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OPEN PEER REVIEW

Evaluating the Effects of Low-level Laser Therapy and Platelet-rich Plasma on Bone Calcium Content and Mechanical Properties at Tooth Extraction Sites: An Animal Study

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About this report

This open peer review (OPR) report shows the public comments made on this article during peer review, by the reviewers, the associate editor and the editor-in-chief, for every revision round, together with the authors' replies. Comments appear only with the consent of the people who wrote them. Reviewers who chose to sign their report are named; the others are shown as "Referee". Comments are edited for language only, and confidential remarks to the editors are not included.

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Contents

1 **Original submission** Fahimeh Rezazadeh 2
2 **Revision 1** Fahimeh Rezazadeh, Maryam Zahed Zahedani, Associate Editor, Editor-in-Chief 3
Authors' reply to reviewers 4
Reviewer and editor comments 10

1 Original submission

1 comment · 16 Sep 2022

Fahimeh Rezazadeh Reviewer

MAJOR REVISION 16 Sep 2022

Your title is interesting and novel; however, some comments will help improve it.
The title is too long; the suggested title is “Do low-level laser therapy and platelet-rich plasma affect mechanical characteristics of tooth socket? An experimental study ”.
Keywords need revision.
The type of study must be noted in the study design part.
Please explain randomization in the Methods section.
The statistical method should be moved to the end of the Methods section.
How did you calculate the laser dose? (1459 j/cm2!!!!)
The Methods section includes some similar and repetitive sentences. Rewrite this part.
The results must be presented using simple and unprepared data (without interpretation). Note the exact p-value.
The Discussion needs revision based on your results. Interpret or discuss them, and then compare your results with those of other studies.
The Conclusion section must be added.

2

Revision 1

AUTHORS' RESPONSE TO REVIEWERS

Authors' reply to reviewers

The next pages contain the authors' point-by-point reply to the comments of this revision round, as submitted with the revised manuscript. It is published as the authors wrote it.

Dear Editor

Thank you for all your efforts and instructive reviewer's comments and criticizers. The manuscript was corrected according to the comments and all changes were highlighted as yellow.

:Reviewer 1
.The manuscript should be edited for language and style.1

- .Literary editing was carried out

.Please refer to the corrections file .2
:Reviewer 2
The manuscript titled "Do low-level laser therapy and platelet-rich plasma affect bone calcium content and 2 mechanical properties at tooth extraction sites? An experimental study on the rat" is an interesting topic in the field of oral surgery and oral rehabilitation. The study is well designed and the results are significant. It would have been interesting if the histological evaluation was also performed. Some changes are needed to prepare the .manuscript for publication
:Title
The tile is not correct. It should be written as "Evaluating the effect of low-level laser • therapy and platelet-rich plasma on bone calcium content and mechanical properties at tooth ".extraction sites: An animal study

- The title was changed according to the reviewer's comment.

Abstract:
• There are two different abstracts. The second one is more clear. Please unify the abstract.

- The second abstract is used.

Materials and Methods
• Line 89: "according to the previous study…." Please change it to "according to a previous study…"

- The phrase was corrected and highlighted as yellow.

• Line 94: "temperature of 22 ± 2…" Celsius? Please define.

- °C *was added and highlighted.*

• Line 97-99: This is a repeat of the previous paragraph.

- The repeated paragraph was omitted.

• *Line 93-99: The explanation is listed under INCLUSION CRITERIA. This is not the inclusion criteria. This is the condition of the rats. Please correct.*

- As we just selected healthy rats, there are no special criteria, however, to obey the journal format, this part included in the manuscript. According to this comment, this part rewritten and highlighted.

• *Line 102: the second sentence "Anesthetic methods and all of the medications were the same for all samples." is not a definition of the exclusion criteria. Change the place.*

- This sentence was replaced.

• *Line 109-114: the statistical analysis should be placed at the end of the methods. "Mechanical strength was statistically analyzed by the Mann-Whitney test. Bone Calcium contents were analyzed by a one-way ANOVA test." These sentences need to be reviewed. Mechanical strength was analyzed or compared by the Mann-Whitney test.*

- The statistical analysis was placed at the end of the methods and the sentences were rewritten and highlighted.

• *Line 115-117: This is a repetition of previous statements. Please omit.*

- The sentence was omitted.

• *Line 125-127: "A figure of eight sutures using vicryl 4-0 was placed over the socket in order to prevent the gelatinized PRP from extrusion." Did you use sutures only for the rats that were exposed to PRP or all rats?! Can suture affect the healing process of the wound? If so, there is a bias in the comparison of the groups that were sutured and the groups that were not. This can affect the results of the study. Please explain clearly. Or compare to other studies in the discussion.*

- To be practical in clinic, the procedure should be done by suture. The data belongs to the procedure as a whole, and both PRP and suture may be important for healing process. So, we just compared the socket treated by PRP/suture with those remained untreated. As the suture just connects the soft tissues, the bone dose not exposed to any mechanical stimulation to induce bone formation. Besides, our data did not reveal neither PRP nor suturing (used together) had benefitial influence on the calcium content and mechanical strength. This part was discussed in the text and highlighted.

• *Line 170-171: "After harvesting the maxilla and removing soft tissue, the thickness of bone*

at the tooth extraction site was measured using a digital caliper (Digit-Cal SM, TESA S.A., Switzerland)" this is a repetition of the methods. Please omit.

- The sentence was omitted.

Results:
• The results are vague. You can add a table for writing the results.

- As we summarized the data in two graphs, to omit the repeated data, we just depicted them in fig 1 ,2. If the reviewer wants, we can omit the graph and include the data in a table.

• Line 172-173: why have you given a range for bone thickness? Can you give an exact meaning for each group? And is there a p-value comparison for bone thickness?

- *???*

• Did you measure and compare the weight of the rats after treatment? If so, please indicate.

- The rats were weighted at the beginning of the experiment. The weight was 180-200g. and they allocated to each group randomly.

• What are the P value comparisons of the calcium levels? Please indicate.

- P<0.05 was considered as significant difference for calcium content. This was added to the statistical analyses section.

• There are many tests listed in the statistical analysis that are not shown in the results of the study. Please clearly write which test was used where and what the p values were obtained from each test.

- The P value for mechanical test was previously added to the text and now it is highlighted. The calcium content was similar with P<0.05 in all groups.

Discussion:
• Line 191: "The previous study indicates differences…" Please change it to "A previous study…"

- It was corrected.

• Line 218: Give an explanation and a reason for the difference encountered in the results of your study to previous studies. Were the methodologies different from your research?

- The possible mechanism for different data was discussed in discussion section.

• Line 231: Likewise give an explanation of why the combination (PRP and Laser) used in your study was not effective in your opinion. You can add the limitations at the end of the study to these paragraphs as an explanation for the results.

- Our data indicated that the laser therapy is more effective than PRP, since both groups treated with laser (laser and laser/PRP) showed the same result. This also discussed previously in the discussion.

• More comparisons to studies with similar or different results can be added.

- Some references was added to the discussion.

• Please write your suggestions for future studies. How can your results pave the way for future studies?

- The suggestion was added to the discussion section.

Figure 1: The picture of the extracted teeth in 2 different views is not related to the design, aim, and results of the study. They are unnecessary.

- Figure one is omitted.

Reviewer 3:
Your title is interesting and novel however some comments will help improving
Title is too long, it is suggested "Do low-level laser therapy and platelet-rich plasma affect mechanical characteristics of tooth socket? An experimental study "

- The title was changed.

Key words need revision

- The key words were rewritten according to the MeSH system.

Type of study must be noted in study design part

- The type of study was added.

Please explain about randomization in method section

- It was added.

Statistical method should be moved to end of method part

- It was moved to the end of material and method.

how did you calculate the Dose of laser?(1459 j/cm2!!!!)

- The dose was selected according to the previous work. The reference (44 and 45) were highlighted.

method part include some similar and repetitive sentences. Rewrite this part result must be write with simple and unprepared data(without interpretation).

- The repeated sentences were omitted.

Note the exact p value.

- The exact p value for those showed significant difference has been previously added. They are highlighted.

Discussion need revision based on your results and interpret or discuss them then compare your results with other studies.

- The discussion revised according to the comments.

Conclusion part mist be added

- The conclusion was added.

Reviewer 3:
Comments are in main file.
Associate Editor 2:
1. A combination of both PRP and LLLT mechanical strength compared to the control and PRP groups was statistically similar? Report quantitative findings.

- The quantitative data depicted in graphs.

2. P=0.00044 is not true. Report very small P-values as <0.001

- As the editor wants the exact p value, we add it instead of P<0.001.

3. Use appropriate post hoc test instead of the Mann-Whitney test.

[.*Translated from Persian by the Brieflands editorial office*]

2 Revision 1

4 comments · 5 Dec 2022 – 14 Dec 2022

Fahimeh Rezazadeh Reviewer — ACCEPT 5 Dec 2022

Thanks for your revision.
Please add the type of randomization you used. For the dose of laser therapy, please cite only reference 45 (not 44).

Maryam Zahed Zahedani Reviewer — ACCEPT 6 Dec 2022

The changes are acceptable. Minor grammatical and spelling mistakes exist.

Associate Editor — ACCEPT 12 Dec 2022

No comments.

Editor-in-Chief — ACCEPT 14 Dec 2022

Accept