

REAPING THE REWARDS: BEST PRACTICES FOR WRITING A RESULTS SECTION

The Results section of a research paper is where you present the novel outcomes of your work. At this point, the reader understands the rationale for your investigation and the methods you used to address your research questions, and you now need to distill your findings into a systematically presented and accessible form.

The Results section is also where you should present clearly supported conclusions that are directly derived from the data, although detailed discussion of implications and interpretations should be reserved for the Discussion section.

It is important to be selective about what to present in the Results section and careful about how to present it. This part of the paper should provide sufficient context to make the information understandable, but you should not repeat information you previously presented in the Methods or digress into analysis that you will subsequently repeat in the Discussion. You should present your data in a format that is clear, organized, and accessible to the reader to ensure that they are able to absorb the information and are well prepared for the discussions and interpretations to follow.

The organization of your Results section needs to strike a balance between providing sufficient context to lead the reader to the important conclusions without distracting the reader with unnecessary interpretation. Your ability to concisely and efficiently convey your data in a format that is familiar to the reader and consistent with the accepted conventions of your field is critical to keeping a reader with you on their journey through your paper.

PURPOSE AND STRUCTURE.

Although the fundamental purpose of your Results section is to present your data, it should never simply be a collection of numbers and tables. This part of the paper should be a story within a story. It presents an opportunity to lead the reader from one important result to the next, guiding them from initial and supporting findings to the novel discoveries that are your reason for publishing. To achieve this, the Results section should generally follow the same pattern as the Methods, following the order of data acquisition as closely as possible in most cases. However, it is more important to use a logical presentation sequence than it is to be strictly chronological. Ideally, each new set of results should build on the previous ones, presenting a logical narrative that makes sense to the reader and leads them to the conclusions you will ultimately ask them to subscribe to.

This language of the Results section should be simple and direct, with the key findings presented as the main focus and without elaboration. For example, “The yellow sticks were longer than the red sticks ($p < 0.05$)” is much better than “The use of a t-test showed that the length of the yellow sticks was greater than that of the red sticks ($p < 0.05$)”. Note that the former makes the key result the subject of the sentence rather than the statistical test, which should not be the focus.

KEY INFORMATION.

The results section should present all data that are necessary to support or understand the conclusions and implications of your research. In many cases, results that serve to exclude alternative explanations of the findings or simply validate the methods being used are as important as the primary findings themselves. All information that supports the central results or reinforces the conclusions should be included.

If results or figures from previous research are used, these must be properly cited, and permission should be obtained before using previously published figures. Referring to data that you choose not to show should be avoided if possible, especially now that many publications allow supplemental online materials.

NOTATION AND FORMAT.

More than in any other part of your paper, using consistent and conventional notation and formatting will improve the accessibility of the information. In this section, the data are in the spotlight, not the writing style or the big picture interpretations. Data of a given type should be presented using a consistent and parallel structure throughout; for example, three variables that are initially presented in the order “A, B, and C” should be presented in that same order throughout. Data should always be presented with their associated units and using consistent notation; for example, “g·L⁻¹” should not change to “g/L” somewhere else in the section, even though these are equivalent. A reader should not need to perform conversions to compare quantities that are presented differently; for example, two different volumes can be presented as 20 mL and 2000 mL, but should not be presented as 20 mL and 2 L. The common convention for most data is to use SI units, but accepted conventions for presenting quantities can vary across fields. You

should follow the conventions of your field or a journal’s preferences where SI units are not standard.

Different publications have different guidelines and preferences for the use of tables and figures, but these are often the best way to present large amounts of data in a concise and easily understandable form. Data that are presented in figures and tables should be referenced in the body of the text, with the necessary explanations of their relevance and often a summary of their overall trends, but data should not be repeated. Note that tables and figures should be self-contained, as they are often presented apart from the main text. Labels and legends should be comprehensive and concisely provide all information necessary for interpretation of the data.

STATISTICS.

Statistical significance is the yardstick by which most quantitative results are measured, and a reader will expect p-values, confidence intervals, and other relevant measures to accompany the data whenever comparisons are being made. As long as the statistical tests being applied have previously been thoroughly described in the Methods section, it is generally sufficient simply to name the tests being used (for example, in a table footnote) so that the data themselves can take center stage.

CONCLUDING REMARKS.

Often considered the most important part of a paper, the Results section is crucial to providing the necessary support for your conclusions. This is where readers will start to formulate the opinions of your work that they will take with them when they have finished reading, so it is critical that your results are clear, convincing, and tell the story that you want the reader to see.



ABOUT THE AUTHOR

Dr. Bendiksby received a Bachelors in Pharmacology in Scotland, a Neuroscience Cand. Scient. in Norway, and his PhD from Duke University studying visual perception and the cognitive processing of attention and reward in rhesus macaques.



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