

Research Information

Conducting a Systematic Review: Steps Physiotherapists Need to Know

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Introduction

A systematic review is considered as the highest level of evidence and pools together results in a field of clinical practice or research and projects the advantages or disadvantages of the modality or treatment reviewed. Research synthesis through systematic reviews pave way for top notch clinical practice based on the latest evidence.⁽¹⁾ We are in an era of evidence based practice where assessment and clinical practice needs to be determined by the latest evidence available. Deciding on a treatment modality based on our clinical experience needs to be authenticated by research evidence to receive global recognition and for the profession to reach higher standards. Systematic review provides research evidence to supplement our clinical practice and experience as physiotherapists.

Systematic review: methodology

In this paper we would like to highlight the steps on how to conduct a systematic review from a physiotherapy perspective.

1. Start with a research question

The precursor to a systematic review is always a research question. The inquisitiveness to know the research base in terms of quality and quantity in a particular field of research is always the starting point of any systematic review.

2. Formulate a systematic review protocol

Any systematic review should not be vague but should have a specific direction and strategy and hence having a protocol at the onset is extremely important. Following are some

important components of a Systematic Review Protocol

- a. **Title:** The Title of the systematic review should correspond to the aim of the review and the topic to be studied.
- b. **Review Question:** What is the state of research in a particular area?
- c. **Review Purpose:** Specific and accurate purpose of what the review is intended on finding out.
- d. **Inclusion Criteria**

Type of Studies: The authors need to decide what type of studies will be included in the review. In areas of research that have been extensively studied it is advisable to include only Randomized Controlled Trials since they are the highest quality of clinical research. A lacunae of research in a particular area authenticates the need for the inclusion on non- Randomized controlled trials, case series, etc.

Type of Interventions: The selection of studies used in the systematic review should be screened based on types of interventions. e.g Aerobic Training in weight loss, aerobic & resistance training in weight loss, etc

Type of Subjects: The classification of subjects based on age, gender, etc is essential. Some of the exercise based studies being animal studies, the authors should specify if the systematic review is studying human

subjects or animals studies

Language: Languages of the papers to be screened should be specified since some papers are not available in the English language.

- e. **Exclusion Criteria:** A pre-set exclusion criteria adds focus to the systematic review. Similar to the inclusion criteria, exclusion criteria should include the following headings

Types of Studies

Types of Interventions

Types of Subjects

Language

- f. **Operational definition:** An operational definition of the research area being reviewed should be formed before the start of the review. e.g ‘exercise intervention in cancer survivors’. Here all varieties of exercises would be in the scope of the review: for example: aerobic exercise, resistance training, free exercises, physical activity interventions, flexibility training, muscle re-education, massage and soft tissue manipulations, breathing exercises and yoga.⁽²⁾

- g. **Intervention Outcomes:** The outcomes that will be a part of data synthesis in the systematic review should be specified. e.g Quality of Life, Exercise Capacity, etc.

- h. **Search Strategy:** Search strategy should be specific and planned. The search strategy should include search terms, Boolean operators like AND, OR, etc. and the database and the sources that will be searched for the conduct of the systematic review. Important databases that should be searched are PubMed, CINAHL, EMBASE, Scopus, Cochrane Library, PEDro, IndMed, and Shoda Ganga (a reservoir of Indian Thesis).

- i. **Search Limits:** Humans, English language, etc.

3. Prepare a data extraction sheet

A data extraction sheet can either be prepared in Microsoft excel or Microsoft word. It should include components like study identifiers, study objectives, methods, results, etc. The data extraction sheet plays an important role in the pooling of results.

4. PRISMA flow chart

Follow the PRISMA guidelines for the result synthesis and reporting of systematic review.⁽³⁾

5. Qualitative Analysis

It is very important to use standardized quality assessment scales like Downs & Black or PEDro for the qualitative analysis for the research synthesized.⁽⁴⁾

6. Register the review

Systematic reviews can be registered by databases such as Prospero.⁽⁵⁾

7. Publish

It is very important to publish the systematic review in peer reviewed and indexed journals.

Conclusion

Systematic reviews play an important role in research synthesis and will propel the physiotherapy community into better evidence based clinical practice. The highest qualities of systematic reviews are accompanied by a meta-analysis. This entails adequate data and sound statistical acumen.

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