

## Modern-Day Considerations for References in Scientific Writing

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References are a vital component of scientific research articles.<sup>1</sup> Unfortunately, errors in references are common in scientific writing. These errors can compromise a manuscript's integrity and can make it difficult for readers to access source documents.<sup>1,2</sup> Because it is primarily authors who are responsible for the accuracy and completeness of references,<sup>1,2</sup> we would like to help authors with this potentially tedious but nonetheless critical section of research articles.

According to the *AMA Manual of Style*,<sup>1</sup> references have 3 primary purposes: documenting previous studies to support an argument, acknowledging the work of others, and directing readers to sources. In the present article, I examine these 3 purposes and describe ways authors can adhere to scientific guidelines associated with each.

### Documentation

Credibility is key when authors are selecting references to support their methods and claims.<sup>1,3</sup> Scientific journals prefer references that are peer-reviewed scholarly works. Authors should avoid using abstracts or unpublished data sources<sup>4,5</sup> and ensure references are current. A few days before they submit a manuscript, they may want to check the US National Library of Medicine's (NLM's) PubMed database (<http://www.pubmed.org>) for any recently published articles related to the manuscript's topic.<sup>3</sup>

It is also imperative that authors use original sources whenever possible. Some authors may think review articles are ideal references because they direct readers to a body of evidence on a topic.<sup>5</sup> However, review articles do not always accurately report other studies' findings.<sup>5</sup> According to the NLM, "the medical literature is full of references that have been cited from other references, serving only to perpetuate erroneous information."<sup>6</sup> The NLM recommends that authors never reference documents that they have not read.<sup>6</sup>

### Acknowledgment

Authors must ensure that they accurately cite others' published material to avoid copyright infringement or plagiarism.<sup>7</sup> When paraphrasing another's work, authors must include a reference to the original source. If authors directly quote another's work, they must use quotation marks around the repeated phrases and reference the original source.

It is important to note that the copyright to published material is often held by the publisher of the work, not the author.<sup>5</sup> For this reason, authors must reference any previously published work for which they are listed as an author, even if they wrote the work themselves. In addition, authors typically must obtain permission from the original publisher (ie, not the authors) of any work that they would like to reprint (eg, tables, figures). For specific information on ethical considerations surrounding the citation of others' work, see <http://ori.hhs.gov/sites/default/files/plagiarism.pdf>.

### Directing the Reader to Additional Information

To ensure readers are directed to the correct sources, authors should follow basic formatting conventions and include all necessary information when creating the reference list. When preparing a manuscript for publication, authors should adhere to the reference format of the journal to which they are submitting. (Many journals have examples of references on their Web site. See <http://www.jaoa.org/site/misc/ref.xhtml> for examples of JAOA style.) Although style varies according to journal, standard convention calls for references to be numbered consecutively with arabic numerals according to their first mention in the text.<sup>5</sup> Reference numbers in the text should appear

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## SPECIAL COMMUNICATION

directly after the information to which they correspond, not necessarily at the end of the sentence.<sup>2</sup> Authors should ensure that all references cited in the text, tables, and figures of the manuscript appear in the reference list at the end of the manuscript (and vice versa).<sup>4</sup>

It is essential that authors cite the exact document from which they obtained information. Different versions of a document are not necessarily identical; changes may be made to newer versions, and errors may be introduced when documents are converted.<sup>7,8</sup> For example, if an author uses a CD-ROM or online version of a book, he or she should cite that particular version, not the print version.

In the following sections, I discuss considerations for citing print, electronic, and unpublished sources. For specific examples of these types of references, please see the *Figure*.

### Print References

Journal articles are the most common type of reference in the scientific literature. Although this type of reference may be familiar, the sheer volume of journal articles available necessitates careful detail to ensure that readers are directed to the correct article. For example, many journals have similar names. Therefore, authors should use standard journal abbreviations to avoid confusion. For journals indexed in PubMed, it is standard to use the journal abbreviations that have been assigned to those journals by the NLM (eg, the *JAOA's* abbreviation is *J Am Osteopath Assoc*). For other journals, authors should consult the NLM's fact sheet at <http://www.nlm.nih.gov/pubs/factsheets/constructitle.html> for abbreviation guidelines.<sup>1</sup> If a journal's name has changed, use the name that the journal was using at the time the article being cited was published.<sup>1</sup>

It is also essential that an article's volume, issue, and page numbers are always included in a reference. Many authors have had several articles published on a topic; some authors have contributed to several articles within the same issue of a journal. Therefore, volume, issue, and page numbers are key to helping readers access the right content. It is also helpful to note if an article was published in a supplement to a journal or a theme issue. Sometimes it is also appropriate to note the article type if it is not apparent in the title of the article (eg, editorial, letter).<sup>1</sup> Be sure to note any corrections to or retractions of an article.

When referencing books, authors should provide as much information as possible to help readers access the information being cited. Readers may have a difficult time locating specific information within a book, especially if a book is large, has multiple volumes, or has several editions. It is helpful to include the name of the chapter (and author[s] of that chapter, if applicable), with page numbers, in which the cited information can be found. If various pages from a book are referenced throughout a manuscript,

reference the specific page numbers within the text of the manuscript. For example, a statement that contains information from page 44 of reference 1 would appear as follows:

According to the *AMA Manual of Style*, *ibid* and *op cit* should not be used in reference lists.<sup>1(p44)</sup>

Government reports are cited like books. In these types of references, the government agency is often listed as the author,<sup>8</sup> and the place of publication is where that agency is located. Make sure that the correct version of the report is being cited, as government agencies frequently release updated information.

### Electronic References

Conventions for citing electronic resources are constantly evolving to reflect the fast-changing environment of electronic media. However, the basic principles of referencing will always apply. As with any other source, authors should

#### Journal Article

Surek CC, Lorimer SD, Dougherty JJ, Stephens RE. Teaching of anterior cruciate ligament function in osteopathic medical education [published correction appears in *J Am Osteopath Assoc*. 2011;111(5):312]. *J Am Osteopath Assoc*. 2011;111(4):225-228. <http://www.jaoa.org/content/111/4/225>. Accessed March 5, 2012.

#### Chapter in a Book

Glover JC, Rennie PR. Strain and counterstrain approach. In: Chila AG, executive ed. *Foundations of Osteopathic Medicine*. 3rd ed. Baltimore, MD: Lippincott Williams & Wilkins; 2011:749-762.

#### Government Report

Centers for Disease Control and Prevention. *National Diabetes Fact Sheet: National Estimates and General Information on Diabetes and Prediabetes in the United States, 2011*. Atlanta, GA: US Department of Health & Human Services, Centers for Disease Control and Prevention; 2011. [http://www.cdc.gov/diabetes/pubs/pdf/ndfs\\_2011.pdf](http://www.cdc.gov/diabetes/pubs/pdf/ndfs_2011.pdf). Accessed June 4, 2012.

#### Web Page

MOL timeline. Federation of State Medical Boards Web site. [http://www.fsmb.org/m\\_mol\\_timeline.html](http://www.fsmb.org/m_mol_timeline.html). Accessed June 4, 2012.

#### Paper Presented at a Conference

Davies PD, Romer LM, Ramsay RL. Assessment of urine concentration in athletes: an evaluation of four field methods. Paper presented at: European College of Sports Medicine Fifth Annual Congress; July 2000; Jyväskylä, Finland.

**Figure.** Examples of references formatted according to *AMA style*.<sup>1</sup>

provide adequate documentation to direct readers to the correct source.<sup>2</sup>

If an electronic document has been assigned a digital object identifier (DOI), include the DOI in the reference.<sup>1</sup> Digital object identifiers are preferable to URLs because DOIs are less transient; unlike URLs, which may change or break over time, DOIs never change after they are assigned.<sup>1</sup> Of note, DOIs can also be used to identify specific pieces of content within a document (eg, tables, figures). Readers can use DOIs to locate online documents at <http://dx.doi.org/>.<sup>1</sup>

When citing a Web page, provide the DOI or URL of the original source, if possible. The original may contain updates or corrections that are not reflected in other versions. For example, when citing government guidelines, link to the guidelines posted on the appropriate government agency's Web page, not to a different organization's Web page that reposted the guidelines. Likewise, when providing a DOI or URL to a journal article, provide the DOI or URL that directs readers to the article on the publishing journal's Web page, not to abstracts or versions of the article posted on other Web sites (eg, PubMed, UpToDate).

### Unpublished Material

Although references to complete, published material are preferred, references to unpublished material are sometimes necessary. Common types of unpublished material referenced in scientific manuscripts include presentations, results of unpublished studies, and papers presented at conferences. These types of material should be included in the reference list, with the authors' names and title of the referenced work, as well as the full name of the conference, conference dates, and conference location at which the work was presented.<sup>1</sup> Information presented at a conference is often published at a later date. If authors are aware of a newer version of the material, they should cite that version in their manuscript.<sup>1</sup>

Most types of other unpublished material (eg, personal communication, unpublished data) may be referenced within the text of the manuscript by using parentheses. In-text references typically include the name(s) of the source, the date the information was obtained, and a description of the source.

### Conclusion

Authors hold primary responsibility for the accuracy and completeness of references. By adhering to scientific pub-

lishing guidelines regarding references, authors can improve their manuscript's credibility, avoid copyright or plagiarism issues, and accurately direct readers to sources.

#### Quick Tips

Cite original sources.

Check the PubMed Web site a few days before submitting a manuscript for any recent published articles related to your manuscript's topic.

Follow the reference style of the journal to which you are submitting your manuscript.

Make sure all reference that are cited in the text also appear in the reference list.

Include DOIs or URLs for electronic references.

### References

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6. Patrias K, Wendling DL, technical ed. *Citing Medicine: The NLM Style Guide for Authors, Editors, and Publishers*. 2nd ed. Bethesda, MD: US National Library of Medicine; 2007. <http://www.nlm.nih.gov/citingmedicine>. Accessed March 5, 2012.
7. Roig M. Avoiding plagiarism, self-plagiarism, and other questionable writing practices: a guide to ethical writing. US Department of Health & Human Services Web site. <http://ori.hhs.gov/sites/default/files/plagiarism.pdf>. Accessed March 5, 2012.
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**Editor's Note:** Does a certain aspect of scientific writing have you stumped? If you would like to see a topic covered in this new series, send your idea to [jaoa@osteopathic.org](mailto:jaoa@osteopathic.org).