



<b>Research Paper Writing</b>
<b>Title:</b> Research paper writing
<b>Course number:</b> 421 PHC
<b>Semester:</b> Seventh Semester (Fourth Year).
<b>Duration:</b> 0 + 1 Units (3 contact hours) per week.
<b>Aims:</b> To provide basic knowledge to students how to write a research paper.
<b>Objectives:</b> Upon successful completion of the course, the student shall be able to understand the knowledge and skills of how to write the paper, with an understanding of the goal of the study, purpose of the study, parameters of the study etc.
<b>CONTENTS</b>
<b>1. Introduction to Research Paper Writing</b> <ul style="list-style-type: none"><li>➤ What is RPW? Basic Ideas, Basic Structure and types of RPW, Advantage and disadvantage of RPW, Important terminology.</li><li><b>A. Cover page:</b> A suitable and attractive titles, name of authors, affiliation of each author and name of corresponding author with his email, fax, tel and mobile number.</li><li><b>B. Abstract</b> How to write the abstract? What should be in the abstract?<ul style="list-style-type: none"><li>• Back ground of the study in few lines (2-5).</li><li>• Methodology in brief (grouping of the animals, doses of toxicants, or dose(s) for making the diseases, in case of treatment (write the dose(s), duration and route of administration, number of grouping)</li><li>• Results. Results in brief.</li><li>• Conclusion. In few words or lines.</li><li>• Key words. 4-8</li><li>• Graphic presentation of the abstract.</li></ul></li><li><b>C. Introduction</b><ul style="list-style-type: none"><li>• It should not be more than 2 A4 pages. The best is 1-1.5 page.</li><li>• Introduction should focus on the main target.</li><li>• Diseases i.e. Cancer, Parkinson's disease, Alzheimer disease, Stroke, diabetes, qat, inflammation, LFT, KFT, cardiac parameters etc.</li><li>• Parameters: oxidative stress, apoptosis, lipid profiles, receptors, proteins, nucleic acids etc.</li></ul></li></ul>



- Each disease, parameters or drugs used in the introduction should be cited with the author(s) who say(s) this, with year. Introduction should be focused on the disease, parameters and if drug used for the treatment. The importance of the drugs i.e. antioxidant, anti-carcinogenic, hypolipidemic, hypoglycemic, anti-apoptotic etc.
- Aims and objectives

## 2. Materials and Methods (in vivo and in vitro studies)

### In vivo studies

- Chemicals: Name of the chemicals used in that research, Source of the chemicals etc.
- Animals: source of the animals, species, gender, age and weight of the animals. Grouping of the animals.
- Set of animals
- Set 1: Single group, in case of mechanistic approach or to prove any hypothesis. Less than 1.0 % researchers used this set.
- Set 2: 2 groups
  - b). Experimental (single dose of toxicants, poisons etc).
  - a). Control
- Set 3:  
More than 2 groups, a). Control, b). Experiment 1, c). Experiment -2 and /or Experiment-3.
- Set 4:  
Treatment or protection study with single dose of the drug, a). Control, b). Experimental, c).treatment with drug+ Experimental, d). Control +drug
- Set 5: Treatment or protection study with multiple doses of the drug, a). Control, b). Experimental, c). Experimental+drug 1, d). Experimental +drug 2, e). Experimental +drug 4, Control + drug of high dose etc.
- Duration of dosing, route of administration, vehicle used for the delivery of drug.
- Behavior activity in case of neuroscience or pharmacological works: Rotarod, Grip test, Maze tests (Y, T, radial, cross, Morris water), ANY maze active and passive avoidance test etc.
- After completion of the experiments, killing of the animals, taking out the organs, storing at - 80 °C or homogenizing the tissue.
- Required fraction of the study.
- Biochemical parameters Oxidative stress/ Apoptosis/ Lipid profile/ LFT / KFT/ Glucose/Interleukines/Enzymes/Neucleic acids/proteins/ neurotransmitters/receptors/hormones etc.
- Histopathology and or immuno-histochemistry.

- **In Vitro Study** (study in the test tube or outside the body).



**Primary culture:** The tissue is taken from the desired body organs or from the 14 days of fetus and dissection of the desired part e.g. brain.

**Cell lines:** The concern cell lines are available in the market may be culture in the lab.

Here groupings are either in well plates (96, 64, 12 or 6)/ petri dishes/flask of desired volume. The grouping should be the same as in the case of *in vivo* study. The studies are hardly for 10-15 days. The cells are exposed for 12-48 hours with the toxin or toxin + drugs for treatment or treatment will start after removing the toxicants from the culture plates. Each group must have 3 test tubes/wells/petri dishes/flasks of desired volume. The experiment should be repeated 2 to 3 times. After harvesting, the cells about 100,000 to 10,000,000 are taken in the test tube and sonicated in cold and centrifuge to get the desired fraction. Thereafter other processes are same as in the case on *in vivo* studies.

#### 4. STATISTICS

- Calculation of Student's "t" test, p (significance) value, Standard deviation, Standard Error and percentage change.

#### 5. Results

- Writing the results in the light of the experiments
- Presentation of results, either in tables or graphs, or histograms. Presentation of histopathological or immunohistochemical changes through microphotographs
- Table should present the % change and significance of data.
- Figs. should present the brief result with significance values.
- A good fig. of histopathological changes or immunohistochemical changes.

#### 6 Discussions: What should be in discussion

- Every finding should be discussed and supported with the findings of the others in the same field or on the same parameters. First own results will be discussed followed by the finding of the others by the same drug or on the same parameters. Discussion should be focus on the diseases, each parameters, each histochemical and immunohistochemical changes.
- Conclusion



**7. Types of Research Paper Writing**

- --Review Paper Writing
- - Survey Paper Writing

**8. Acknowledgements:**

- This section includes the name of the funding agency, and others who helped in the research whose names are not in the author ship.

**9. References/Bibliography**

- It should be either in the form of the number or as the author(s) name. Every journal has its own style of the references. Harvard Referencing

**2. Course components (total contact hours and credits per semester):**

	Lecture	Tutorial	Laboratory	Practical	Other:	Total
Contact Hours	0			15 x 3=45hrs		45hrs
Credit	0					15