The promotion of peer review in science and medicine, representing the bedrock of open and scholarly exchange dates back to the Royal Society and its establishment in 1665 of the first peer reviewed scientific journal—Philosophical Transactions. Despite its early critics, the founding fathers felt strongly as many do today, that peer review, in its most pure and unconditional form, represents the best means to maintain scientific quality and integrity. This is particularly true in an era of rapidly multiplying new journals, including on-line, open access journals that lack a careful vetting of methodology and the rigor of results validation to make a meaningful and lasting contribution to the scientific literature. More concerning is the allowance, even if unintentional, of misleading information to find its way into the annals of medicine—where it may remain for perpetuity.

Beyond its fundamental role, peer review is a golden opportunity for those established in a given field of study to instruct and guide scientists toward a higher ground of investigation. Thus, the reviewer takes on a role of teacher, mentor and guide for current and future generations of contributors.

An optimal review can be defined as follows:

1. Identifies the importance of a stated hypothesis for investigation or objectives of a scholarly review.
2. A. Comments on the strengths and weaknesses of the methods employed to test the hypothesis.
   B. Makes suggestions for additional or alternative methods when needed.
3. A. Interprets the merits and limitations of the experimental findings and how the data are presented.
   B. Provides additional or alternative interpretations when appropriate.
4. Summarizes the major discussion points and their validity based on the experimental findings, established constructs and current understanding in the field. Often, references are cited to support one or more positions or contentions.
5. Recommends additional references to support the study or scholarly review.
Perhaps the most important aspect of peer review is its ability to be constructive in quantitative terms and not merely qualitative as a “yes or no” recommendation for publication in a scientific journal. Overall, the professional reviewer seeks to enrich and enlighten the scientific process and advance the field of study through high quality contributions.

The *Journal of Thrombosis and Thrombolysis* is committed to the peer review process and all that it contributes to science and medicine. It is recommended that all reviewers are registered with ORCID ([http://orcid.org/](http://orcid.org/)).
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