

Guide for Writing in Kinesiology

About Writing in Kinesiology

As an interdisciplinary field of study, kinesiology uses written forms of communication that draw from those found in a variety of fields. At Southwestern, our kinesiology department is focused on the natural science components of the field, and our writing assignments reflect this emphasis. Writing in the kinesiology department involves the application of biological, chemical, physical, and mathematical principles to the study of human movement and health. While much of this writing asks you to report and interpret experimental findings, some writing will ask you to reflect on large-scale problems, such as the impact of health issues on our society.

Types of Writing in Kinesiology

Abstracts

Abstracts are an effective and efficient way of communicating the most important findings of an experiment. Typically, abstracts are limited to 250-300 words. They include a statement of purpose, a brief methodological description, a report of quantitative findings, and a statement of conclusion. Emphasis in the abstract is usually placed on the reporting of quantitative data, complete with statistical information. Interpretation of the findings is limited and is often left to the reader.

Lab Reports

A lab report is a written assignment that presents information detailing your efforts conducting a small-scale experimental project/assignment. A lab report is generally modeled after a manuscript submission for a research journal.

By Dr. Scott McLean

About this guide

This guide contains the following sections:

- About Writing in Kinesiology
- Types of Writing in Kinesiology
- Evidence and Data in Kinesiology
- Conventions of Writing in Kinesiology
- Citations & Formatting
- Resources for Writing in Kinesiology

The Disciplinary Writing Guides are designed to provide an introduction to the conventions, or rules, of writing in different subjects. These guides have been designed by Southwestern professors to help you understand what will be expected of you in your classes.

Lab reports in kinesiology all share the same sections.

- **The title page** includes the author and collaborator name(s), affiliation and submission date.
- **The abstract** (see pg. 1) provides an overview of the work.
- **The introduction** describes the premise of the experiment, including a clearly stated purpose and associated research hypothesis. If appropriate, a brief review of associated research literature will be included in the introduction.
- **The methodology section** explains experimental procedures and statistical analysis in sufficient detail that the reader can replicate them.
- **The results section** presents quantitative data (described with context) and statistical comparisons.
- **The discussion section** interprets the results and explains their meaning and relevance in light of previous research.
- **The conclusion** wraps up the lab report.
- **The references section** lets readers know where they can find your sources.

Short-Form Essays

Short-form essays may be found in several assignments and on exams. Generally, these writing assignments are designed so that you can demonstrate your understanding of a particular topic. One example of this type of assignment is a **research journal article review**. These assignments ask you to go beyond summarizing sources to comment on the work you review; to critically evaluate the article by pointing out both strengths and weaknesses of the experiment; to interpret your findings; and to apply the information you've gleaned from the article to relevant issues in class.

A second example of this type of writing is a

microtheme. The goal of a microtheme is to briefly summarize the main points of the reading and then provide an interpretation. This assignment asks you to reflect on a topic and discuss it in a concise manner. Limited to 300-400 words, microthemes may be used in conjunction with a specific prompt or as a mechanism to review a specific reading assignment (usually a book passage or research journal paper). Relating the reading to other material is encouraged.

A third example of a short-form essay is a **Paideia Connection**. These connections are associations, relationships, and interconnections that you'll make across disciplines to provide a more complete picture (and therefore a deeper understanding) of a phenomenon. This assignment requires you to provide a well-written description of a connection you have made in a way that illuminates or gives a more complete view of an aspect of kinesiology.

Project Reports

Many upper-level courses include small independent or group projects as part of the laboratory portion of the course. Project reports are essentially enhanced lab reports, and they include all of the major components of a lab report (see box at left). However, these reports often reflect a topic or question that you have developed, rather than one that's been assigned. An emphasis is placed on your ability to relate your work to previous work (in the discussion section), thus allowing you to gain a better understanding of the importance of asking relevant questions.

Literature Reviews

Much of the work produced in the kinesiology department depends on your demonstration of a thorough understanding of the field and your ability to justify the examination of a particular problem. Literature reviews will help you to do this. For these assignments, you'll read several research articles and then write a document that synthesizes the ideas presented in the articles. The goal is to develop a thorough summary of the area of study and a coherent argument that can justify the pursuit of a project.

Capstone Thesis

The capstone sequence in kinesiology is spread across two semesters and is predicated on the completion of an independent research project. Much like a thesis that would be completed for a masters program, the capstone thesis is an in-depth treatise that will describe your project so that it may be replicated by readers.

Like the lab report, the capstone thesis is written in sections.

- **The title page** includes the author and collaborator name(s), affiliation, and submission date.
- **(Optional) acknowledgements** recognize the contributions & support of other researchers and institutions.
- **The abstract** provides a quick overview of your research (see earlier description).
- **The introduction** describes the premise of the experiment, including a clearly-stated purpose and associated research hypothesis.
- **The literature review** provides a thorough overview of the research literature related to your project (see earlier description).
- **The methodology section** explains the experimental procedures and statistical analysis in sufficient detail that they could be replicated by the reader.
- **The results section** presents quantitative data, describes context, and makes statistical comparisons.
- **The discussion section** interprets the results for meaning and relevance in light of previous work.
- **The conclusion** wraps up your capstone project.
- **The references section** allows readers to find your sources.
- **Appendices** may include extended descriptions of methodological techniques, data forms used, complete statistical output.

Evidence and Data in Kinesiology Writing

Writing in kinesiology, like writing in the other natural sciences, involves **the presentation of numerical information in textual, visual, and graphical form**. This information often centers on the presentation of statistical data but may also include mathematical equations. To make the document as informative as possible, this information must be effectively and consistently described and strategically placed in the body of the text. The preferred method in kinesiology for this presentation is described in detail in the sixth edition of the *Publication Manual of the American Psychological Association* (APA). In the following section, you will find some basic tips that refer to some of the most common issues that arise. This overview is not intended to replace the APA publication manual.

Numerical Information

Significant Digits

The APA publication manual stipulates that two or three *significant digits* should be sufficient precision for representing numbers. This does not mean that two or three decimal places should be included.

Numbers

Refer to the APA manual for detailed information on how to express numbers. In general, numbers less than 10 are written out (e.g., five, seven) and numbers greater than 10 are reported in digits (e.g., 452).

Statistical Abbreviations

Statistical abbreviations (e.g., *M*, *SD*) are used within parentheses or at the end of sentences. Normally, these are in italics. However, the statistic name is spelled out as a word and not abbreviated if it is part of the narrative (e.g., “mean,” or “standard deviation”).

Units

Reported numbers usually refer to measurements, so an associated unit of measurement must be reported with the number. The preferred system of units is the System Internationale (SI). Units should be reported immediately following the number. For example, the average magnitude of acceleration due to gravity at the surface of the earth is 9.80 m/s² (or 9.80 m/s/s or 9.80 m s⁻²).

Measurement Uncertainty

In experimental sciences most measurements have associated uncertainties that must be reported. These measurements are typically reported as a mean (or average) value with an uncertainty of one standard deviation (SD).

For example, the mean reaction time for humans is 250 ms with a standard deviation of 80 ms. This would be reported as 250 ± 80 ms.

Visual Information (Tables, Graphs, and Figures)

Tables and figures are economical ways of presenting large amounts of information in a visual format.

Tables

Tables present multiple numerical measurements in an organized array. The columns are labeled with appropriate variable descriptors. Tables are numbered and include descriptive headings to provide information necessary to interpret their contents. The heading begins with “Table #” to indicate the table number. To avoid cluttering the table, units are reported as part of the row or column heading. Additional information needed to interpret the table may be placed in a footnote immediately below the table.

For example:

Table 1. Mean (SEM) stroke rate (SR) and kick rate (KR) data expressed as absolute measures and relative to the preferred swimming condition.

	SR		KR	
	Absolute (strokes/s)	Relative (%)	Absolute (kicks/s)	Relative (%)
-20%	0.40* (0.01)	-18.5 (0.8)	3.8* (0.3)	49.3 (10.0)
-10%	0.45* (0.01)	-9.8 (0.3)	3.1* (0.3)	23.4 (11.2)
Preferred free swimming	0.50 (0.01)			
0%	0.50 (0.02)	0.0 (0.4)	2.6 (0.2)	0
+10%	0.55* (0.02)	10.1 (1.0)	2.7 (0.3)	5.3 (6.8)
+20%	0.60* (0.02)	18.8 (1.3)	2.8 (0.3)	7.7 (7.7)

* Significantly different from 0% condition ($p < 0.05$).

Figures

Figures may include graphs, pictures, or diagrams. Figures use descriptive captions beneath that provide the information necessary to interpret their contents. It is important when using multiple graphs displaying similar information to carefully choose the scaling so to avoid biasing the interpretation of the graphs. To the right is an example of an acceptable graph; an acceptable figure may be found below.

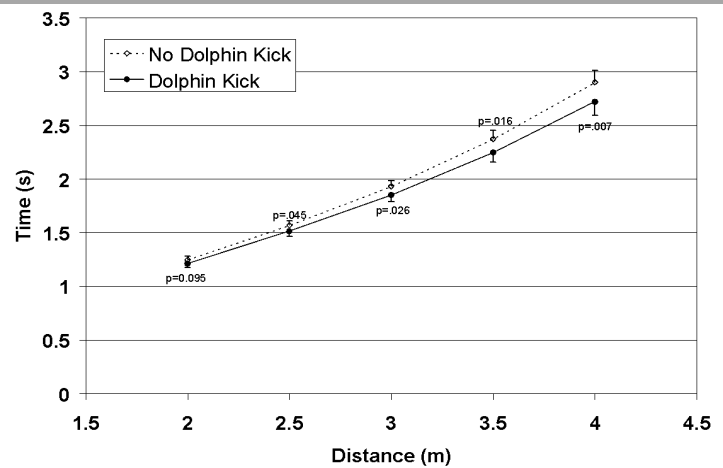


Figure 3. Comparison of time (SEM) to reach distances of 2-4 m after the initiation of the pull during the pullout. Significance of statistical comparison noted at each 0.5 m increment of distance.

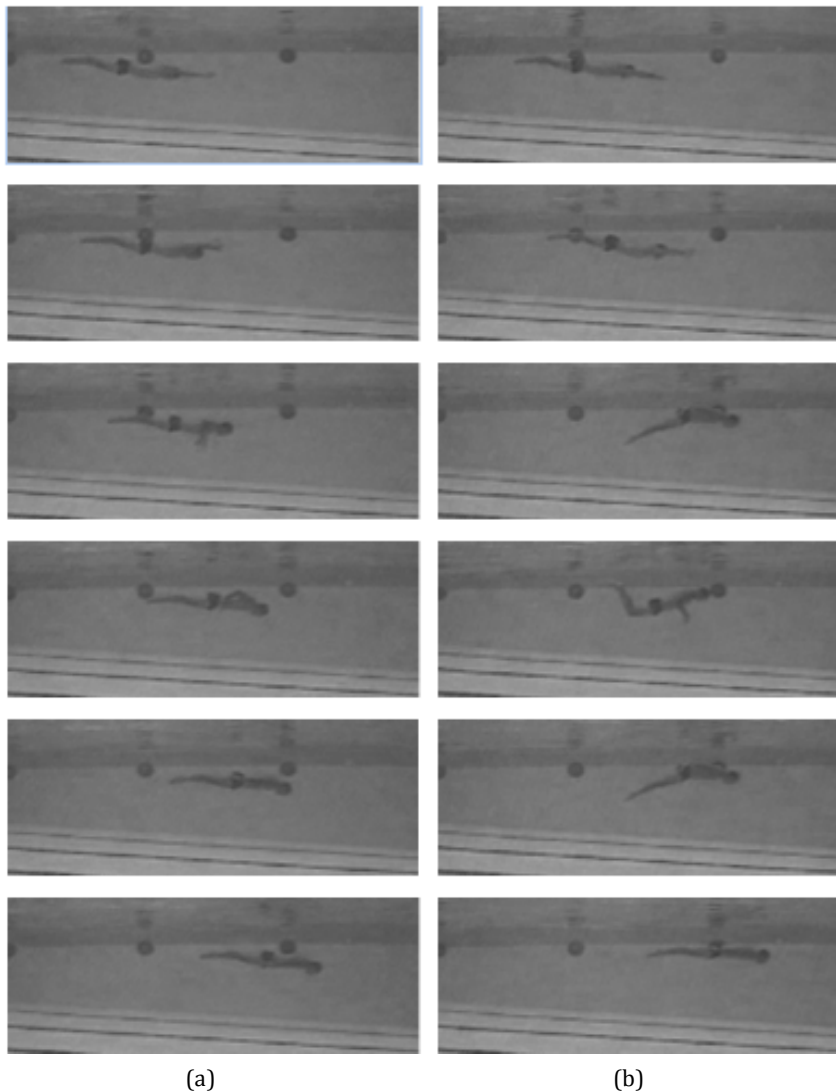


Figure 1. Sequential pictures of the pulling phase of a breaststroke pullout (a) without a dolphin kick and (b) with a dolphin kick.

Conventions of Writing in Kinesiology

As a scientific field, writing in kinesiology is akin to other types of scientific writing. [The University of Leicester](#) provides an excellent summary of the characteristics of good scientific writing.

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Good scientific writing is:

- **clear** - it avoids unnecessary detail;
- **simple** - it uses direct language, avoiding vague or complicated sentences. Technical terms and jargon are used only when they are necessary for accuracy;
- **impartial** - it avoids making assumptions (Everyone knows that ...) and unproven statements (It can never be proved that ...). It presents how and where data were collected and supports its conclusions with evidence;
- **structured logically** - ideas and processes are expressed in a logical order. The text is divided into sections with clear headings;
- **accurate** - it avoids vague and ambiguous language such as about, approximately, almost;
- **objective** - statements and ideas are supported by appropriate evidence that demonstrates how conclusions have been drawn as well as acknowledging the work of others.

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These characteristics all indicate that scientific writing is concise. Extraneous information often distracts the reader from the message being communicated in the paper. Furthermore, concise writing has a real-world application in that publishing a research paper generally requires the author to pay a specified amount (\$50-\$100) for each page. A twenty-page article may cost the author as much as \$2,000 to publish! Therefore, it pays to be clear and concise.

Grammar, Punctuation, Spelling, and Acronyms

In the age of texting and tweeting, the use of correct grammar and spelling can seem a lost art. However, if you approach your writing assignments as permanent records of your work, then the importance of using correct grammar and spelling should be obvious. In general, most writing in kinesiology uses the past tense and avoids first person. You may be tempted to rely on the built-in grammar and spell-checker features in your word processor software but do so with a careful eye. Numerous scientific terms may not be recognized by the spell-checker and the grammar-checking feature has limitations. Remember that the APA Publication Manual (6th ed.) is an excellent resource for grammar and punctuation.

Abbreviations and Acronyms

Abbreviations and acronyms can help with brevity. However, if the abbreviations and acronyms you use are not intuitive and/or well-understood, then they can inhibit the readability of the document. If an abbreviation is used, be sure to first use the full term and provide a clear definition, then include the abbreviation or acronym in parentheses. If multiple abbreviations are used (perhaps in a capstone thesis), it may be helpful to have a table of abbreviations located in a place that is easily accessible by the reader. The rule of thumb is to avoid abbreviations if possible.

Verb Tense

Choosing a verb tense may be confusing when writing in kinesiology (or most experimental fields). A common problem is maintaining consistency with the tense in a paper. In general, if you are explaining any actions that you performed, or that may have been performed by others, use the past tense.

For example:

Two SM-250 load cells were used to assess the amount of force produced during isometric elbow flexion in each limb separately.

Vint, Thompson, and Harron (1999) demonstrated that elbow flexion performed with the forearms actively pronated produced a 10% deficit in maximal isometric elbow flexion force relative to that produced when the forearms were in a supinated position.

If you are writing about a theory or idea applied it in your experiment, you should use present tense.

For example:

Limb asymmetry and its effect on the bilateral deficit during tasks of daily living are of particular interest for people living with functional limb asymmetries, such as hemiparetic stroke patients or people recovering from unilateral injury.

Formatting and Citation

The Kinesiology Department at SU uses the sixth edition of the *American Psychological Association (APA) Publication Manual* as a writing guide. The manual provides an exhaustive list of examples of references for journal, articles, books, private communications etc. The APA's website offers limited "Quick Answers" to common writing issues and directions for ordering the complete manual. A copy of the manual is available through the Smith Library Reference Desk or in the Debby Ellis Writing Center. You can find links to an online APA guide through the "Student Resources" section of the Debby Ellis Writing Center website.

Scientific writing is predicated on advancing knowledge. Thus, it necessarily builds upon its past. Because this previous work represents the efforts of others, due recognition of these efforts is imperative. Typically, ideas and results are summarized and paraphrased and then referenced, while quotations of specific work are avoided. The rule of thumb is that a reference is made to a specific article immediately after the idea is presented, but an article is referenced only once in a paragraph. If the article is used in a subsequent paragraph, it is referenced again. While some research journals use a numbered system to reference articles, APA format is to use the authors' last names and year of publication as the in-text reference.

Here are a few examples:

Muscular forces produced during maximum voluntary contractions (MVC) can be 3 to 25% smaller during simultaneous maximal effort bilateral exertions than during independent unilateral maximal exertions of homologous limbs (Archontides and Fazey, 1993).

Secher et al. (1988) reported a 55% difference in total knee extension force produced under unilateral and bilateral conditions in a polio patient with severe dysfunction of one leg, representing an unusually large bilateral deficit.

Helpful Resources for Writing in Kinesiology

University of Toronto - [Writing in the Health Sciences: A Comprehensive Guide.](#)

The Hunter College Writing Center - [Writing Across the Curriculum: Writing in the Health Sciences](#)

Clark, I and Fischbach, R (2008). [Writing and Learning in the Health Sciences: Rhetoric, Identity, Genre, and Performance, *The WAC Journal*, 19: 15-28](#)

University of Minnesota Biomedical Libraries - [Writing Guides and Style Manuals in the Biological and Health Sciences](#)

University of Leicester – [Writing for Science](#)