

Manuscript Tips

Abstract

- Use the 'Abstract Tips' document to guide writing this section.

Introduction

- The introduction should be 1-2 pages long
 - Times New Roman 12-point font
 - double line spacing
 - 1" margins all around
- Start with a general statement and work towards more specific statements.
- The introduction should end with a sentence like "Therefore, the purpose of this study ..."
 - That forces the introduction to be structured in a way that that sentence makes sense.
- The introduction should be supported by references.
- Following the introduction, you can have sub-sections labeled (you do not need all of these but may want to use some of them):
 - Hypothesis(es) / Alternative hypothesis(es)
 - Research Questions
 - Abbreviations
 - Definitions

Methods

- The methods sections must have all of the section listed below.
- Participants
 - Describe the subjects that were tested.
 - In the proposal, describe who will be recruited.
 - Inclusion/exclusion criteria
 - In the final document, describe who was included. Minimally, gender, height, age, mass. You may want to include level of physical activity, running experience, or other descriptors that make sense to describe to the reader.
 - Also in the final document, include a statement that subjects gave written informed consent and that the research was approved by the Institutional Review Board of the university.
 - This is usually about 1-paragraph.
 - Instrumentation
 - Describe the instruments used. Include manufacturer information, model number, etc. – enough information so if someone wanted to repeat the experiment with the same equipment they could find the same equipment.
 - Sometimes, it is helpful to include pictures of the instruments (when they are unique) and/or experimental set up.
 - This is usually about 1-paragraph.
 - Procedures
 - Describe what subjects were asked to do.

- Sometimes, it is helpful to include a flow chart.
- This is also a good place to include a picture of a subject completing a condition (or multiple conditions). Remember, you need approval to take pictures of someone to include in a figure of your thesis.
- Tell the reader specific information about data collection.
 - When data were collected (e.g., during the last 30 s of the 3 min condition).
 - How long data collection was (e.g., data were collected for 30 s).
- Give the reader specific information about each condition.
- Give the reader information about how many trials were completed per condition.
- Data reduction
 - Describe the process of going from raw data to generating each dependent variable.
 - For example, if Impact Force is a dependent variable, you would describe the criteria used to identify the impact peak.
 - You would also describe how data from multiple trials were used. For example, if a subject completed 5 trials for each condition, averaging the impact force across trials is a typical approach.
 - Describe any smoothing, averaging, or any other treatment of data (if appropriate).
 - This section can be anywhere from 1-3 paragraphs depending on the number of dependent variables as well as the amount of data processing.
- Statistical Analysis
 - List all dependent variables.
 - List all independent variables.
 - List the statistical test(s) used.
 - Describe any post-hoc test used.
 - List your alpha level.

Results

- The results section should be an objective presentation of the statistical tests. Do not interpret or discuss data – simply report the statistical outcome.
- Sometimes you can start this chapter off referring to a table that summarizes all data. For example: “Means and standard deviations of all dependent variables are presented in Table X.” However, you may also include reference to tables and/or figures as you present the results.
- If you have more than one independent variable, always start by reporting interaction effects.
 - If there is no interaction, then present the main effects.
 - If there is an interaction, do not present main effects and instead present post hoc tests.
- Sentences should be structured so the emphasis is on the dependent variable.
 - “The [dependent variable] [was or was not] influenced by [independent variable] ([reference to table and/or figure], [p-value]).”
 - You may include more statistical test results as appropriate (e.g., F-ratio, t-score, etc.).

- This chapter can be anywhere from 1-X paragraphs long depending on the number of dependent variables.
- This chapter should be very concise and to the point.

Discussion

- The opening paragraph should emphasize the most important observation. For example:
 - “The most important observation of this experiment was ...”
 - Make sure the most important observation is directly in line with the purpose of the study.
 - If you stated a hypothesis in the introduction, you can also add something like:
 - “The hypothesis [state hypothesis made] was [‘refuted’ or ‘remains tenable’].
 - The key with this paragraph is to give the reader a strong sense of the outcome of the study. Think of this and the conclusion (at the end of the chapter) as ‘book ends’ emphasizing the take away message that you want the reader to have.
- In the next section of the discussion chapter, you want to tell the reader that your data are reasonable. You can do this by comparing your data to published research. Write something like: ‘The [dependent variable] observed during [condition] are similar to what was observed by [citation(s)].’ Then, explain the similarity.
 - When there is disagreement between studies, state that and then discuss why you think there is disagreement.
 - This section can be anywhere from 1-4 paragraphs long depending on the number of dependent variables as well as how well researched the topic is.
- In the next section, you want to talk about confounding factors. These are anything you can think of that may have messed up your interpretation of the results. You have to write this section carefully so that you can demonstrate to the reader that you critically evaluated the experiment but also you are not discounting the outcome.
 - For example, maybe ‘fatigue’ was a confounding factor. You could write something like “It was considered that subjects may have become fatigued during the experiment. However, we tested for an order effect and there was none and we gave subjects rest as needed between conditions.” Of course, this takes appropriate planning to consider potential confounding factors and then plan the experiment to control those factors (e.g., giving subjects adequate rest).
 - Sometimes, it is not clear if a confounding factor influenced the study – in those cases, simply state that (e.g., ‘It is not clear how [state factor] influenced the outcome of the study.’) but then clarify what the next steps are – either more research or re-evaluation of the outcome of the study.
 - The bottom line of this section is that you want to give the reader a sense that you critically evaluated the data.
- In the next section, you should write about your interpretation of the results. Here is the chance to tell the reader your thoughts, create new hypotheses, conjecture, etc. – tell the reader what you think.
 - Be sure to state when you are conjecturing or providing a hypothesis.
 - ‘It is conjectured that ...’

- 'Based upon the analysis, it is now hypothesized that ...'
- In the next section, talk about the limitations of the research. That is, talk about how the results can or cannot be generalized to a larger population.
 - For example, 'This study is limited in that only novice runners were tested and it is not clear if experienced runners would respond similarly.'
 - This section is usually 1-2 paragraphs long.
- Finally, write the conclusion. Some people like to include a brief summary here of the main observation. But be sure to state something like 'It is concluded that ...'
 - This is your main take home message.