



Principles for Writing Literature Review

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What is the review paper?

It is a type of article that critically analyses the already known data about a particular topic.

What are differences between review paper and research paper?

- Review paper has no new results.
- It only presents and assesses the already available information presented by other papers.
- Whilst the research paper present results for a narrow specific topic, the review paper targets broader topics for more general audience.

What are types of review article?

- ***Narrative or scholarly review***: the author evaluates a selected number of papers in a particular topic.
- ***Systematic review***: the author using a certain and correct method to critically identify, evaluate and synthesis all available studies in order to present a rigorous summary of the most relevant evidences regarding a sharp and particular question.
- ***Meta-analysis systematic review***: uses defined methodology and statistical analysis to combined results from independent studies

How to prepare for a good review?

- ***Identifying a specific question to be answered by the review***

This is also called research statement, thesis statement or problem statement. It is the statement to present the problem you try to contribute and the solution through your research. Or exactly what is your interest or curiosity which you are trying to satisfy.

It is the heart of any research project which helps in

- 1- Determining the exact title of the research.
- 2- Identifying the purposes or aims of the research.

- ***Identifying the title of review***

- ***Plan the structure of your review:***

Define the general headings and subheadings help to identify the scope of the review, arranging the headings in a logical order, and avoid gaps and redundancies in covering the subject.

* It would be appropriate to do a proposal for your review with your supervisor to include the method for literature searching, screening, data extraction and analysis.

The role of the pulp inflammation and repair process in tooth hypersensitivity

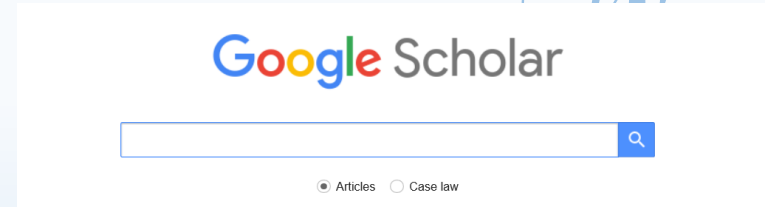
- 1- **Introduction**
- 2- **Research question**
- 3- **Aim of the review**
- 4- **Method**
- 5- Odontoblast cells and dentinogenesis
- 6- Dentine structure
- 7- Pulp innervation
- 8- Response of pulp to different injuries
 - A- Physiological injuries (attrition, abrasion and erosion)
 - B- Caries
 - C- Fracture
 - D- Dental work
- 9- Pulp regeneration and repair mechanism
- 10- **Conclusion**

- **Literature searching:**

1- Simply you can do search electronically for your keyword(s) through websites:

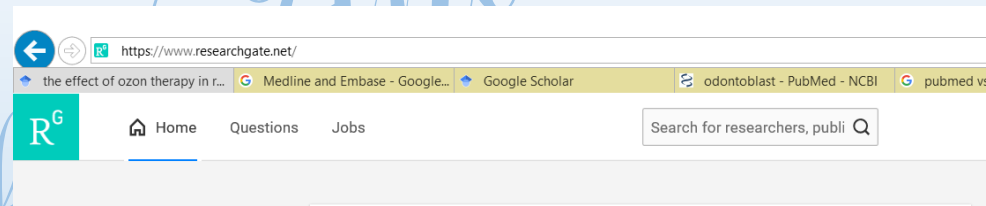
Google Scholar

<https://scholar.google.co.uk/>



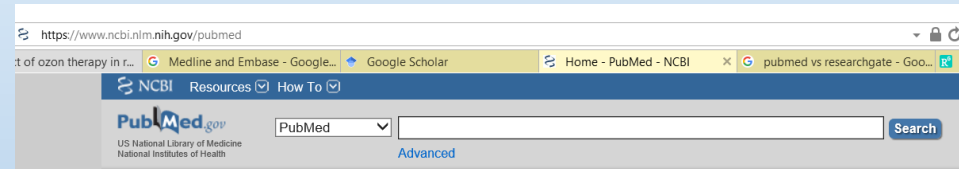
Researchgate

<https://www.researchgate.net/>



The most professional search is through Midline through Pubmid.

<https://www.ncbi.nlm.nih.gov/pubmed>



Midline includes 10 million references to journal articles mostly published in USA since 1966. The search will be through Pubmid as a free drive.

Another professional search database is EMBASE

<https://www.embase.com/>

EMBASE provide better coverage for European journals but it is not free and required subscription.

2- After identifying papers from electronic database, the reference lists for these articles (bibliography) should be viewed to identify additional relevant papers. This step can be repeated for any obtained new papers.

3- The bibliography for review papers in the field also should be searched.

4- Hand searching of more data such as theses, government reports, patient records, unpublished or ongoing studies, or any information source that could help.

5- The included method of data searching should be clearly illustrated in your method part of your literature review.

6- All obtained data must be entered through computer-based reference managing system such as **EndNote**. This system helps to make a library in your computer which helps you to easily search for a particular reference, remove any duplicated references, and citing of these references in your literature document at any chosen reference style. The style is recommended by the publication journal that you are writing your paper to be published in. The recommended reference style by University of Baghdad College of Dentistry is the **Harvard style**.

7- The data should be extracted and synthesised to answer your research question.

What should the structure of review paper contain?

Title of the review:

It should be clear, descriptive and highlight the covering aspect of the topic.

For example: the title “Tooth hypersensitivity” is a general title

Whereas “The role of the pulp inflammation and repair process in tooth hypersensitivity”,

Or “Challenges in the management of tooth hypersensitivity” would be more descriptive.

Abstract:

The abstract should stand on its own and includes:

The research question and the reason for doing review,

What is included in the review,

Conclusions about the topic or field at the end of the review.

Inflammation–regeneration interplay in the dentine–pulp complex

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ABSTRACT

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Objectives: Dental tissue disease and trauma provides an excellent model for the interaction between tissue defence and regenerative processes and has application to many of the body's other tissues. Following dental tissue infection, characterised by caries, the molecular and cellular mediators of the immune/inflammatory processes clearly impact on the dental tissues' natural regenerative responses. This review of the literature was performed to better understand how these two processes interact and identify whether cross-talk may provide novel areas for future research and subsequent translation into clinical application.

Data and sources: A review of the literature was performed using the PubMed database resource and this was followed by extensive hand searching using reference lists from relevant articles.

Conclusions: Frequently, the dental tissue inflammatory and regenerative processes are seen as both distinct and antagonistic and subsequently have often been studied in isolation; however, both direct and indirect data are now emerging which indicate significant inter-relationship. Whilst the ensuing inflammatory process will result in dental tissue breakdown and molecular signalling which may impede regeneration, low grade inflammation, potentially induced by mechanical trauma and tissue necrosis, may promote regenerative mechanisms, including angiogenic and stem cell processes. Notably, the locally derived growth factors, neuropeptides, cytokines and chemokines, released from the host dentine matrix and by resident pulpal cells, immune cells, neurons and/or dying cells, will modulate defence and repair processes within the tissue.

Introduction:

It should include:

Overviewing of the available publications about the topic,

Research question,

The purpose or aims of the review,

The importance of reviewing the field or topic at this time,

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REVIEW

A new system for classifying tooth, root and canal anomalies

H. M. A. Ahmed¹  & P. M. H. Dummer² International Endodontic Journal, 51, 389–404, 2018

The present systems for classifying root and canal anomalies focus on describing details of the anomaly and categorizing them into types based on severity or specific morphological characteristics (Oehlers 1957, Fan *et al.* 2007, Song *et al.* 2010a, Gu 2011, Ahmed & Abbott 2012, Zhang *et al.* 2014). However, a practical classification addressing root/canal anomalies together with the morphology of the root, main canal system and accessory canals has not been developed.

Aims and Hypothesis:

In the narrative reviews, the aims sometimes included within the research question, however the aims can be varied depending on that question and may include:

- 1- Clarifying the relative strengths and weaknesses of the literature on the question.
- 2- Summarizing a large amount of literature.
- 3- Resolving literature conflicts.
- 4- Comparing between different methods or techniques of researches.
- 5- Increasing the statistical power of smaller important studies.
- 6- Improving the generalizability of treatment outcomes.

Writing narrative style literature reviews

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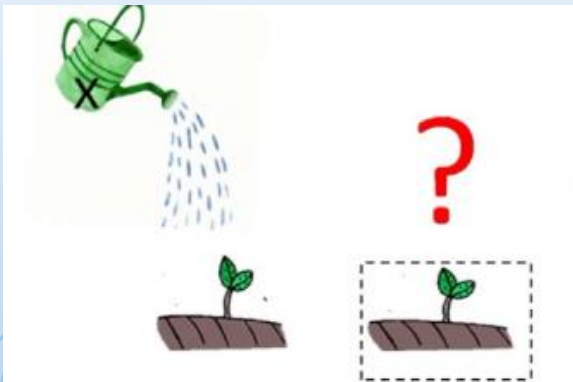
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summarizing what has been previously published, avoiding duplications, and seeking new study areas not yet addressed.^{3,5,6} While PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) provides reporting guidelines for SRs, no acknowledged guidelines are available for NR writing. The task of review writing is frequently assigned to medical writers, for example, on new or completed research projects, synthesis for editorial projects. However, training opportunities on writing literature reviews in the biomedical field are few. The objective of the present study is to identify practice guidelines to improve NR writing on topics related to clinical research.

Some of narrative reviews required a hypothesis to be proven.

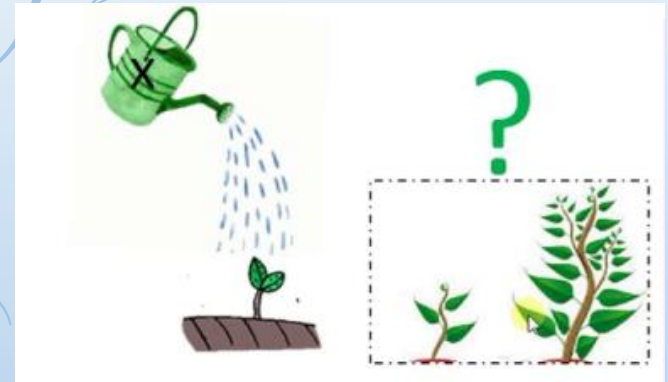
Null Hypothesis H_0

Disprove or nullifying the research question



Alternative Hypothesis H_a

Proving the research question



Benchmarking of reported search and selection methods of systematic reviews by dental speciality

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It is the **purpose** of this study to investigate and compare the reported literature-search and selection methods according to dental speciality. The **null hypothesis** to be tested is that there is no difference in the reported SR literature-search and selection methods between the dental specialities.

Method:

Whether a narrative or systematic review, the description of methods used in collecting the published data are required. However more specific and consistent methods are required in the systematic and meta-analysis reviews.

The methods could include:

- 1- The key terms used in searching.
- 2- The time period for the researches to be included.
- 3- The language(s) of articles searched.
- 4- The sources of references (computerised data base, prior paper data base, government reports, dissertations).

For example:

The MEDLINE electronic database for English-language articles reported between January 2002 and December 2018 were searched, by using the key phrase “tooth hypersensitivity”. The reference lists of the relevant articles were scanned for additional studies.

- 4- Describe the inclusion and exclusion criteria for citing studies and how these criteria were established. Eg:

The studies were selected according to the following criteria: 1) reporting of clinical and preclinical data of tooth hypersensitivity (including animal studies), 2) reporting of original data (no reviews or editorial notes), 3) No social-media source were included.

Presenting the heart of the review:

This part could be called results and discussion or results and commentary, which include presenting the main results or information gathered as part of doing the review plus the commentary and discussion that pulls these information together to help to draw conclusions about the state of the field.

For example: In heading no.5 you can discuss the role of odontoblast cells during dentinogenesis (with appropriate subheadings) that review specific cellular function and categorized areas of increased understanding and knowledge since the last definitive review.

5- Odontoblast cells and dentinogenesis

6- Dentine structure

7- Pulp innervation

8- Response of pulp to different injuries

A- Physiological injuries (attrition, abrasion and erosion)

B- Caries

C- Fracture

D- Dental work

9- Pulp regeneration and repair mechanism


10- Conclusion

Dentin basic structure and composition—an overview

LEO TJÄDERHANE, MARCELA R. CARRILHO, LORENZO BRESCHI,
FRANKLIN R. TAY & DAVID H. PASHLEY

Dentin–enamel junction

Even after dentin and enamel formation and mineralization are well underway, specific biological events may still occur at the DEJ, suggesting that the cross-talk between enamel and dentin continues throughout the formation of prismatic enamel and circumpulpal dentin. The presence of enzymes (16,17) and growth factors such as fibroblast growth factor-2 (FGF-2) (16) suggests that the DEJ region represents an area of biological activity. It may liberate and activate the stored growth factors and other potentially bioactive components that may exert their effects at a location distant from the DEJ (16). Based on phylogenetic, developmental, structural, and biological characteristics, it has been suggested that instead of the dentin–enamel junction, this structure should be termed the dentin–enamel junctional complex (16).



The DEJ in human teeth is not smooth, but wavy or scalloped (18–22) (Fig. 2). This kind of an interface is believed to improve the mechanical interlocking between dentin and enamel. The size of the scallops ranges between 25 and 50 μm , and they are deeper and larger at the dentin cusps and incisal edges, leveling down toward the cervical region (18,21,23). This is in accordance with finite-element studies demonstrating that the mechanical interlocking between enamel and dentin is weaker in the cervical region (24). In addition, smaller (0.25 to 2 μm) “secondary scallops” within the “primary” scallops have been demonstrated (21,23), and upon close inspection the intermingling ridges of dentin and enamel, less than 1 μm wide, are clearly visible. It is generally thought that the scalloping structure of the DEJ can be explained as required for the tooth to withstand functional stress (7). This assumption has been questioned, though, as humans are among very few species in which the scalloped form of the DEJ has been demonstrated (23,25).

- Make sure to state the organizational principle of your review: for example, chronological order, general to particular, or most frequent to rarest.

- Any included figures and tables should meet the same standards as for research papers and should be well cited (if they belong to a published article).

- Assess the issues surrounding the topic, the quality of the information available about the topic, problems that were not addressed, and areas of consensus or controversy.

- For each study, critically evaluate the following information:

(a) The key findings,

(b) The limitations and/or shortfalls, if any,

(c) Whether the methods are sound for evaluating the hypothesis,

(d) Whether the results can be obtained with those methods and are justified,

(e) Whether the interpretation of the results and the conclusions drawn are sound,

(f) The relative contribution of the work to the field or topic being reviewed.

Conclusions

Conclusions are focused on answering your research question in three main key points:

- 1- Conclusions drawn from the collected paper.
- 2- The limitations in the knowledge for the reviewed discipline.
- 3- Recommendations for further research.

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