy the review process.

Journal's review process

Various journals request the authors at the time of submission to name one to three possible reviewers. Some also allow possible reviewers to be opposed. While this may appear concerning due to a possible selection bias in reviewers, prior studies have demonstrated that there is no significant difference in the quality of reviews between author-suggested and editor-selected reviewers. However, the author-suggested reviewers tend to write more favorable reviews [1, 8]. The manuscript is initially reviewed by the journal for adherence to the journal instructions; this is usually done by the editorial office staff. At this level, the manuscript is mainly checked for correct formatting and language. If the manuscript does not meet the journal's requirements, it is returned to the author for revisions by the office. After passing this first hurdle, it is the editors' turn. If the topic is outside the journal's scope or of limited scientific quality or originality, it may be rejected by the editors at this stage.

Once the manuscript passes this initial review process, the editors select two-to-three reviewers for a comprehensive review of the manuscript. The reviewers are requested to provide feedback to the authors as well as to the editors on the structure, content and methodology. They also give a recommendation based on their review of whether the manuscript should be accepted right away (never happens), has to undergo only minor revisions (very rare), has to undergo major revisions or should be rejected. Usually, submitted manuscripts require two-to-three revision rounds prior to acceptance and publication. The editor will compile the reviewers' comments and recommendations and make a final decision on the manuscript. On many occasions, there is disagreement among the reviewers and various recommendations are made [2]. If significant variability exists among the reviewers, the editor can recruit a third or fourth reviewer to add further insight into the study. Ultimately, the editor makes the final decision based on various factors, including reviewer comments and their own assessment of the study. Do not be afraid as a reviewer to suggest "Major revision", because a major revision is probably the best thing that can happen to a manuscript! However, if the reviewer is able to foresee a large number of problems, it is usually the

best advice to reject already at an early stage. If the research question is sound, it may be much better for the authors to start from the beginning than to struggle with multiple revisions.

Performing the review: suggested workflow

On many occasions, the review can be structured with "General comments", making a summary of the topic, the scope, its potential scientific importance and the overall impression. This could be followed by "Specific comments", where you work your way through the different sections of the manuscript, as mentioned above.

The reviewer should briefly read through the manuscript to understand the aim, methodology and initial results. The quality of writing, including syntax and grammar, can also be evaluated at this stage. If significant methodological flaws exist, a rapid rejection can be chosen without an in-depth review of the study. During the initial review, the reviewer should ask him/herself the following questions:

- Does the study present a substantial addition to the current knowledge/literature?
- Is the scientific knowledge presented new and important?
- Does the study bridge any knowledge gap or solve or clarify any inconsistency in the current literature?
- Are the findings original or is the study a mere replication of a previous study?
- Is the study suitable for publication in this journal; in other words, is the scope consistent with that of the journal?
- Is the paper logical, understandable and clear?
- Has previous research on the topic been taken into account?
- Are the methodology and the statistical analyses (including sample size for prospective studies) sound?
- Are the results clearly reported and do they mirror materials and methods?
- Is the study reproducible?
- Are the data sufficient to draw the conclusions?
- Is the manuscript length reasonable (i.e., not too short and not too long)?

Once the initial review is complete, a more comprehensive review should be performed. Here, the reviewer should take the following into account:

- Always make comments; all manuscripts and studies can be improved
- Write responses in a well-structured document

- Name each section in your response (title, abstract, introduction, materials and methods, results, discussion, conclusion, references, tables and figures)
- Include page numbers and lines on all comments and always ask for clarification or elaboration in comments (avoid yes/no questions)
- Avoid offensive language
- Always include a confidential response to the editor
- Repay the editor's trust. Make sure you perform an informative review and summarize the most important points in the manuscript in a way that is helpful to the editor and that shows you performed an in-depth evaluation of the manuscript.
- Start with a quick recap of the study (aims, methods, results and findings of study)
- Discuss any flaws, especially fatal ones, that need to be addressed
- Include current literature references, if necessary
 - Keep the review brief and concise. Be constructive and give advice on how to improve
 - Example of a non-informative review

Comments to editor: *"I have read the present manuscript on anterior cruciate ligament (ACL) reconstruction (ACLR). There are no issues with it. I believe this work has not been done before and I recommend publication"*.

- Example of an informative review

Comments to editor: *"This is a retrospective cohort study of prospectively collected data comparing five-year outcomes in patients undergoing ACLR with hamstring tendon, quadriceps tendon and patellar tendon autografts. The authors only include patients with isolated ACL tears and exclude all patients with meniscal, chondral, or multiligament knee injuries. The authors found no difference in failure rate among the three groups, as well as no difference among the three groups in five-year outcomes. The authors conclude that a quadriceps tendon autograft is a reliable option for ACLR. Overall, this is a well-performed study. The one concern for the study is the small number of quadriceps tendon patients due to the strict inclusion/exclusion criteria. The inclusion/exclusion criteria should be described further, as the authors are not clear about whether meniscus and chondral pathology was excluded overall or only those injuries requiring surgical intervention. Additionally, the manuscript requires some editing, including shortening the introduction and slight revision of the discussion. Overall, the study could add valuable*

impact to current literature pending edits. I therefore recommend publication after revision".

Comments to authors: *"This is a well-performed study with sound methodology. I would like to thank the authors for their work. However, there are several queries that should be addressed prior to consideration for publication"*.

Abstract:

– Line 16: *please include the total number of patients included in the study*

– Lines 26–28: *use n.s. for non-significant p values, please change throughout manuscript*

Introduction:

– *Consider condensing, try to keep introduction to one page, avoid stating what is already well known*

– Line 90: *please include hypothesis for each aim stated*

Materials and methods:

– Line 91: *add retrospective to "cohort study"*

– Line 95: *for meniscus injuries, does this include partial tears that were not addressed at surgery, or solely meniscus tears that were addressed with meniscectomy or repair? What about root tears? Please elaborate*

– Line 96: *for chondral injuries, does this include patients with chondrosis who did not have surgery to address it, or just patients who had surgery to address chondral injury? Please elaborate*

– Line 130: *please move the ethical approval to the beginning of the materials and methods section*

Results:

– Line 172: *please include "years" to ages reported*

– Lines 171–176: *consider condensing demographic data into a table; in fact, please revise*

– *Please remove from the text, the information is already reported in tables, please avoid repetitions*

Discussion:

– Line 190: *please discuss the main findings of the study in the first sentence of the discussion, then discuss current literature*

– Line 210: *please elaborate/discuss your own results*

– Line 230: *consider including clinical relevance. How is your study useful in clinical day-to-day work? Should the orthopedic surgeon change his/her clinical practice based on the findings of this study?*

Conclusion:

– *Please remove the final sentence. The conclusion should be solely based on your own results.*

References:

– *Please make sure references are all formatted appropriately (#2, 6–12, 15–20, 22–29, journal names are incorrectly formatted, do not need location or publisher)*

– *Consider updating references, only 3/30 are within past five years. Make sure the recent literature is acknowledged*

Figures:

– In all figures, please use same abbreviations as text (*Hams vs HT, etc.*)

– Figs. 1D, E, F need x-axis labels

Tables:

– Tables should be self-standing. Please add a legend defining all abbreviations that have been used in tables

Box 2 summarizes the most important issues to look for when reviewing a manuscript.

Box 2: MOST IMPORTANT ASPECTS TO LOOK FOR.

Length of manuscript: should be brief and concise!

Have the instructions to the authors been followed?

Language: does it flow? Is it easy to read and follow?

IRB approval is appropriate for level of study

Sound methodology

Statistics, especially sample size calculation for prospective studies.

Any risk of type-I or type-II error?

Does the study add substantial knowledge to the current literature?

Is recent literature covered adequately? Any pertinent studies missing?

Is the conclusion supported by the data?

Box 3: “PEER REVIEW” means:

Scientific mission

Helpful to authors

Volunteering

Promotion

Knowledge

Status in journal

Advancing the field

Conclusion

Being selected as a reviewer should be seen as a privilege and an important professional achievement, as it is recognition of one’s expertise in the field. Many journals also offer CME Credits. While the peer-review process can be time-consuming, it is essential for scientific growth and advancement of the field. In addition, reviewers can benefit from the process through continued education in

the field, being constantly exposed to new literature and improving their own scientific and writing skills. As with many things, there is a learning curve even with the review process. With this article, however, we hope to provide suggestions on how to be a good reviewer and perform a useful review.

Dear reviewer, now it is your turn, good luck and enjoy your review!

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