

GUIDELINES FOR POST-GRADUATE THESIS

- 1) The basic aim of requiring the candidates to write a thesis/dissertation is to familiarize him/her with research methodology.
- 2) Work for writing the thesis is aimed at contributing to the development of a spirit of enquiry, besides exposing the candidate to the techniques of research, critical analysis, acquaintance with the latest advances in medical science and the manner of identifying and consulting available literature.
- 3) Every candidate shall carry out work on an assigned research project under the guidance of a recognized post-graduate-teacher, the result of which shall be written up and submitted in the form of a Thesis. The members of the faculty guiding the thesis/dissertation work for the candidate shall ensure that the subject matter selected for the thesis/dissertation is **feasible**, **economical** and **original**. Thesis will be evaluated time to time by the PG Guide.
- 4) Every candidate shall submit thesis plan to the university within the timeframe set by the university.
- 5) The student will (i) identify a relevant research question in consultation with his PG Guide and Head of Department (ii) conduct a critical review of literature; (iii) formulate a hypothesis; (iv) determine the most suitable study design; (v) state the objectives of the study; (vi) prepare a study protocol;(vii) undertake a study according to the protocol; (viii) analyze and interpret research data, and draw conclusions; (ix) write a research paper(Thesis) with relevant references
- 6) The dissertation will be signed and certified by the PG Guide, H.O.D. and Dean.
- 7) Thesis shall be submitted to the university (online) by the deadline set by university and as per instructions issued by the Head of the Institution.
- 8) The student will have to provide 2 hard copies of the document (1 for PG Guide and 1 for Library) and as per guidelines issued by the Head of the Institution
- 9) The thesis shall be examined by a minimum of three examiners; one internal and two external examiners, and on the acceptance of the thesis by two examiners, the candidate shall appear for the final examination.
- 10) The thesis may be normally restricted to the size to 100 pages. To achieve this, following points may be kept in view;
 - (i) Only contemporary and relevant literature may be reviewed.
 - (ii) The techniques may not be described in detail unless any modification / innovations of the standard techniques are used and reference may be given.
 - (iii) Illustrative material may be restricted.

- (iv) Since most of the difficulties faced by the residents relate to the work in clinical subject or clinically oriented laboratory subjects the following steps are suggested:
 - (a) For prospective study, as far as possible, the number of cases should be such that adequate material, judged from the hospital attendance, will be available and the candidate will be able to collect the case material within a period of 6-12 months so that he/she is in a position to complete the work within the stipulated time.
 - (b) The objectives of the study should be well defined.
 - (c) As far as possible, only clinical or laboratory data of investigations be included
 - (d) Technical assistance, wherever necessary, may be provided by the department concerned. The resident of one specialty taking up some problem related to some other specialty should have some basic knowledge about the subject and he/she should be able to perform the investigations independently, wherever some specialized laboratory investigations are required a co-guide may be co-opted from the concerned investigative department, the quantum of laboratory work to be carried out by the candidate should be decided by the guide and co-guide by mutual consultation.
 - (e) The Clinical residents may not ordinarily be expected to undertake experimental work or clinical work involving new techniques, not hitherto perfected or the use of chemicals or radio isotopes not readily available. They should however, be free to enlarge the scope of their studies or undertake experimental work on their own initiative but all such studies should be feasible within the existing facilities.
 - (f) The residents should be able to use freely the surgical pathology/autopsy data if it is restricted to diagnosis only, if however, detailed historic data are required the resident will have to study the cases himself with the help of the guide/co-guide. The same will apply in case of clinical data.
- 11) The thesis must be consistent with the principles of evidence based medicine and use Statistical methods to accomplish this objective. The Statistical methods used for analysis should be described in detail.
- 12) Thesis update in the CMR every month. Prior to that the thesis progress shown to the PG guide/ Mentor. Also progress of thesis to be documented in the logbook.

SYNOPSIS

GUIDELINES & PROFORMA FOR POST GRADUATE THESIS AS PER MUHS CIRCULAR

No.	Item	Component
1	Title	Should be Clear & Brief Should define the sample (Patient/Participant/Books) Should reflect Primary Objectives Should reflect Study Design
2	Introduction	Should Justify the Rationale of the study and state the purpose of study, mention lacunae in current knowledge and enunciate the Research Question/Hypothesis, if any.(maximum 15-20 lines)
3.1	Primary Research Question	I) Population/Patient/Books II) Intervention/Exposure III) Comparison Group IV) Outcome V) Related to primary Objective
3.2	Secondary Research Question (if any)	I) Population/Patient II) Intervention/Exposure III) Comparison Group IV) Outcome V) Related to primary Objective
4	Primary Hypothesis	I) Clearly Stated II) Reflects relation between 2 or more variables III) Related to Primary Research Question
5	Review of Literature	I) Includes recent/ongoing research relevant to the present study II) Presents Knowledge gap for the stated problem III) Minimum 30 references from following: Textbook/Govt.Reports/Classical Textbooks/Ref Books/Journals/Database/Websites.
6	Primary Objectives	I) Specific :- target a specific area of Improvement II) Measurable :-Quantify or at least suggest an indicator of Progress III) Achievable :-Whether the investigator can achieve this with available resources. IV) Realistic :-state what results can be realistically achieved. V) Time-bound :-Specify when the results can be achieved,
7	Methodology	I) Appropriate study design II) Mentioned study setting III) Mentioned study population IV) Sample Size - a) Correctly calculated for primary objective b) Adequate for secondary objective c) If not adequate ,acceptable justification provided V) Appropriate sampling technique VI) Method of selection of subjects - a)Appropriate inclusion criteria b) Appropriate exclusion criteria c) Appropriate subjective withdrawal criteria VII) Operational definitions provided IX) Appropriate methods of measurements IX) Appropriate study instrument/data collection tools X) Methods of data collection relevant to objective XI) Appropriate data mgmt.& analysis procedure XII) Appropriate data analysis plan & methods.

THESIS WRITING FORMAT & TIMELINE

General Guidelines –

1. Every word in your thesis has two sources; previous published literature [which has to be referenced], your own data. No word in your thesis has to be beyond the scope of above two sources.
2. **NO PLAGIARISM:** Please do not copy paste anything. Check plagiarism using online tool on website of smallseotools [Google it]
3. You have been provided the power point presentation on details of how to write each section of thesis, a complete model thesis is provided to you and you have your template thesis. Refer to all three of above if you are stuck at any point. If you feel there is certain point unclear to you, please meet Dr. Siddharth Aiyer for clarifications.
4. Please meet your guide/mentor at least once a month. Meeting schedule with research dept will be intimated to you on residents whatsapp group and is mandatory to be followed. Any changes in thesis suggested by guide, mentor or even Dr. Siddharth Aiyer has to be verified and approved.
5. Please follow the time line state at end of this document and plan your data collection and chapter writing

Contents -

1	Chapter Writing : Introduction
2	Literature Search : Sources, etc.
3	Chapter Writing : Review of Literature
4	Aim & Objectives
5	Chapter Writing : Material & methods
6	Chapter Writing : Results
7	Chapter Writing : Discussion
8	Chapter Writing : Conclusions
9	Chapter Writing : References/Timelines/ Annexures

TIMELINE FOR PG THESIS

Term 1	2 Months	Synopsis
	3-6 Months	Synopsis + Chapters on Introduction, Review of Literature
Term 2	7-12 Months	25% follow up + Material & Methods Chapter
Term 3	13-18 Months	60% Follow-up
Term 4	19-24 Months	100% Follow-up, Statistical Analyses, Final Chapter Writing, Results / Discussion / Conclusion
Term 5	24-30 Months	Thesis Submission , Research Paper
Term 6	31-33 Months	Research Paper to be submitted to journal

HOW TO WRITE EACH CHAPTER

1) CHAPTER WRITING : INTRODUCTION

1	<p>The introduction is the first chapter of your thesis or dissertation and appears right after the table of contents. The introduction should include:</p> <p>Broad Introduction of the Topic Main Body of Introduction based on PICO Keywords Last paragraph Delineating your Research question</p>
2	<p>When do we write the introduction</p> <p>Although the introduction comes at the beginning of your dissertation, it doesn't have to be the first thing you write — in fact, it's often the very last part to be completed (along with the abstract). Introduction is written in three Phases, one at after review of literature, modified after results and last modified after writing discussion</p> <p>It's a good idea to write a rough draft of your introduction near the beginning of the research to help guide you. For an effective introduction, make sure to include all of the following elements.</p>
3	<p>Topic and context</p> <p>Begin by introducing your topic and giving any necessary background information like incidence prevalence or short historical background.</p> <p>Example topic</p> <p>Study of Fragment Specific Fixation of Upper Tibial Fractures.</p> <p>Example context</p> <p>Proximal tibia fractures pose a great challenge in front of the surgeon because they vary from simple to complex, with little or extensive articular involvement. It forms 12% of all tibia fractures and 5% of all lower limb fractures. The high variability of the fracture patterns makes it utmost important to classify these fractures.</p>
4	<p>Main Body of Introduction</p> <p>After a brief introduction to your general area of interest, narrow your focus and define the scope of your research with help of your PICO Keywords. For example:</p> <ul style="list-style-type: none">• What Population are you investigating?• What Outcome measures you are using?• What Individual groups you have?• What Comparison are you doing? <p>For each above question a thorough literature review is done to include at least last 10 years papers and define the current status in these areas. All above help us delineate the lacunae in literature and define it.</p>
5	<p>Questions and objectives</p> <p>This is perhaps the most important part of your introduction - it sets up the expectations of the rest of your dissertation. How you formulate your research questions and objectives will depend on your discipline, topic and focus, but you should always clearly state the central aim of your research.</p> <p>You can briefly mention the research methods you used to answer your questions, but if you are including a separate methodology chapter, don't go into too much detail here.</p>

If your research aims to test hypotheses you can formulate them here, along with a conceptual framework that posits relationships between variables. Sometimes the hypotheses will come later in the dissertation, after your literature review.

Example research question

Can Fixation of Upper Tibial Fractures be improved with help of CT Scan and 3D based Classification and Treatment Protocol?

Example objectives

Gather and analyze available information on CT Scan based 3D Reconstruction for improving the accuracy of identification of Fractures patterns in Upper Tibial Fractures.

Determine whether Classifications based on CT Scan findings are more useful in deciding treatment Protocols for Operative Fixation of Upper Tibial Fractures

Analyse the Results of a case Series of Upper Tibial Fractures treated with CT scan based 3D Reconstruction and Operative Fixation based on a Classification which uses this tool.

2) LITERATURE SEARCH : SOURCES etc.

1	Textbooks	Read ,Understand and Photocopy what is present in a standard textbook on your topic (with references which may be at the end of the chapter)
2	Monograph	Research monographs can be reformatted editions of dissertations, theses, or other significant research reports.
3	Review Articles/Papers	Review articles are virtual goldmines of information as readers are able to form an idea about the current state of understanding on a topic and decide whether to read each article individually..
4	Research Papers	Obtain all Research papers on your topic from reliable Medical Research Databases(PubMed/Google scholar etc..) Identify the most recent paper that is closest to your Topic as a “ Template Paper ”. You must try to get as many papers as possible for a good review. A minimum of 30 papers is a must. Presentation on ROL has been taken in detailed by Dr Ashok Shyam, however if you still have doubt, you can approach him Important: If you are unable to find any full text article, please message full title of the article to Dr Ashok personally or on the Residents Group.

3) CHAPTER WRITING : REVIEW OF LITERATURE

1	Surveying and critically reading the existing literature: (this step is commonly referred to as experimental literature review .)
2	Summarizing and actually penning down the gist of your review in an organized manner: this is known as theoretical review .
3	The main purpose of the review is to introduce the readers to the need for conducting the said research. A literature review should begin with a thorough literature search using the main keywords in relevant online databases such as Google Scholar, PubMed, etc. Once all the relevant literature has been gathered, it should be organized as follows:

4	Background literature about the broad research topic to introduce the readers to the field of study.
5	Recent progress on the study topic which can be organized thematically or chronologically .
6	Chronological: This approach describes each work in succession starting with the earliest available information.
7	Thematic: Please divide your ROL in various subsection, The first section is dedicated to the actual research focused area: It can be based on your PICO Keywords and arranged from newest to oldest. The other subsections of your ROL can be Anatomy, surgical procedures etc
8	Reference list: The reference list is a very important part of a literature review as your article is based entirely on primary sources. The reference list should be detailed and page numbers and section details should be provided wherever necessary.
9	At the end of main research focused ROL List, there needs to be a summary added. The summary should include a comparison and contrast of different studies . Discussing the controversial aspects helps to identify the main gaps that need to be worked upon. This is essential for defining the problem statement of the study and highlighting the significance of the research under question.
10	A literature review should not be a mere recounting of all the available information. It should be a critical and analytical summary of the selected literature that guides the readers through the central theme of the research.
11	Please refer to template thesis to see how the ROL Themes can be selected and how they are organized and detailed

4) AIM AND OBJECTIVES

Aim	Research Aim is to provide answer to the research question. Moreover, research aim specifies WHAT needs to be studied
Objectives	Research Objectives divide research aim into several parts and address each part separately. Research objectives comprise a number of steps that address HOW research aim will be achieved. As a rule of Thumb, there would be one research aim and several research objectives to facilitate the achievement of this aim.

Sample Question with Aim & Objectives

Research Question	What is the Role of Fragment Specific fixation using a CT scan based Operative Protocol in the treatment of Upper Tibial Fractures?
Aim	To Study the Role of Fragment Specific fixation using a CT scan based Operative Protocol in the treatment of Upper Tibial Fractures
Objective 1	To Study the Outcomes of a case series of Upper Tibial Fractures to determine the Role and Efficacy of Fragment Specific fixation using a CT scan based Operative Protocol in the treatment of Upper Tibial Fractures
Objective 2	To Study the Complications associated with Operative Fragment Specific fixation in the treatment of Upper Tibial Fractures
Objective 3	To Review the Literature on Fragment Specific fixation of Upper Tibial Fractures

5) CHAPTER WRITING : MATERIAL AND METHODS

1	<p>Material & Methods would include</p> <ul style="list-style-type: none"> i) Study design ii) Study setting (tertiary Care Hospital) iii) Study population (patients attending Hospital) iv) Sample Size a) correctly calculated for primary objective b)adequate for secondary objective c)if not adequate ,acceptable justification provided v)sampling technique vi)method of selection of subjects a) inclusion criteria b) app. exclusion criteria c)app. subjective withdrawal criteria vii)operational definitions provided [e.g. fracture healing) viii)methods of measurements (e.g. scoring methods) ix)study instrument/data collection tools (e.g. Master Chart) x)methods of data collection relevant to objective (e.g. Follow Up Visits) xi) Data mgmt.& Analysis procedure (e.g. SPSS Software)
	<p>Important Points on Methods</p> <p>Description of the Surgical procedure in details has to be provided here</p> <p>Description of Data collection points has to be clear and every visit has to be detailed here</p> <p>Who is collecting the data has to be mentioned</p> <p>Outcome measures [clinical, radiological, functional and quality of life] all have to explained and referenced here</p> <p>Last part of the material method is statistical methods which has to written in details with help from statistician</p>
	<p>Writing Material Methods is aimed at providing the reader all tools to replicate the same study.</p> <p>One of the best methods to write material methods is to read material methods of at least 5 related articles and check how the flow of events is organized.</p>

6) CHAPTER WRITING : RESULTS

1	<p>The Results section is a summary of the experimental outcome of the study. • Results should include a concise verbal description of the outcome as well as tables and figures, showing statistical results and experimental error. • Tables and figures should include legends explaining what they are summarizing</p>
2	<p>Results is ONLY FROM YOUR DATA.</p> <p>Nothing other than the data and analysis has to be included here</p>
	<p>Parts of Result [Follows the PICO Format]</p> <ol style="list-style-type: none"> 1. Demography: Mean age, gender and other demographic variables to be presented here with text and charts. This is details of your entire Population before intervention 2. Intervention: Here provide intraoperative details and post op details: Surgery time, blood loss etc 3. Outcome Measures: Provide analysis at each follow up point 4. Comparision between groups Or Sub group analysis if possible <p>Two special points to be included in results</p> <ol style="list-style-type: none"> 1. Complications: each and every complication has to be mention in details

	2. Case Images: at least two representative cases along with all radiology and clinical pics have to be included here [pre op to final follow up. One or two full set of images of complications also has to be included
	All tables must have legend and if p value is mentioned the test used must be mentioned below it

7) CHAPTER WRITING : DISCUSSION

	<p>The Discussion section is where the results are interpreted and conclusions are drawn</p> <ul style="list-style-type: none"> • The Discussion should also compare the results to those of other studies and give the general significance of the findings • Study limitations, sources of error, and plans future work are usually presented in the discussion <p>Discussion Check List</p> <p>The most important findings have been concisely summarized. The results have been discussed and interpreted in relation to the research objectives. The discussion is logically ordered to show patterns or themes among the data. The research questions have been answered. Relevant literature and theory has been cited. Alternative explanations of the results have been considered. The practical and/or theoretical implications have been stated. Any limitations of the research have been acknowledged and evaluated. Relevant recommendations have been made for further research or action. The importance of the results has been emphasized. Refer to the template thesis to see how discussion can be subdivided into important headings and how the comparison and contrast is elaborated</p>
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8) CHAPTER WRITING:CONCLUSIONS

	<p>The Conclusions section sums up the key points of your discussion, the essential features of your design, or the significant outcomes of your investigation. As its function is to round off the story of your project, it should:</p> <ul style="list-style-type: none"> • be written to relate directly to the aims of the project as stated in the Introduction • indicate the extent to which the aims have been achieved • summarise the key findings, outcomes or information in your report • acknowledge limitations and make recommendations for future work (where applicable) • highlight the significance or usefulness of your work.
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9) CHAPTER WRITING : REFERENCES/TIMELINES/ANNEXURES

	Vancouver is a system of referencing commonly used in biomedicine, among other scientific disciplines. In Vancouver style, you place a reference number in the text wherever a source is cited:
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e.g. Davies et al. state that the data is ‘unreliable’¹.

This number corresponds to an entry in your reference list – a numbered list of all the sources cited in your text, giving complete information on each:

All references have to be chronologically ordered as per appearance in the text. The entire text of your thesis should be numbered from sequentially starting from introduction.

It is preferable to use Mendley as Reference manager for the same

Sample References Chart

References

1. O'Campo P, Dunn JR, editors. Rethinking social epidemiology: towards a science of change. Dordrecht: Springer; 2012. 348 p.
2. Schiraldi GR. Post-traumatic stress disorder sourcebook: a guide to healing, recovery, and growth [Internet]. New York: McGraw-Hill; 2000 [cited 2019 Nov 6]. 446 p.
Available from:
<http://books.mcgrawhill.com/getbook.php?isbn=0071393722&template=#toc> DOI: 10.1036/0737302658
3. Halpen-Felsher BL, Morrell HE. Preventing and reducing tobacco use. In: Berlan ED, Bravender T, editors. Adolescent medicine today: a guide to caring for the adolescent patient [Internet]. Singapore: World Scientific Publishing Co.; 2012 [cited 2019 Nov 3]. Chapter 18. Available from: https://doi.org/10.1142/9789814324496_0018
4. Stockhausen L, Turale S. An explorative study of Australian nursing scholars and contemporary scholarship. J Nurs Scholarsh [Internet]. 2011 Mar [cited 2019 Feb 19];43(1):89-96. Available from:
<http://search.proquest.com/docview/858241255?accountid=12528>
5. Kanneganti P, Harris JD, Brophy RH, Carey JL, Lattermann C, Flanigan DC. The effect of smoking on ligament and cartilage surgery in the knee: a systematic review. Am J Sports Med [Internet]. 2012 Dec [cited 2019 Feb 19];40(12):2872-8. Available from: <http://ajs.sagepub.com/content/40/12/2872> DOI: 10.1177/0363546512458223
6. Subbarao M. Tough cases in carotid stenting [DVD]. Woodbury (CT): Cine-Med, Inc.; 2003. 1 DVD: sound, colour, 4 3/4 in.
7. Stem cells in the brain [television broadcast]. Catalyst. Sydney: ABC; 2009 Jun 25.

GUIDELINES FOR RESEARCH PAPER TO BE SUBMITTED FOR PUBLICATION

- It is compulsory for each resident to prepare and submit a scientific paper of their dissertation topic in an indexed journal for possible publication.

AUTHOR, TITLE, DATE

- These should be laid out as prescribed.

ABSTRACT

- A 'Thumbnail sketch' of the aim, process and outcome of the paper. Abstract and entire paper has to be formatted as per suggested Journal Guidelines

MAIN MANUSCRIPT

CONSISTS OF FOUR MAIN PARTS

Introduction

Material Methods

Results

Discussion

Introduction

Introduction DOES NOT INTRODUCES THE TOPIC [this is the most common error]. The purpose of introduction is to delineate the research gap, research questions. Like thesis introduction it has three parts. First is general introduction with historical background. The second part is the main part that provides focused review of existing literature with aim of delineating the research gap. Include at least last 5 to 10 years recent papers on the topic. The last part is where the above delineated research question is stated

Methods & Materials

- How you conducted the research
- What was the process of conducting the research
- Should be in details so that a reader should be able to reproduce the research
- Should include a paragraph on statistical details
- All outcome measures and follow up protocol have to be mentioned clearly

Results

- Result include only your data and analysis of the data
- Provide the results in chronological order
- Include details of Complications and how they were managed
- Include at least two sets of pictures [cases] preferably one of complication

Discussion

- The aim of discussion is to provide a focused context of the results from your data in light of current literature.
- Each important result from your data has to be reviewed with current literature and if there are differences or similarities, they have to be rationalized
- This helps in to add the results you have now in the gap we delineated in introduction
- Discussion should include details of limitation and strength of the study
- Statistical Analysis

CONCLUSION

- Bringing the whole paper to the point where you state the opinion you have reached with the regard to the research topic.

BIBLIOGRAPHY

- Details of resources cited in your Paper
- Follow the Vancouver format [may vary with Journal guidelines]

TABLE AND FIGURES

- **Have to be formatted as per Journal guidelines**
- **Do not repeat the data in text and tables**
- **Use tables to reduce the amount of text and bring clarity**
- **Do not use graphs unless recommended**
- **Figures and tables have to be numbered and should have proper legend and details**
- **All figures and tables have to be cited in the text**

The paper has to be approved by the research department before submission. Authors List has to be confirmed with research department before submission of the paper

Please note - unless research paper has been submitted to a Journal, resident will not be allowed to go on exam leave.