

## SYSTEMATIC REVIEW PROTOCOL

### REVIEW TITLE AND TIMESCALE

#### 1. review title

How effective is photobiomodulation with low power laser on the postoperative sensitivity of composite resin restorations? A systematic review.

#### 2. ORIGINAL LANGUAGE TITLE (somente preencher se for fazer a revisão em outro idioma que não o inglês)

Qual a eficácia da fotobiomodulação com laser de baixa potência sobre a sensibilidade pós operatória de restaurações em resina composta? Uma revisão sistemática.

#### 3. anticipated or actual start date

15/12/2022

#### 4. anticipated completion date

15/12/2024

#### search DATE

### STAGE OF REVIEW AT TIME OF THIS SUBMISSION

| 5. Review stage   | Started                             | COMPLETED                |
|---|-------------------------------------|--------------------------|
| Preliminary searches  | <input checked="" type="checkbox"/> | <input type="checkbox"/> |
| Piloting of the study selection process                         | <input type="checkbox"/>            | <input type="checkbox"/> |
| Formal screening of search results against eligibility criteria | <input type="checkbox"/>            | <input type="checkbox"/> |
| Data extraction   | <input type="checkbox"/>            | <input type="checkbox"/> |
| Risk of bias (quality) assessment                               | <input type="checkbox"/>            | <input type="checkbox"/> |
| Data analysis   | <input type="checkbox"/>            | <input type="checkbox"/> |

### REVIEW TEAM DETAILS

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**10. Organizational affiliation of the review / website address**

Centro Universitário do Estado do Pará - CESUPA

**11. Review team members and their organizational affiliations**

| TITLE | NAME                            | AFFILIATION | CONTACT (E-MAIL)                   | CONTRIBUTIONS* |
|-------|---------------------------------|-------------|------------------------------------|----------------|
| DDS   | Alessandra Silva de Vasconcelos | CESUPA      | alessandravasco@outlook.com.br     | 1R             |
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\*1R=First reviewer (Study conceptualization and design/ Search and selection/ Data collection/ Data analysis/ Manuscript preparation). 2R=Second Reviewer (Search and selection/ Data collection/ Data analysis/ Manuscript preparation). 3R=Third Reviewer (Data analysis). E=Expert (Study conceptualization and design/ Data analysis). C=Coordinator (Study conceptualization and design/ Data analysis).

All authors: Review of the manuscript.

**12. Funding sources/sponsors (grant number)**

None

**13. Conflicts of interest**

The authors declare no conflict of interest.

**14. collaborators**

None.

**REVIEW METHODS****15. Review question(s)**

|  |
|--|
| P – Participants/Population: composite resin restorations  |
| I – Intervention: photobiomodulation with low power laser  |
| C- Control: Other treatments – negative control, placebo, other desensitizers  |
| O - Outcomes: decreased postoperative sensitivity  |
| S – Study design: Randomized controlled clinical trials (RCTs) and quasi randomized controlled clinical trials                       |
| QUESTION: How effective is photobiomodulation with low power laser on the postoperative sensitivity of composite resin restorations? |

## 16. Searches

Studies considering human permanent which have investigated the use of photobiomodulation with low power laser on the postoperative sensitivity of composite resin restorations. Detailed individual search strategies (MeSH terms, synonyms, and keywords related to the intervention – photobiomodulation with low power laser on the postoperative sensitivity of composite resin restorations for each of the following bibliographic databases will be developed: EMBASE, PubMed, Cochrane Library, Web of Science, Scopus and Open Gray. All references will be managed by Endnote software and duplicate hits removed. There will be no restrictions regarding language or publication period.

## 17. Search Strategy

| Search | Query   | Items found |
|--------|---|-------------|
| Pubmed | (((Dental Cavity Preparation[MeSH Terms]) OR (dental restoration, permanent[MeSH Terms])) OR (Cavity Preparations, Dental[Title/Abstract])) OR (Restorations, Permanent Dental[Title/Abstract])) OR (Dental Permanent Filling[Title/Abstract]) AND (((Low-Level Light Therapy[MeSH Terms]) OR (Low Level Light Therapy[Title/Abstract])) OR (Photobiomodulation Therapy[Title/Abstract])) OR (Low Level Laser Therapy[Title/Abstract])) OR (Laser Phototherapy[Title/Abstract]) | 36          |

## 18. condition or domain being studied

Postoperative sensitivity is a very common side effect after dental restoration procedures. Aspects related to adhesive bonding, cavity preparation, composite resin shrinkage and others can lead teeth to a transient pain after dental fillings. Some alternatives have been proposed to reduce/control postoperative sensitivity, and, recently, photobiomodulation therapy with low power laser appears to be a promising strategy.

## 19. Participants/population

Human participants (with no age restriction) who performed dental restorations.

**Inclusion criteria:** Randomized clinical trials and not randomized

**Exclusion criteria:** Observational Studies, Review of literature, Study in animals, Case Report, Case Series, Study In Vitro

**20. intervention(s), exposure(s)**

Any photobiomodulation with low power laser after dental filling

**21. comparator(s)/control**

Other treatments – negative control, placebo, other desensitizers

**22. types of study to be included**

We will include randomized clinical trials and not randomized

**23. context**

**24. Main outcome(s)**

Reduce or elimination of dental sensitivity

**24. Measures of effect**

Mean difference

**25. additional outcome(s)**

Longevity in pain relief over 1 or more years

**25. Measures of effect**

Odds ratio/Relative risk

**26. Data extraction (selection and coding):**

Two independent reviewers (IPS and BBSR) will select the included articles in two phases. Firstly (phase-1), the two reviewer will evaluate the titles and abstracts according the eligibility criteria; secondly (phase-2), they will view full-texts and select articles by the same criteria as phase-1; then, they will crosscheck all the information found. If disagreements arise, a third reviewer (ASV) will participate before a final decision is made of both phases.

**27. risk of bias (quality) ASSESSMENT**

Two reviewers (IPS and BBSR) will independently the methodological analysis of each included study. The methodological quality of the included studies will be measured from the search performed

**28. STRATEGY FOR DATA SYNTHESIS****29. ANALYSIS OF SUBGROUPS OR SUBSETS****Databases**

- ☒ PubMed
- ☒ EMBASE
- ☒ Cochrane
- ☒ LILACS
- ☒ Web of Science
- ☐ Science Direct
- ☐ CINAHL
- ☒ Livivo
- ☒ Scopus
- ☐ Other:

**Additional literature**

- ☒ Google Scholar web search (specify if limitations applied)
- ☐ Hand searches of bibliographies from included studies
- ☐ Experts
- ☒ OpenGrey
- ☒ Proquest (Dissertation and Theses)

**data management**

- |   |  |
|---|--|
| <input checked="" type="checkbox"/> Endnote | <input type="checkbox"/> Zotero        |
| <input type="checkbox"/> Refworks           | <input type="checkbox"/> Covidence     |
| <input type="checkbox"/> Mendeley           | <input type="checkbox"/> Other: Rayyan |

**REVIEW GENERAL INFORMATION****30. TYPE OF REVIEW**

- |   |  |
|---|--|
| <input type="checkbox"/> Cost effectiveness | <input type="checkbox"/> Pre-clinical review   |
| <input type="checkbox"/> Diagnostic         | <input type="checkbox"/> Prevention            |
| <input type="checkbox"/> Epidemiologic      | <input type="checkbox"/> Prognostic            |
| <input type="checkbox"/> Intervention       | <input type="checkbox"/> Qualitative synthesis |
| <input type="checkbox"/> Methodology        | <input type="checkbox"/> Other:                |
| <input type="checkbox"/> Review of reviews  |  |

**HEALTH AREA OF REVIEW**

Dentistry

**keywords****OTHERS****Previous systematic reviews about the same subject**

If yes, why perform another one?

| Suggest journals in which this research could be published |    |        |
|--|----|--------|
| JOURNAL  | IF | QUALIS |
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