Writing Strategies

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Keep these 4 questions in mind when writing:

- 1. What are the important gaps in knowledge?
- 2. How will our experiments (analyses) fill them?
- 3. What new knowledge will be gained?
- 4. Why does it matter?

Order of writing:

- 1. Make the figures Sometimes it helps to draft the abstract of the paper to determine your storyline and order of figure presentation.
- Write the figure legends -- include statistics and locations of raw images used to construct the figures so that you can easily find them again if you need to update. You can remove the figure sources (e.g. Reconstruct filename, section number, color schema etc.), once the figures are done.
- 3. Write the results WHILE reading the figure legends and looking at the figures. The results should describe the findings in each figure sequentially. *Give sections 1-3 to your mentor to critique*
- 4. Once you have suitable results section then begin to write other sections of a paper or thesis!
- 5. Write Methods and Discussion next.
- 6. Write introduction last -- introduce the paper that is written, not the whole field. Raise questions that will be answered by the results, and in the discussion section.
- 7. Revise the abstract -- make sure it holds true to what is actually in the paper articulate the results sequentially, namely in the order they will be presented. End with a concise statement of implications.
- 8. Update all the citations/references
- 9. Try to give your mentor/co-authors a full draft once you have both agreed upon the content of the results. Allow a couple days for mentor to return comments.
- 10. Get others to read/critique.
- 11. SUBMIT! REST! Repeat for the next paper!

INTRODUCTION:

- 1. Opening general statement of what the world already knows. Next sentence BUT state what is critically missing from this knowledgebase.
- 2. The Introduction section should provide sufficient background information to make clear the rationale and objectives of the reported studies.
- 3. Usually, end with a statement of what was uniquely done in this study. Don't summarize the results introduce them.

METHODS:

- 1. Begin with the experimental models; include a statement about following IACUC guidelines for humane care of animals.
- 2. Describe the exact experimental or natural, or developmental conditions.
- 3. Provide technical details and indicate equipment companies.
- 4. Statistics section should generally state what programs were used, and what approaches were adopted, but the statistical outcomes for each result should be in the figure legends, not the text, unless you are referring to a statistic that was done on data not presented in a figure (bad idea usually since a picture is worth 1000 words).

RESULTS:

- 1. Begin by making all the figures and writing figure legends as stated in the order of writing section above.
- 2. Be sure that the figures are systematically described without redundancy across the Results text and figure legend. Read text and figure legends in parallel for ALL the figure legends and systematically apply the following 'rules':
 - a. Begin with describing everything that is in 1A, then 1B, then 1C and so on.
 - b. Use parentheses to indicate symbols: PSDs (red arrows), vesicles (blue arrows) and so on...
 - c. Put all of the statistics into the figure legend so that the text can tell an uninterrupted story.
 - d. Put all of the statistics in the figure legends, none in the text.
 - e. Remove all redundancy between figure legends and results text.
 - f. Don't use p = except when it is not significant, give all significant values with p < 0.0001 or whatever the nearest 000001 is not exact values, when they are so miniscule.</p>
- 3. Each figure/section of the results should begin with a brief but clear statement of the goal, hypothesis, etc of what is being tested and why.
- 4. Next describe the outcomes in the associated figure(s).
- 5. End the paragraph with a statement of implications of what was found in that particular result.
 - a. If multiple figures were needed to describe a result, then save this implications statement for the end the section with an overall statement (if appropriate).
- 6. Save broad speculation and how the data fit into the literature for the discussion.
- 7. Brevity without terseness remove all excess words:
 - a. e.g. We measured mitochondrial volumes, lengths, diameters, and densities across ages and conditions in order to investigate LTP-associated changes in mitochondrial dimensions and distribution.
 - b. Could instead be: Hence, we measured mitochondria to determine whether changes in their dimensions and distribution occurred across age or during LTP.
 - c. Then the next paragraphs become more specific about the dimensions that were described or measured, and how.
- 8. Finish the revisions on the results section and figures before you start to write the introduction and discussion. Abstract can be last...

9. Side note for Harris Lab - stick with 3DEM throughout the paper - define 3DEM in the abstract or introduction as follows: three-dimensional reconstruction from serial section electron microscopy (3DEM).

Discussion Strategy (Stay close to journal rules):

- 1. Brevity without terseness!!
- 2. Opening paragraph summarizes the results in the same order that they were presented.

- a. Not more than one sentence per result.
 3. Then devote 1 paragraph to each major result and integrate the findings with the literature.
 4. Concluding paragraph 'restates the main overall conclusion mirror's the title, might add a description of a model of how it all works' go light on future directions (don't give the reader's too many options)!