

PRESS Guideline — Search Submission & Peer Review Assessment

SEARCH SUBMISSION: THIS SECTION TO BE FILLED IN BY THE SEARCHER

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Date submitted: Aug 15th, 2020

Email: 15122282102@163.com
Date requested by: 2 days

[Maximum = 5 working days]

Systematic Review Title:

Low-level laser therapy in the acceleration of fixed orthodontic tooth movement: protocol for a systematic review and network meta-analysis

This search strategy is ...

| | |
|---|---|
| ✓ | My PRIMARY (core) database strategy — First time submitting a strategy for search question and database |
| | My PRIMARY (core) strategy — Follow-up review NOT the first time submitting a strategy for search question and database. If this is a response to peer review, itemize the changes made to the review |
| | SECONDARY search strategy — First time submitting a strategy for search question and database |
| | SECONDARY search strategy — NOT the first time submitting a strategy for search question and database. If this is a response to peer review, itemize the changes made to the review suggestions |

Database

(i.e., MEDLINE, CINAHL...):

[mandatory]

1. Cochrane Library (Central)
2. Pubmed
3. Embase
4. CNKI
5. WanFang
6. VIP

Interface

(i.e., Ovid, EBSCO...):

[mandatory]

1. Cochrane Library
2. Ovid
3. Ovid
4. CNKI
5. WanFang
6. VIP

Research Question

(Describe the purpose of the search)

[mandatory]

This network meta-analysis will compare the efficacy of LLLT on the acceleration of fixed OTM as well as whether LLLT can prevent adverse effects of this orthodontic treatment..

PICO Format

(Outline the PICOs for your question — i.e., Patient, Intervention, Comparison, Outcome, and Study Design — as applicable)

| | |
|----------|--|
| P | We will only include healthy patients who received fixed orthodontic treatment, regardless of age, sex, ethnicity, country, and socio-economic status. Patients will be excluded if they were influenced by diseases, such as periodontal disease, or cleft lip and palate, or by anti-inflammatory medications that may interfere with alveolar bone metabolism. In addition, patients who achieved tooth movement using a removable appliance or clear alignment will be excluded. |
| I | We will include any kind of low-level laser therapy used as monotherapy for accelerating orthodontic tooth movement regardless of the type of laser, wavelength, energy density, power output, laser treatment intervals and length of follow-up. If studies included interventions using both LLLT and non-laser therapy, only the outcomes data for LLLT will be included. Utilization of non-laser interventions, whether combined with laser therapy or not, will be excluded. |
| C | LLLT monotherapy will be compared to sham and non-laser treated groups. |
| O | Included studies must evaluate the effects of LLLT or comparisons with other treatment modalities on the speed of canine tooth movement and treatment duration without any restriction on the duration of follow-up. Any adverse effects reduced by LLLT will be recorded. All outcomes are defined in detail in the section “Outcomes and prioritisation.” |
| S | Only parallel or split-mouth design RCTs will be included.. |

Inclusion Criteria

(List criteria such as age groups, study designs, etc., to be included) [optional]

| | |
|----------|---|
| P | <ul style="list-style-type: none">● Systematically healthy patients who will receive fixed orthodontic treatment and will be extracted the first maxillary/mandible bicuspid as a therapeutic target.● No restrictions on patients' sex, age, city, country, ethnicity, and socio-economic status. |
|----------|---|

| | |
|---|--|
| I | <ul style="list-style-type: none"> ● Low level laser therapy used to accelerate OTM. ● If Low level laser therapy and other kind of methods were used in different groups in the same study, we included the article but only extracted data in Low level laser therapy group. |
| C | <ul style="list-style-type: none"> ● Sham group/side or non-lasered group/side. ● Any other kind of remineralized agents. |
| O | <ul style="list-style-type: none"> ● Distance or speed of the canine movement in treatment duration, measured by mm or percent. |
| S | <ul style="list-style-type: none"> ● Randomized controlled trials (parallel or split-mouth design). |

Exclusion Criteria

(List criteria such as study designs, date limits, etc., to be excluded) *[optional]*

| | |
|-----|--|
| ● P | <ul style="list-style-type: none"> ● Animals in laboratory. ● Patients with diseases potentially affecting the study outcome, such as periodontitis, jaw cyst. ● Patients take medicine which may interfere alveolar metabolism or OTM. ● Patients with cranial and maxillofacial dysplasia, such as cleft lip and palate. |
| ● I | <ul style="list-style-type: none"> ● Any other kind of supplementary interventions which may influence OTM, except low level laser therapy. |
| ● C | <ul style="list-style-type: none"> ● - |
| ● O | <ul style="list-style-type: none"> ● OTM measured by molars movement or teeth alignment. |
| ● S | <ul style="list-style-type: none"> ● Reviews, case reports, commentaries, and abstracts. ● Repeated publications |

Was a search filter applied?

YES NO

If YES, which one(s) (e.g., Cochrane RCT filter, PubMed Clinical Queries filter)? Provide the source if this is a published filter. *[mandatory if YES to previous question — textbox]*

Other notes or comments you feel would be useful for the peer reviewer? *[optional]*

Please copy and paste your search strategy here, exactly as run, including the number of hits per line. *[mandatory]*

(Add more space, as necessary.)

Table 1. Central (via Cochrane Library) search strategy

| | |
|--|--------|
| 1.MeSH descriptor: [Orthodontics] explode all trees | 2440 |
| 2.orthodontic* | 4616 |
| 3.#1 OR #2 | 5282 |
| 4.MeSH descriptor: [Low-Level Light Therapy] explode all trees | 961 |
| 5.Photobiomodulation therap* | 404 |
| 6.LLLT | 792 |
| 7.Low-Level Laser Therap* | 2893 |
| 8.Low-Power Laser Irradiation | 67 |
| 9.Low-Power Laser therap* | 257 |
| 10.Laser Biostimulation | 56 |
| 11.Laser Phototherapy | 396 |
| 12.#3 OR #4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 | 8665 |
| 13.teeth move* | 1182 |
| 14.retract* | 3046 |
| 15.MeSH descriptor: [Bone Remodeling] explode all trees | 2556 |
| 16 remodel* | 6551 |
| 17.#13 OR #14 OR #15 OR #16 | 12122 |
| 18.accelerat* | 13425 |
| 19.short* | 137010 |
| 20.speed | 15773 |
| 21.rate | 292223 |
| 22.#18 OR #19 OR #20 OR #21 | 409696 |
| 23.#3 AND #12 AND #22 AND #17 | 399 |

We searched Central database via Cochrane Library in the Aug 11th, 2020.

Table 2. Embase (via Ovid) search strategy

| | |
|---------------------------------------|-------|
| 1.'orthodontics'/exp | 35724 |
| 2.'orthodontic*':ab,ti | 35378 |
| 3.#1 OR #2 | 53698 |
| 4.'low level laser therapy'/exp | 23557 |
| 5.'photobiomodulation therap*':ab,ti | 388 |
| 6.'LLLT':ab,ti | 2363 |
| 7.'low-level laser therap*':ab,ti | 2739 |
| 8.'low-power laser irradiation':ab,ti | 225 |

| | |
|---|---------|
| 9.'low-power laser therap*':ab,ti | 75 |
| 10.'laser biostimulation':ab,ti | 102 |
| 11.'laser phototherapy':ab,ti | 281 |
| 12.#4 OR #5 OR #6 OR #7 OR #8 OR #9 OR #10 OR #11 | 24487 |
| 13.'retract*':ab,ti | 45465 |
| 14.'t??th move*':ab,ti | 3907 |
| 15.'bone remodeling'/exp | 34614 |
| 16.'remodel*' | 228734 |
| 17.#13 OR #14 OR #15 OR #16 | 276278 |
| 16.'accelerat*':ab,ti | 310227 |
| 17.'short*':ab,ti | 1524283 |
| 18.'speed':ab,ti | 204054 |
| 19.'rate':ab,ti | 2820760 |
| 20.#16 OR #17 OR #18 OR #19 | 4506299 |
| 21.#3 AND #12 AND #15 AND #20 | 96 |

We searched Embase database via Ovid in the Aug 11th, 2020.

Table 3. Medline(via Ovid) search strategy

| | |
|--|---------|
| 1."Orthodontics"[Mesh] OR "Orthodontics*" | 73410 |
| 2. "Low-Level Light Therapy"[Mesh] OR "Light Therapies, Low-Level" OR "Light Therapy, Low-Level" OR "Low Level Light Therapy" OR "Low-Level Light Therapies" OR "Therapies, Low-Level Light" OR "Therapy, Low-Level Light" OR "Photobiomodulation Therapy" OR "Photobiomodulation Therapies" OR "Therapies, Photobiomodulation" OR "Therapy, Photobiomodulation" OR "LLLTh" OR "Laser Therapy, Low-Level" OR "Laser Therapies, Low-Level" OR "Laser Therapy, Low Level" OR "Low-Level Laser Therapies" OR "Laser Irradiation, Low-Power" OR "Irradiation, Low-Power Laser" OR "Laser Irradiation, Low Power" OR "Low-Power Laser Therapy" OR "Laser Therapy, Low-Power" OR "Laser Therapies, Low-Power" OR "Laser Therapy, Low Power" OR "Low-Power Laser Therapies" OR "Low-Level Laser Therapy" OR "Low Level Laser Therapy" OR "Low-Power Laser Irradiation" OR "Low Power Laser Irradiation" OR "Laser Biostimulation" OR "Biostimulation, Laser" OR "Laser Phototherapy" OR "Phototherapy, Laser" | 8167 |
| 3. "Bone Remodeling"[Mesh] OR "remodel*" OR "tooth move*" OR "teeth move*" OR "retract*" | 80822 |
| 4."accelerat*" OR "short*" OR "speed" OR "rate" | 3163605 |
| 5.#1 AND #2 AND #3 AND #4 | 58 |

We searched Embase database via Ovid in the Aug 11th, 2020.

Table 4 CNKI (via CNKI) search strategy

SU='正畸' AND SU=('激光' + '低能量激光' + '激光治疗') AND SU=('移动'+ '牙移动'+ '改建'+ '骨改建' + '移动量' + '移动时间'+ '移动效率' + '治疗时间'+ '正畸疗程')

SU = ' orthodontics ' SU AND SU = (' laser '+' low lever laser '+' laser treatment') AND the SU = (' tooth movement '+' bone remodeling '+' orthodontic time '+' orthodontic efficiency '+' orthodontic treatment')

We searched CNKI database in the Aug 11th, 2020.

Table5 WanFang (via WanFang) search strategy

摘要:(“正畸”) and 摘要:(“激光” + “低能量激光” + “激光治疗”) and 摘要:(“移动” + “牙移动” + “改建” + “骨改建” + “移动时间” + “移动效率” + “治疗时间” + “正畸疗程”)

Abstract: ("orthodontics") and abstract: ("laser" + "low level laser" + "laser therapy") and abstract: ("tooth movement" + "bone remodeling" + " orthodontic time" + " orthodontic efficiency" + " orthodontic time")

We searched Wanfang database in the Aug 11th, 2020.

Table6 VIP (via VIP) search strategy

U=(正畸) AND U=(激光 OR 低能量激光 OR 激光治疗) AND U=(移动 OR 牙移动 OR 骨改建 OR 移动量 OR 移动时间 OR 移动效率 OR 治疗时间 OR 正畸疗程)

U = (orthodontics) AND U = (laser OR low level laser OR laser treatment) AND U = (tooth movement OR bone remodeling OR orthodontic time OR orthodontic efficiency OR treatment time OR orthodontic time)

We searched VIP database in the Aug 11th, 2020.

PEER REVIEW ASSESSMENT: THIS SECTION TO BE FILLED IN BY THE REVIEWER

Reviewer: Su Xiaoming Email: 974028556@qq.com Date completed: Aug 17th, 2020

1. TRANSLATION

| | |
|-----------------------------|---|
| A --- No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

2. BOOLEAN AND PROXIMITY OPERATORS

| | |
|-----------------------------|---|
| A --- No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

3. SUBJECT HEADINGS

| | |
|-----------------------------|---|
| A --- No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

4. TEXT WORD SEARCHING

| | |
|-----------------------------|---|
| A --- No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

5. SPELLING, SYNTAX, AND LINE NUMBERS

| | |
|--------------------|---|
| A --- No revisions | √ |
|--------------------|---|

| | |
|-----------------------------|--|
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

6. LIMITS AND FILTERS

| | |
|-----------------------------|---|
| A ---No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

If "B" or "C," please provide an explanation or example:

OVERALL EVALUATION (Note: If one or more "revision required" is noted above, the response below must be "revisions required".)

| | |
|-----------------------------|---|
| A ---No revisions | √ |
| B --- Revision(s) suggested | |
| C --- Revision(s) required | |

Additional comments:

The search strategy is sound.