

Features Section

Editorial

Peer review

Like all reputable scientific journals, the *Journal of Orthodontics* uses peer review to assist the Editor in judging the quality of submitted papers. Despite the widespread use of this quality control mechanism, it is often poorly understood.

The Royal Society of London is frequently credited with introducing the concept of refereeing scientific manuscripts in 1752. In the context of scientific journals peer review is synonymous with refereeing. Peer review is the traditional method whereby scientific journals monitor the standard of science and scholarship. Therefore, any failure of the peer review process can be damaging, not only to science itself, but also to the public perception of science.

Critics of peer review claim that it is inherently conservative and biased towards conventional work, and discourages innovators or original thinkers. Some even go further by contending that the refereeing process is corrupt, subjective, and clouded by professional jealousy, which prevents good research from seeing the light of day. Unfortunately, examples do exist where the peer review process has failed. We can only guess how Jenner felt 200 years ago, when his account of the first use of a vaccination against smallpox was rejected by the referees.

We tend to forget that just because all scientific work is peer reviewed before publication, it does not mean that peer review is itself a scientific activity in the sense that it is precise, and free from bias and subjective judgement. It is therefore surprising that we have such an uncritical faith in the peer review process. Does agreement between two referees tell us anything more than that both referees share the same set of prejudices?

Despite the reservations that we might have about the scientific validity of peer review, we are forced to acknowledge that there is no alternative and it is a necessary part of the publication process. For a journal to publish everything that is submitted to it would lead to chaos. In addition, no editor can know his or her subject well enough to be an expert in all its aspects. The late 1980s provided a dramatic example of what can happen when peer review is bypassed and replaced by the press conference. The announcement that a simple and inexpensive means of achieving 'cold fusion' had been discovered was later challenged by the peer review process and ultimately rejected.

In the publication process the author, the editor, and the referee are inextricably linked and all three parties share a common purpose. For the young researcher, the refereeing process can often be both a daunting and character-forming experience. However, rigorous scientific scrutiny is necessary before a paper can be published and it has to be accepted that publication is a privilege and not a right. The whole process should not be viewed as an adversarial contest, but as an opportunity to have one's work refined and improved.

A journal's quality very much depends on the quality of its referees. Referees are asked to decide if a paper is original, scientifically sound, of clinical importance, and suitable for the journal. They are expected to provide an informative and objective report around these four points. Referees sometimes need reminding that they are acting as an advisor to the editor and not as a final decision-maker. Giving a bold instruction to the editor to reject or accept a paper represents a misinterpretation of the referee's role. Although anonymity gives the referee freedom to speak his or her mind it should not be used as an opportunity for unnecessary caustic comment. All authors are as sensitive as mothers at baby shows and are just as protective. Younger researchers particularly can be discouraged by hostile referees' reports.

If you are asked by the editor of a journal to referee an article you should take this request as a tribute to your expert knowledge and your literary competence. You should therefore return the editor's complement by pushing on with the task. A referee should bear in mind that there is no statutory right of appeal against faulty peer review and if he feels obliged to criticize, he should be sure of his facts. The perfect paper will never be written—a referee must therefore not expect perfection. All research is flawed in some way; the critical question is whether the flaws are important. If in doubt, bias in favour of the paper, a borderline paper published is not a sin, but a reasonable paper rejected is a shame.

Like Benjamin Franklin's certainties, death and taxes, the certainty is that any referee who provides a rapid, accurate, and helpful opinion is likely to be asked to repeat the performance again and again.

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