

# How to read a research paper?



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# Who will read the paper?

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1. Authors
2. Editors or reviewers of journals
3. Members of research subcommittee
4. Other researchers
5. General readers

# The reasons to read the paper

1. Authors
  - Prepare a report or paper
2. Editors or reviewers of journals
  - Assess quality for consideration of publication
3. Members of research subcommittee
  - Assess the standard of the report for acceptance
4. Other researchers
  - Focus methodology and results
5. General readers
  - Focus the results

# Well-written research paper

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1. Important research question(s)
2. Sound hypothesis
3. Clear description of procedures and results
4. Interpret findings and relate them to the existing knowledge

# Format

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1. Title
2. Abstract
3. Introduction
4. Materials & methods
5. Results
6. Discussion
7. Acknowledgement
8. References

# Title

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- Most important findings of the study
- Research question
- Highlight randomized study

# Abstract

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- A shortened version of the paper
  - contains **essential** information
- **Structured** or **non-structured**
  - Objectives or background
  - Methods
  - Results
  - Conclusion

# Abstract

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- The first section in a paper but usually the last section to be written
- Concise (word limit)
- Write carefully to have the greatest impact

# Introduction

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- Why is this study of scientific interest ?
  - summarize results and conclusions of previously published studies (literature review)
  - emphasize your specific contribution to the topic
- What are the research question and the hypothesis?
  - The last sentences of the introduction should state objectives and hypotheses

# Materials & Methods

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- Provides all the details necessary for another scientist to **duplicate** your work
- A narrative of the steps you took in your experiment or study but not a cookbook
  - assuming other researchers have the same basic skills that you have, but does not know the **specific details** of the study

# Materials & Methods

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## Type of the study

- Prospective Vs retrospective
- Prospective
  - Observational Vs therapeutic (controlled, randomised or blinded)

# Study Design

## Retrospective

- Case series
- Case cohort study

## Prospective

- Observation Vs therapeutic
- Controlled Vs Uncontrolled
  - Historical
  - Before / after
  - Concurrent, not randomized
  - Randomized

# Materials & Methods

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- Selection of patients (inclusion / exclusion)
- Research details
- Randomization method and blinding
- Outcome measures
  - Primary and secondary parameters
- Statistical analysis
  - sample size calculation
  - intention to treat

# Materials & Methods

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## Reporting randomised controlled studies (RCT)

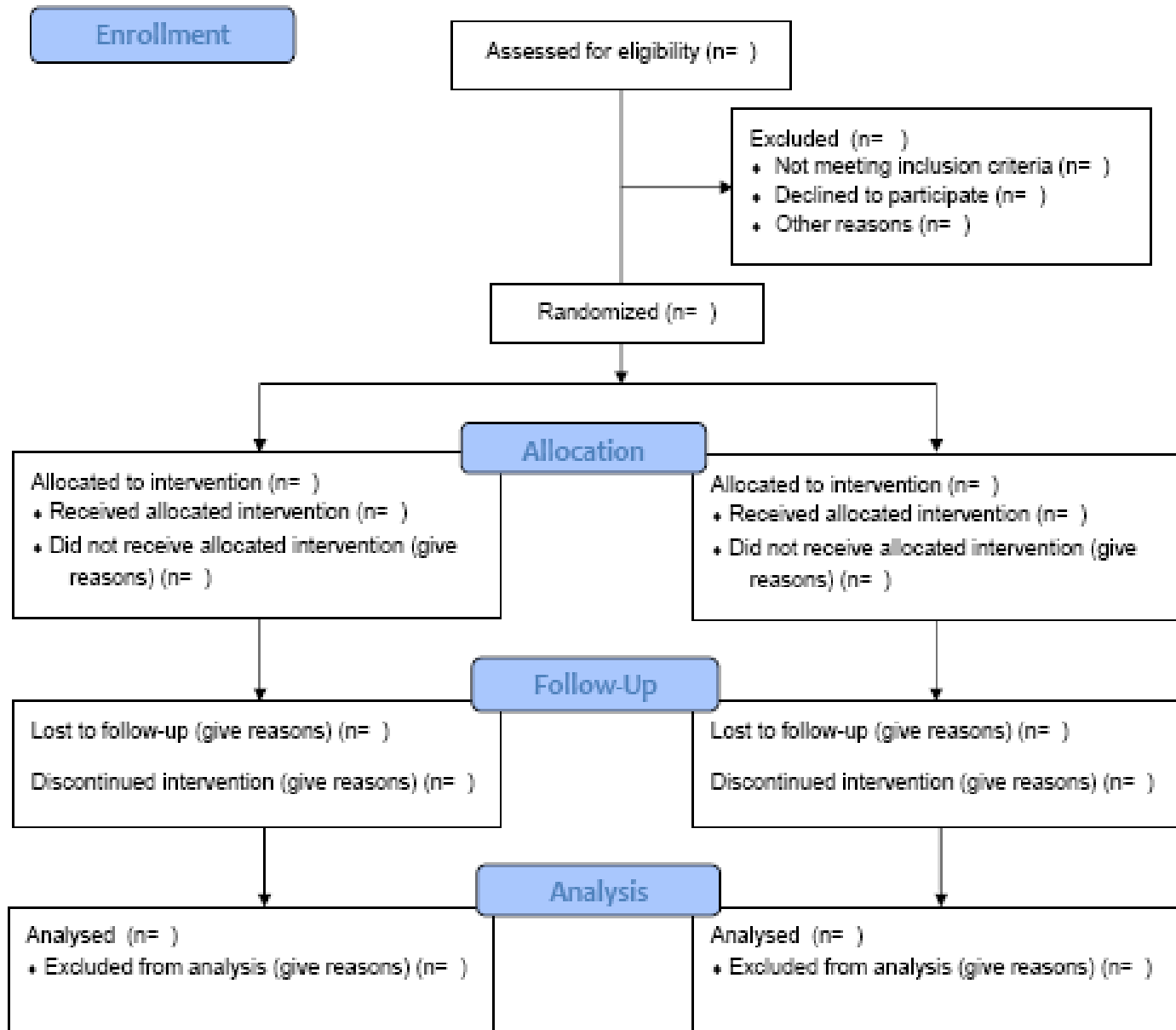
- The CONSORT statement ([www.consort-statement.org](http://www.consort-statement.org))
- Checklist of items to include when reporting a randomized trial (allocation method, inclusion / exclusion criteria, outcome measure, randomization / blinding)
- Flowchart of the study progress at various stages

# Results

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- For RCT, consort guidelines
- Descriptive data
- Tables and figures
- Side effects

# CONSORT 2010 Flow Diagram





## CONSORT 2010 checklist of information to include when reporting a randomised trial\*

Section/Topic	Item No	Checklist item	Reported on page No
<b>Title and abstract</b>			
	1a	Identification as a randomised trial in the title	_____
	1b	Structured summary of trial design, methods, results, and conclusions (for specific guidance see CONSORT for abstracts)	_____
<b>Introduction</b>			
<b>Background and objectives</b>			
	2a	Scientific background and explanation of rationale	_____
	2b	Specific objectives or hypotheses	_____
<b>Methods</b>			
<b>Trial design</b>			
	3a	Description of trial design (such as parallel, factorial) including allocation ratio	_____
	3b	Important changes to methods after trial commencement (such as eligibility criteria), with reasons	_____
<b>Participants</b>			
	4a	Eligibility criteria for participants	_____
	4b	Settings and locations where the data were collected	_____
<b>Interventions</b>			
	5	The interventions for each group with sufficient details to allow replication, including how and when they were actually administered	_____
<b>Outcomes</b>			
	6a	Completely defined pre-specified primary and secondary outcome measures, including how and when they were assessed	_____
	6b	Any changes to trial outcomes after the trial commenced, with reasons	_____
<b>Sample size</b>			
	7a	How sample size was determined	_____
	7b	When applicable, explanation of any interim analyses and stopping guidelines	_____
<b>Randomisation:</b>			
<b>Sequence generation</b>			
	8a	Method used to generate the random allocation sequence	_____
	8b	Type of randomisation; details of any restriction (such as blocking and block size)	_____
<b>Allocation concealment mechanism</b>			
	9	Mechanism used to implement the random allocation sequence (such as sequentially numbered containers), describing any steps taken to conceal the sequence until interventions were assigned	_____
<b>Implementation</b>			
	10	Who generated the random allocation sequence, who enrolled participants, and who assigned participants to interventions	_____
<b>Blinding</b>			
	11a	If done, who was blinded after assignment to interventions (for example, participants, care providers, those	_____

# Discussion

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- Summarized the results and highlight the significant findings
- Interpretation of the results
  - explain what the results mean in light of other published results
  - why they differ from what works of others

# Discussion

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- Limitations of the study
- Weakness
- Suggestions for further research

# Acknowledgement

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- Financial disclosure
- Any conflict of interest

# References

- Vintzileos AM, Ananth CV. How to write and publish an original research article. *Am J Obstet Gynecol*. 2010;202:344.e1-6.
- The Practice Committee of the American Society for Reproductive Medicine Interpretation of clinical trial results *Fertil Steril* 2008;90:S114–20.
- Schulz KF, Altman DG, Moher D; CONSORT Group. CONSORT 2010 statement: updated guidelines for reporting parallel group randomised trials. *BMJ*. 2010;340:c332. ([www.consort-statement.org](http://www.consort-statement.org))

# Questions & Answers