



## Manuscripts in the Sport and Exercise Sciences

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Scientific journals act as a means of exchange or the sharing of information / novel ideas between the author and its readership. A journal's editorial board are responsible for published papers which attain high standards of scientific merit. In order to further this process the authors have a responsibility to write clearly and succinctly, with clarity for the reader being upper-most in mind. Thus 'jargon' needs to be avoided and any acronyms used in the manuscript clearly defined. The methods section is particularly important. An interested reader must be able to replicate the precise experimental and statistical methodology from a description of the protocol(s) used.

All participants, once recruited (methods of recruitment should be stated), should be able to practice / familiarize themselves with the test procedures. Volunteers should be provided with a simple and clearly written 'Participant Information Sheet' which details procedures / supplements to be used, how long testing will take place and over what time period (e.g. if participants are recruited to a training study). Similarly volunteers should have the opportunity to ask any questions before signing a statement of informed consent. Such procedures should be viewed as 'good practice' by the experimental team. Within the Sport and Exercise Sciences we are privileged to work with human volunteers and at all times participants in an experiment should be treated in a polite and friendly manner. Indeed it would be useful for authors to have read and abide by the Declaration of Helsinki (Ethical Principles for Medical Research involving Human Subjects) and state this as part of the methods section. Authors have a responsibility to ensure that their primary data has been collected in a controlled manner under standard conditions and that these are stated with clarity and accuracy. Lastly they have a responsibility to ensure that the validity and or novelty / relevance of their findings with respect to the current literature is comprehensively and cogently argued within the discussion section of the manuscript.

In the Sport and Exercise Sciences area popular themes for manuscripts are test re-test (reliability) and validity – where the latter may compare a newly devised test as valid versus a long-held 'gold-standard' test. In order to support 'agreement' between measures authors tend to report correlation coefficients. However, the latter have been criticized by Bland JM and Altman DG [1] and later by Nevill AM and Atkinson G [2] as a measure of 'association' rather than 'agreement'. When assessing 'agreement' between two tests or measures it would be more appropriate to use a Bland and Altman plot (which plots the differences between the test measurements against their mean). Thence to calculate and report the '95% limits

of agreement' of the data, whereby the sports scientist or coach can use his/her judgement to decide if the interval ('limits') is acceptable.

Other typical statistics used in the sports science, sports medicine area include tests of difference (Student's t-test or ANOVA) to ascertain if a particular intervention or nutritional supplement has been successful versus a control or placebo. However, such tests do not provide information with respect to the size of the effect. To overcome this it is becoming more popular to report 'effect size' which aims to quantify the 'size' of the difference between two groups (based on the amount of variation within a group). Thus the *size* of the effect of an intervention may be important in biological or sporting terms, rather than simply reporting a statistical significance. Effect size is easy to calculate and its statistic can be qualified as small (0.2), medium (0.5) or large (0.8) Cohen J [3]. The use of the above statistical procedures, where appropriate, would be highly recommended and can only add to the value and integrity of the manuscript. Proper statistical measures are a fundamental component of scientific research. Thus striving for robust and accurate interpretation of experimental data is crucial to ensuring a wide audience, healthy and open debate and strong research progress and impact. Ultimately, these are the manuscripts that further the field of Sport and Exercise (Medicine).

Journal editors rely greatly on independent reviewers, experts in their field who offer an impartial and objective assessment of the manuscript. The reviewers make comments and suggestions which help the editor to arrive at a conclusion with respect to acceptance. Many reviewers take great time and effort to make constructive comments which will improve the quality of the finished manuscript, rarely is a manuscript rejected out-right. The author – reviewer – editor interaction can be seen as a dynamic whereby an interesting experiment is described, its results reported and discussed clearly in light of the known literature for an interested readership. Adhering to simple concepts of simplicity, robustness (sound, validated protocols), use of appropriate statistical analysis and clarity of the written word should result in a paper that not only has impact but reaches the widest possible readership.

### References

1. Bland JM and Altman DG (1986) Statistical methods for assessing agreement between two methods of clinical measurement *Lancet* 1: 307-310.
2. Nevill AM and Atkinson G (1997) Assessing agreement between measurements recorded on a ratio scale in sports medicine and sports science *Br. J. Sports Med* 31: 314-318.
3. Cohen J (1969) *Statistical Power Analysis for the Behavioral Sciences* Pub. New York, Academic Press.