Jonathan K. Ehrman, PhD, ACSM-CEP, FACSM
Editor-In-Chief, *Journal of Clinical Exercise Physiology*
Chair, Henry Ford Institutional Review Board
Associate Director, Preventive Cardiology
Edith and Benson Ford Heart & Vascular Institute
Henry Ford Medical Group, Detroit, MI

Effective Manuscript Writing: A Learned Process

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A recent paper in the Journal of Applied Physiology (1) reminded me of the importance of precision (i.e., using language that is exact and accurate) and brevity (i.e., shortness or conciseness of expression). To best convey my thoughts using the written word, this style took me time and patience to learn. My primary mentor, Steven Keteyian, reviewed my papers in my early career and returned them dripping with corrections from his red pen. While at the time it was frustrating and humbling, looking back, it was a needed and necessary step in learning the skill of effective manuscript (and grant) writing. However, as we went through several versions until settling on a submission to a journal, it seemed to me at times that we had settled on some of my original version language. Dr. Paul Stein, a cardiologist at Henry Ford Hospital and author of more than 500 cardiology related manuscripts, taught me to always keep my previous versions to reference when collecting a paper's author group edits or responding to a journal review (2). In those days (late 1980s), we kept paper revisions in a binder. Today, I have learned to properly label the Microsoft Word files from the author group to keep versions of a manuscript organized.

To assist my writing in those early days, Dr. Keteyian introduced me to one of his mentors, the late Dr. Robert Shepard, who was a tenured professor in the Physiology Department at Wayne State University in Detroit and author of more than 300 manuscripts (3). He was keen on using proper sentence structure that was free of slang ("cardiac rehabilitation" not "cardiac rehab"), avoiding past tense when present tense was appropriate ("the drug is effective" not "the drug has been shown to be effective"), and avoiding ambiguous sentences that did not convey the exact meaning ("They took the study medication immediately after finishing a meal consisting of at least 500 calories" not "They took the drug with food").

Often when I am reviewing a manuscript for *Journal of Clinical Exercise Physiology*, I come upon a word(s) used in a sentence that I do not believe is the best choice. For instance, it is rare that the opening of a sentence requires a phrase such as "It should be pointed out that the subjects were able to perform all study activities." In this example simplifying the sentence to "The subjects were able to perform all study activities" reads better. This type of brevity becomes important when there are word or character limits on an abstract or manuscript. Another example is using the term "metabolic equivalents," which should be "metabolic equivalents of task," which accounts for the "T" in the abbreviation "METs" and precisely conveys what this measurement assesses.

I urge you to obtain a copy and read the paper by Tanaka and Seals (1). They provide an excellent review of many terms used in contemporary medical writing and when it is proper to use one term versus another (e.g., when to use, or not use, the terms "participants," "subjects," "volunteers," or "patients"). And I hope that you will have (or have had) a similar mentoring experience as I, but these experiences do not simply occur. You may have to humble yourself and reach out and seek assistance, particularly if you have received feedback from a journal reviewer who was critical of the style of writing in your submission. The ability to successfully publish a manuscript (or obtain a grant) of your work hinges upon your ability to effectively convey meaning in a manner understood by the reader.

REFERENCES

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