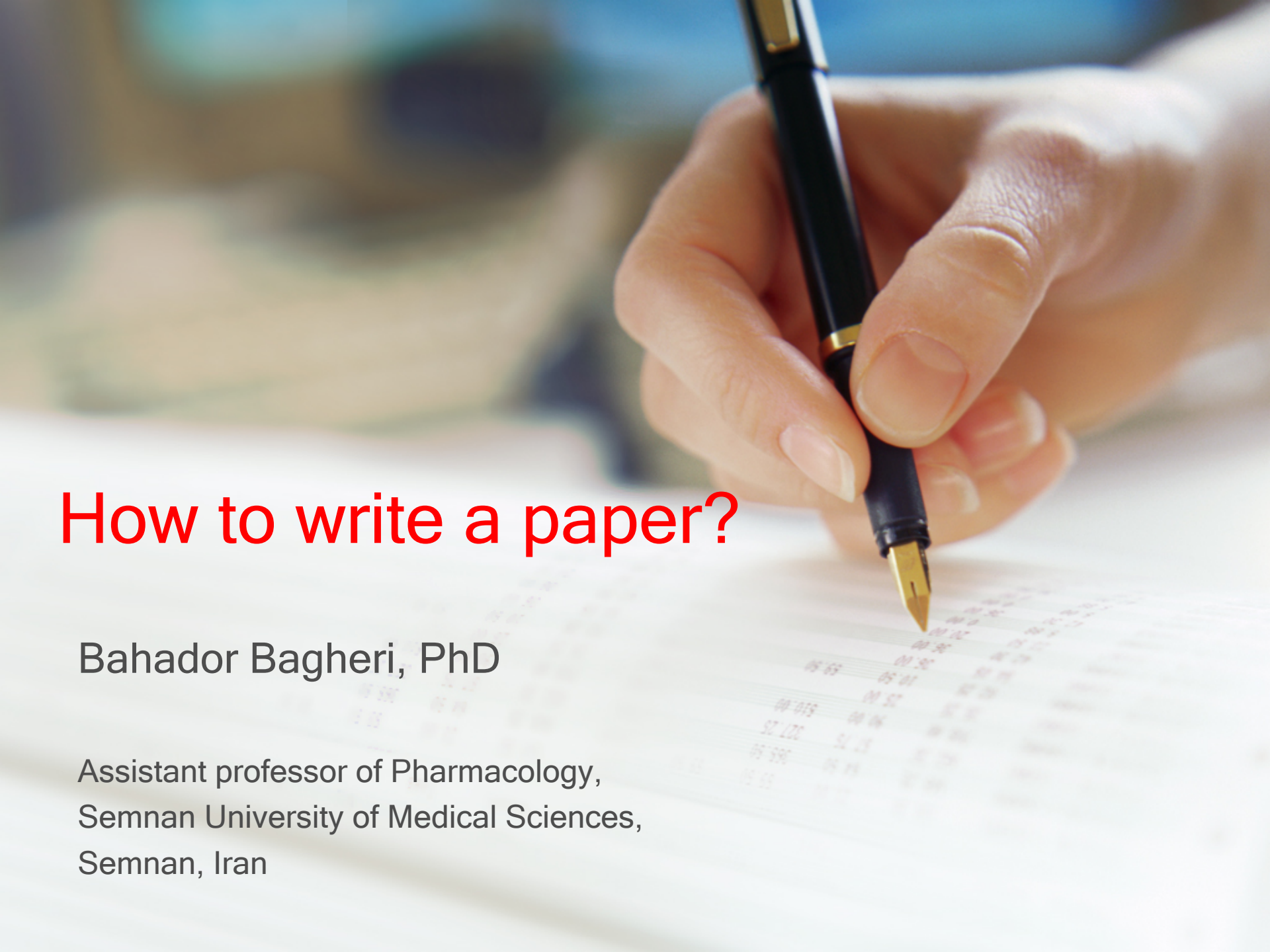


A close-up photograph of a hand holding a black fountain pen with gold accents, poised to write on a document. The document features a table with multiple columns and rows of text, which is slightly out of focus. The background is blurred, showing what appears to be a desk with some papers and a lamp.

How to write a paper?

Bahador Bagheri, PhD

Assistant professor of Pharmacology,
Semnan University of Medical Sciences,
Semnan, Iran

Types of scientific papers

- Original article
- Review article
- Case report, series
- Editorial
- Short communication / brief report
- Letter to editors



Review articles

- Invited review articles
 - Non-systematic or systematic
 - 3-5 articles of self citation
- Systematic review
 - Search engine and database :
 - EMBASE, Medline, PubMed, Scopus
 - Year limitation
- Meta-analysis



How to write a scientific research paper?

Journal you intend to submit:

- *Read instructions for authors*
- *Read some published papers in journal's style*

The sections of a research paper

- 1.Title
- 2.Abstract and keywords
- 3.Authors
- 4.Introduction
- 5.Methods
- 6.Results
- 7.Discussion
- 8.Conclusion
- 9.Acknowledgements
- 10.References
- 11.Tables
- 12.Figure Legends



Original article

- Research article / Regular article
- Abstract (200-250 words)
- Text (3000-5000 words)
- References (less than 40)
- Figures and tables (7-8)
- IMRAD format



Title

- The most important part in an article (appear in journals TOC): indexing and abstracting services depend heavily on the accuracy of the title
- Informative: Clear indication of the content
- As short as possible
- Need to specify
- Accurately: Example
 - Study of mutations in cleft lip and palate
 - TGF- GENE mutation in cleft lip and palate
- Not exaggerated or question form
- No time and location unless..
- No abbreviations

How many words in title ?

- Very few good titles can be expressed in fewer than 5 to 8 words.
- Try to keep the total number < 20
- Not longer than 2 lines

Waste words (useless for indexing purposes)

- Studies on
- Investigation on
- Observation on

Title page:

- Authors affiliations and Corresponding author
- Running title or short title (4-5 words)

**ORIGINAL
ARTICLE**

doi: 10.1111/fcp.12198

Comparison between IV immune globulin (IVIG) and anti-D globulin for treatment of immune thrombocytopenia: a randomized open-label study

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Hasan Taherahmadi^a, Bahman Sadeghi Sedeh^c

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اثرات تمرین استقامتی روی محافظت نورونی در رت‌های پارکینسونی مدل ۶-هیدروکسی دوپامین

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چکیده

هدف: بیماری پارکینسون ناشی از کاهش پیشرونده نورونهای دوپامینرژیک در استریاتوم است که منجر به اختلالات میتوکندریایی و حرکتی می‌شود. در این مطالعه، اثر تمرین استقامتی متوسط بر نقص حرکتی و بیان mRNA برای PPAR- γ ، PGC-1 α (فاکتورهای میتوکندریایی) و BDNF در رت‌های پارکینسونی مدل ۶-هیدروکسی دوپامین (OHDA-۶) بررسی شد. **مواد و روش‌ها:** ۳۲ موش نر بالغ به چهار گروه مساوی ۱. حامل (شم)، ۲. حامل + تمرین استقامتی ۳. پارکینسون و ۴. پارکینسون + تمرین استقامتی تقسیم شدند. مدل پارکینسون با تزریق یک طرفه ۶-هیدروکسی دوپامین به داخل دسته میانی مغز جلویی (Medial forebrain bundle) تزریق شد. گروه شم فقط حامل ۶-هیدروکسی دوپامین را دریافت کرد. ۲ هفته پس از جراحی، گروههای تمرینی روزانه به مدت ۳۰ دقیقه و برای ۳۰ روز متوالی روی نوارگردان دویند. ۶ هفته پس از جراحی، چرخش ناشی از آپومورفین و بیان mRNA برای PPAR- γ ، PGC-1 α و BDNF از طریق روش Real Time-PCR در هیپوکمپ موش‌ها ارزیابی شد. **یافته‌ها:** نتایج نشان داد که تزریق OHDA-۶ سبب افزایش معنادار تعداد چرخش‌ها ($P \leq 0.001$)، کاهش معنادار در بیان PPAR- γ و BDNF و افزایش جبرانی در بیان PGC-1 α mRNA می‌شود. تمرین استقامتی تا حدودی توانست این اختلالات را اصلاح نماید.

نتیجه‌گیری: به نظر می‌رسد تمرین استقامتی می‌تواند اختلال حرکتی و نقص در بیان فاکتورهای میتوکندریایی را در بیماران

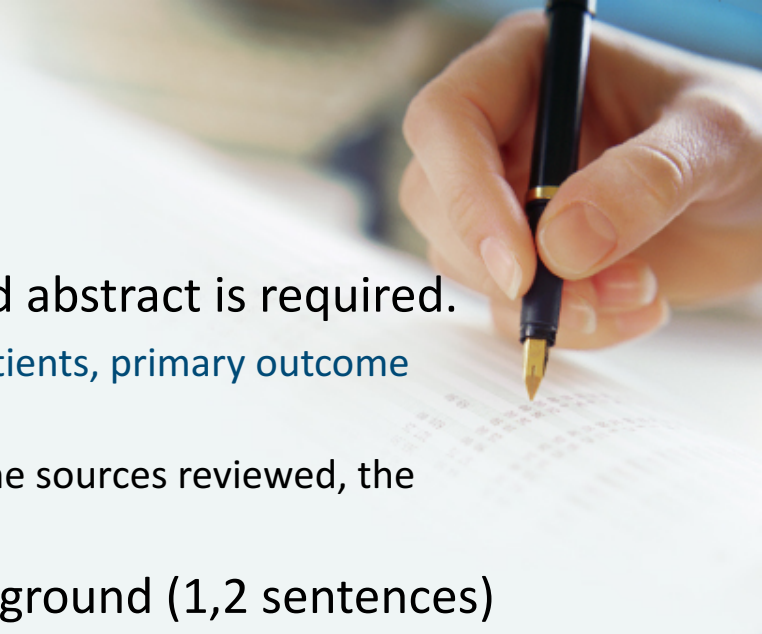
Abstract

- 200-250 words (max: 250 words)
- Usually: the First part read by editors and reviewers
- Sometimes: the Only part read by scientists and clinicians
- Polish it as much as possible
- Write it last (after completing the article)
- Should reflect the content of the paper
- Should answer the following questions:
 - Why did you start this research project?
 - What did you do?
 - What answer did you get?
 - What does it mean?



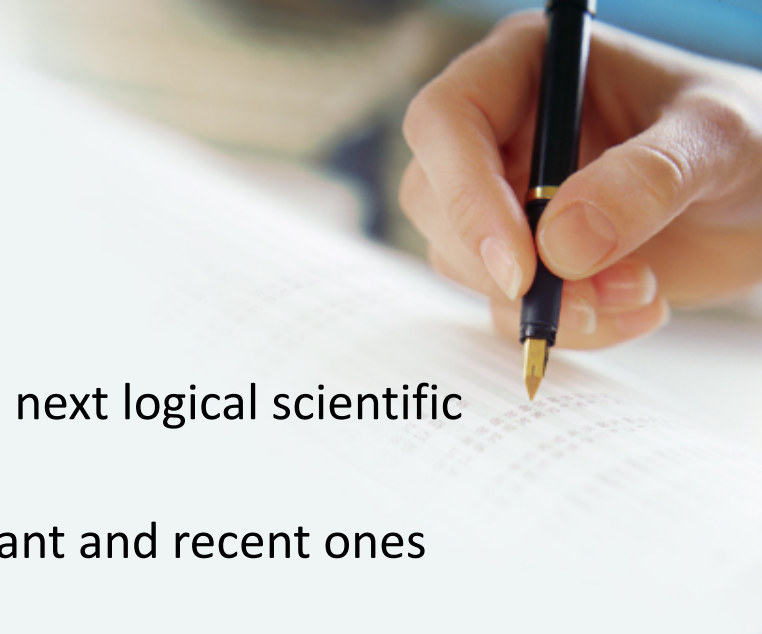
Abstract (continued)

- Write it as **one paragraph** unless structured abstract is required.
 - Abstract in research paper: objective, **design**, **patients**, **primary outcome measure**, results, conclusion
 - Abstract in review paper: the topic, the scope, the sources reviewed, the conclusions
- Objective should always be stated +/- background (1,2 sentences)
- No details of methods
- Two rules in abstract results:
 - If you give **percentages**, give the **sample size** too
 - If you report the **p value**, state the **actual data** too
- Main conclusion
- No non-standard abbreviation, no References
- Past tense



Introduction

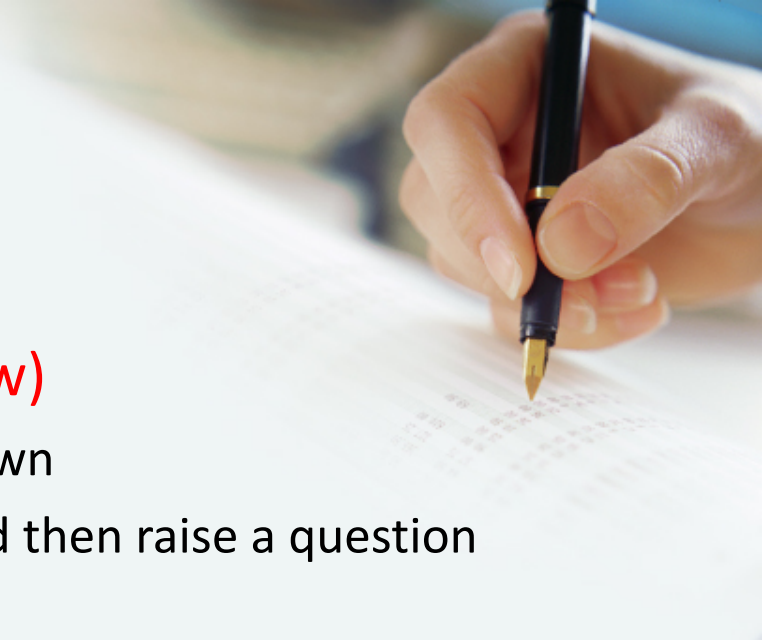
- Good first impression on readers
- Convince the readers: your research is the next logical scientific step to fill the knowledge gap
- Select **references carefully**, the most relevant and recent ones
- Present and past tenses are correct
- Equilibrium between introduction and discussion
 - Time to write (Devote half the writing time to introduction and conclusion)
 - References (years/ quality of references: original articles)
 - content
- Some prefer to do it first , some last!



Introduction_(continued)

The rule of inverted triangle (logical flow)

- Start by general considerations, what is known
- Then , slowly focus on what is unknown, and then raise a question directly relevant to your specific work.
- State the question in new paragraph with a **highlighting signaling words**:
 - To determine whether
 - To determine which
 - The purpose of this study,
 - Therefore we tested the hypothesis that
- You can first write it in reverse and then invert everything.



Introduction (continued)

Last paragraph:

- The best place for statement of purpose. It is the place for the merits of the new technique or methodology (if applied to your article) : express what is **new** and **important** about your study.

Last sentence:

- You can explain the study's design briefly , but not the conclusion.

Length:

- Short (you are not writing a review paper); depends on the **journal type**
- General (15-20%) and specialized (10-15%)
- Long introduction: most common mistake in Iran
- It should be max. 2 pages or about 400-500 words



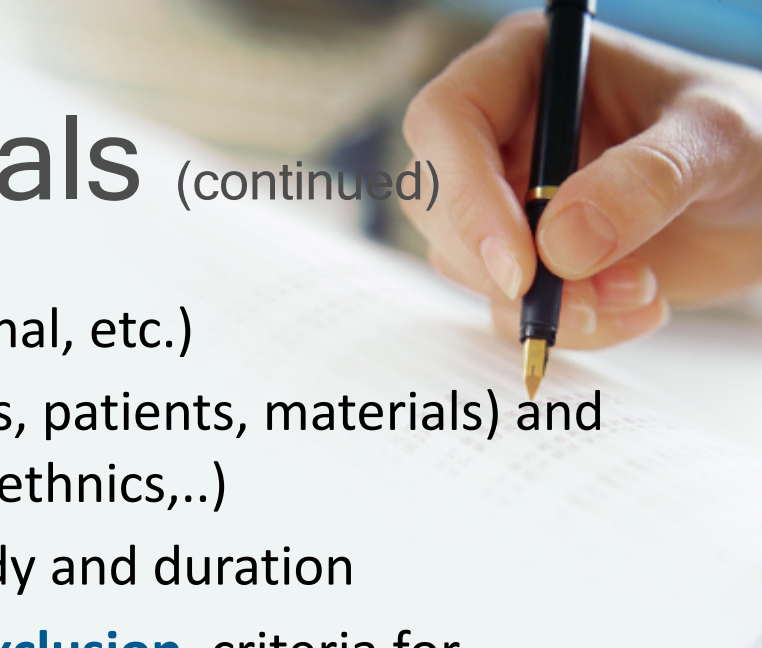
Methods and Materials

- Allow the readers to judge the **validity of the results**
- **Replicable:** Sufficiently detailed enough to permit replication
- No references **except established techniques and protocols** (no details)
- Write it **first** in an article
 - Easiest
 - Can be started when the research is unfinished
 - Simple past tense
- **Summarize** if it is repeated by another study
- **Pilot** study in expensive materials except methodological references with high citations
- Novelty vs. methodology



Methods and Materials (continued)

1. Study **design** (clinical trial, observational, etc.)
2. **Subjects or study population** (animals, patients, materials) and their demographic data (age, gender, ethnics,...)
3. Location of the study, time of the study and duration
4. Patients recruitment, **Inclusion and exclusion**, criteria for diagnosis
5. Sample size, groups, types of blinding, **randomization**
6. Reasons for withdraws or lost
7. Questionnaire
8. Observational or experimental methods
 - Intervention, treatment (drug dosage)
 - Instruments (name of the company)



Materials and methods (continued)

8. Measurements of outcome (units)

9. Ethical regulations:

informed consent, ethical committee confirmation, Helsinki's Declaration

10. Statistical method

- Inter or intra observers agreements; kappa coefficients, percentage of agreements
- **In Clinical Trials**: baseline demographic data at Results not Methods and materials
- Do **not** use vague terms like evaluated; use **precise** verbs like **calculated, estimated, measured**

Results

- Results section forms the backbone of the discussion
- Overall description of major findings (primary outcomes)
- Open the Results section by presenting the “**big picture**” or overview of the experiments: general statement and then specific ones.
- You can use subheadings which match the methods
- Important first, positive first (**positive bias**)
- Report negative results ! They are important !
- in the past tense
- As simple as possible, No irrelevant data
- statistical tests , but no discussion (no interpretation)

Results (continued)

- Tables
 - Figures/chart
 - Photos
 - Text
-
- Avoid redundancy of results like thesis



Results (continued)

Tables:

- When **exact amount** of number or percentage is important
- Check given data at table with text
- **Table title:** short but descriptive
- Tables should be **referred in text**
- Use **meaningful decimals** ! And be consistent with decimals
- Carefully use percentages
- Indicate significance with p value in each table
- Check “ journals instruction to authors”



Results (continued)

Figures:

- **Overall trend** or **comparison** between groups
- Different types based on data:
 - Graphs (Line, Scatter)
 - Charts (Bar, Pie)
 - Photographs (B&W, Colour)
 - Micrographs (Electron micrographs)
 - Polygraphs (ECG, EEG)
- **Be selective** and do not repeat tables in figures
- Not too much information in 1 figure



Results (continued)

Figures :

- **Do not extend** axis too far
- Indicate significant differences **by ***
- Define abbreviations in legends of **first** figure
- Legends: instruction to authors; at the end of the references or in its real place or ..

Photos:

- **Written informed consent** for photographs: remove the name
- Refer the figures in text



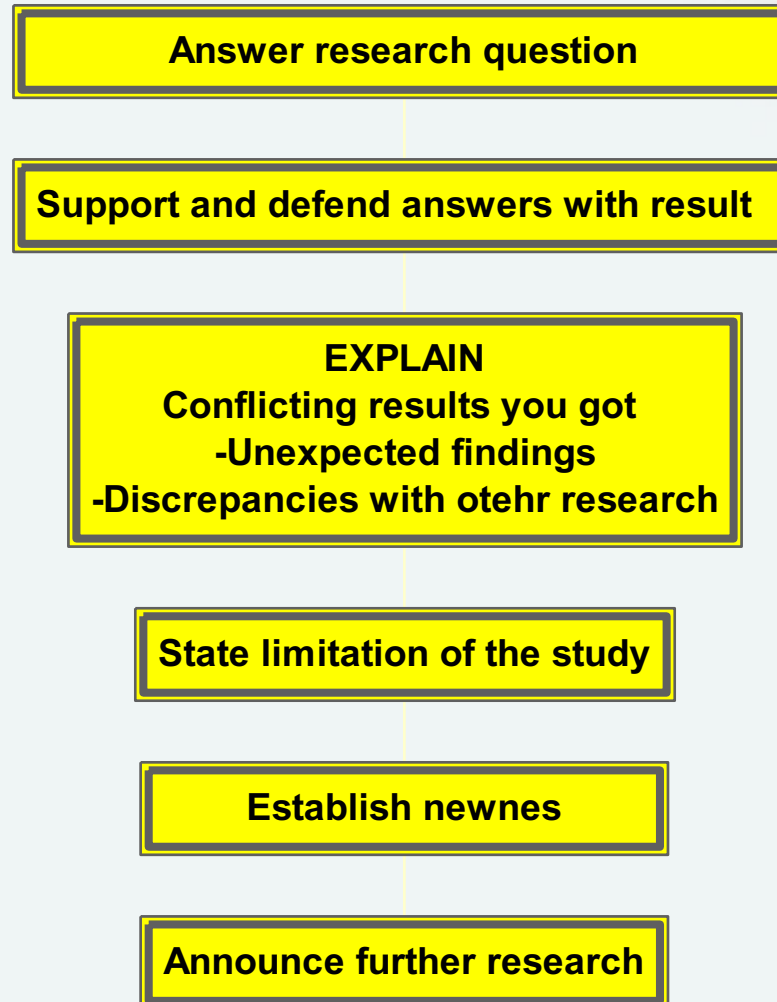
Discussion

- What do these findings mean?
The answer is the discussion
- Discuss-no repeat- the results

Do not repeat or reformulate or recapitulate results

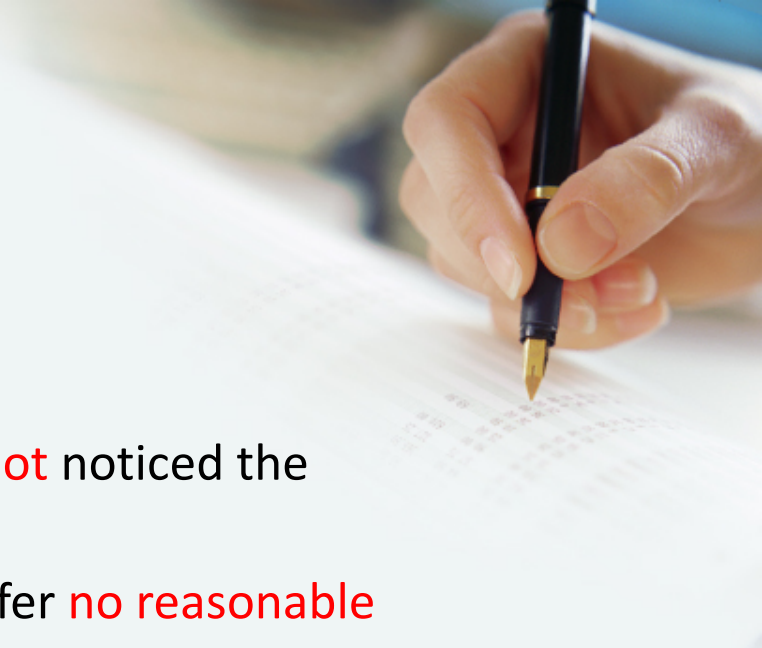


Discussion (continued)



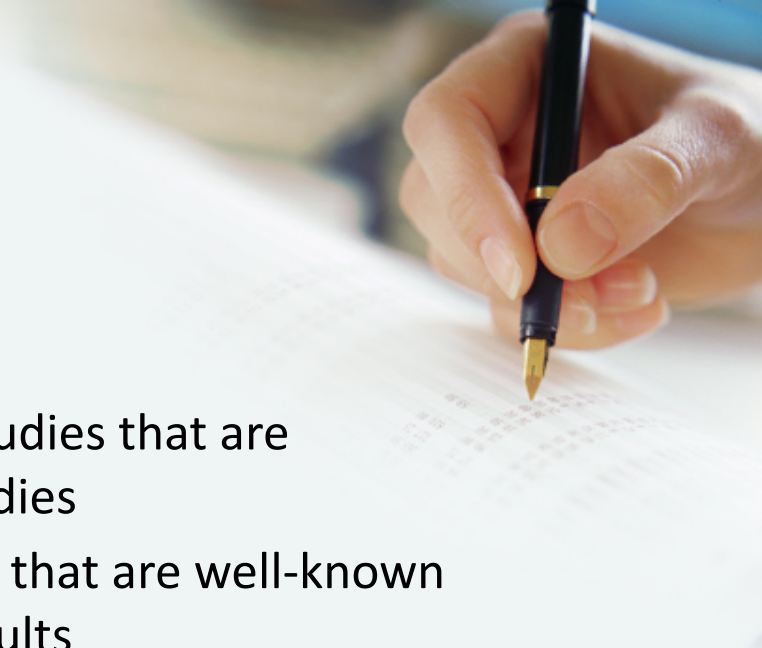
Discussion

- Do **not ignore** inconvenient results
- The reviewer may assume that you **have not** noticed the problem!
- Scientifically, it is acceptable, if you can offer **no reasonable** explanation for an inconsistent result.
- What **about the opposite** results for the same research question as yours?
 1. Different Population
 2. Different Design
 3. Different Definition
 4. Different Statistical methods
 5. Possible Bias or confounding



Discussion

- Do not go beyond the data
- **Past tense** : your current results , other studies that are preliminary or cast into doubt by your studies
- **Present tense** : results of previous studies that are well-known and confirmed , interpretation of your results



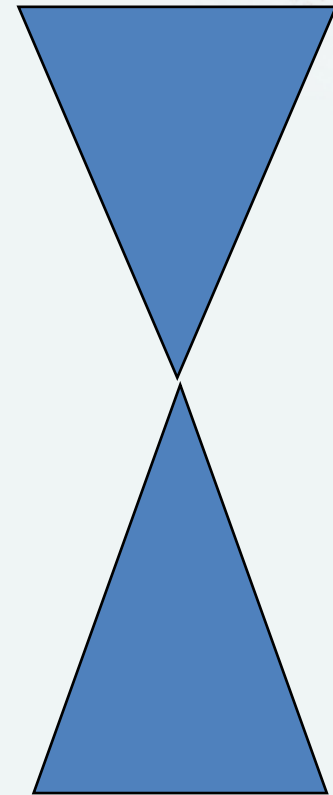
Discussion (continued)

- Choose your proving word carefully (From the strongest to the weakest word). Words like “supported”, “indicated”, and “suggested” are more acceptable ways to evaluate your hypothesis.
 - Prove
 - Show
 - Demonstrate
 - Indicate
 - Suggest
- There are always controversies in sciences, therefore, be cautious. You can easily use words like;
 - May be
 - Might be
 - Could be
 - Probably
 - Possibly

Discussion_(continued)

Inverted triangle : Introduction

Not inverted triangle : Discussion



Acknowledgement

- Significant technical help
- Funding
- Reviewers
- the significant assistance , financial support



References

- Use the style of journal referencing
- Software : Endnote, Reference manager, Procite

