

Article outline – An overview for new researchers.

Readers including editors want research that is new, true, important and clearly reported.

Please notice any recommendation from the specific journal you intend to submit the paper. Some journal wants to have a standard beginning of the discussion segment. Some of the recommendations below might not be applicable in all manuscripts. Writing the paper has to follow the rules for reporting the specific study design like CONSORT in a randomized clinical trial, ARRIVE in laboratory animals etc. (Se vejledning for udfærdigelse af forsøgsprotokol) (http://www.sdu.dk/Om_SDU/Institutter_centre/Klinisk_institut/Forskning/Forskningsenheder/Ortopaedkirurgi/Vejledninger).

Every manuscript should be transparent; this means it should include relevant information about the design, analysis and applicability of the results.

Structure according to IMRAD: Introduction, methods, results, discussion.

Title

1. Catch the readers attention.
2. Nouns first.
3. Keep short and informative.
(You can make a fully description of the project containment, or make it as a question. Depending on the audience for your article.)

Abstract

1. The most important part of the article, most read.
2. The part that decides whether the reader is going to read the article, or not.

Introduction

The introduction critically states the issues and formulates the rationale for the research questions and hypotheses:

1. Introduce the general topic shortly followed by the problem and suggest its importance (money, affects many people, is emotional for the reader).
– include any systematic reviews on the subjects involved. The aim is the bigger picture, the exact things you are looking for is the objectives/hypothesis/research question.
3. Provide the rationale for each question, subject, key term or hypothesis – what is known and what is not, or problematic – a plausible explanation why the interventions, if any, might work.
4. Finish the section with the specific purposes/questions, and the hypotheses.

Methods and materials

It should contain adequate details for another investigator to replicate the study, typically the longest section.

This gives the reader permit to judge the validity, and gives transparency of the study.

Use subheadings:

- Flow in the approximate chronological order in which the study was conducted:
- Study design (perhaps shown in a flowchart, mention pilot studies as well)
- Power analysis
- Key patient demographics/animals
- Containment/intervention
- Description of surgery, if any
- Postoperative care
- Description of valid and reliable methods to measure study independent variables
- Statistical analysis
- Ethical/animal license

Results

Result sections don't need be long, but has to present the results in a proper way as text, tables or figures.

State the major results in text; refer to figures and tables parenthetically. Parenthetic reference to all figures and tables forces the writer to textually state the interpretation of the data; the important material is the authors' interpretation of the data, not the data.

- Mention any complications. Patients lost, animals etc.
- Remember to comment every figure and table. As a reader you should get the results from the figures, without remembering the text.
- Think about how you present the results. Better in a table or a graph?
- Did these results answer your research question?
- No discussion, perspectives or conclusions are allowed to be presented.

Discussion

- Brief synopsis of key findings including the purpose of the paper/summery of result section (e.g. starting with: 'The main finding...').
- Consideration of possible mechanisms and explanations. Discuss the results implications, not mention them again.
- Don't refer to results that haven't been mentioned before.
- Don't confuse statistical significance with biological/clinical importance/confusing facts with speculation.
- Comparison with relevant findings from other relevant published studies. What was the same? What differed? And do we know why? Show a researchers approach.
- Strength and limitations of the present study (methodological considerations). 'We did this, because...' or 'This could be a limitation, but...'
- A brief section that summarizes the clinical and research implications of the work, as appropriate and a conclusion

Conclusion:

- Purpose of the study
- The impact this/these results give

The Orthopaedic research unit - Department of Orthopaedic Surgery and Traumatology, Odense University Hospital Institute of Clinical Research, University of Southern Denmark

- What could we have done differently?
- What happens now, from these results. Further studies, changing guidelines?

Tips

- ABCD: use the same order of context, in every section
- Style: Think in narrative
- Use SVOMPT when writing
- Referencing: Find the real source! Not other articles that mention the method or result. Read the original papers.
- Don't use sloppy writing. Use spell checker and double check numbers.
- Think about catching the reader. Why is your research important?
- Check, does your stated objective fit with your title, main findings and conclusion.
- Active (prefer if possible!) or passive sentences, make sure it fits your paper

Edited:

April 21st 2012: **Bjarke Viberg**, PhD-student, MD and **Søren Overgaard**, Professor, Head of Research, MD, DmSci.

December 17th 2015: **Hagen Schmal**, Professor, MD, DmSci and **Chris Dreyer**, pregraduate medicine.