OPEN PEER REVIEW

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As a new feature for progressing towards transparency, we decided to open a new window for all of our editors as well as authors titled "**Open Peer Review**". We hope by this new facility, our reviewers will be more motivated and authors will be more satisfied with the review process. We believe that publishing our peer review reports could make a transparent and clear environment for all our efforts within a journal, but not all reviewers tend to publish their comments.

What is "Open Peer Review" process?

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- Education of both authors and new students
- Prevents reviewers from following their individual agendas and leading to the detection of reviewers' conflicts of interests

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Middle East Journal of Rehabilitation and Health Studies
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Peer Review Report for "Acute Improvement of Postural Steadiness Through Neuromuscular and Proprioceptive Training in Sedentary Older Females"

Author(s): Mohammadreza Rezaeipour, Gennady Leonidovich Apanasenko

Review Timeline:

Submit Date:	16 May 2020
Revised Date:	4 Jul 2020
Accepted Date:	15 Jul 2020

Revision (0)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (0)

19 May 2020

Dear AE,

This is a randomized controlled trial study to evaluate the acute effects of the NPT program on the COP oscillation in elderly females. Authors have concluded that the NPT program improved balance ability through COP velocity sways while standing on the platform.

Despite the study having an interesting topic for the readers of the Middle East Journal of Rehabilitation and Health, some issues should be considered. First, the study evaluated the balance ability using only one parameter “COP velocity sways” which is not enough for the proper conclusion of the balance issue. The authors should clarify the positive value of this variable for the readers.

Another issue is that the study hasn’t a normal control “adult” group to compare the COP velocity between adults and the elderly. I think that the significant reduction of the ML (mediolateral) COP velocity after the NPT program obtained in this study is not a good result. Moreover, some studies showed that older people with falling history have an increased COP velocity in the AP direction (Elderly fall risk prediction using static posturography Jennifer Howcroft, Edward D. Lemaire,* Jonathan Kofman,1 and William E. McIlroy). Therefore, decreased ML COP velocity after one session of the NPT program in

your study might increase the risk of falling in this group. The authors should consider this issue their result in the discussion.

Abstract:

- Method: “The center of pressure (COP) in the static state in barefoot conditions were recorded” revise to “was recorded”.

Background:

- Your study evaluated the balance impairment in the elderly female participants. However, the authors haven’t stated any rationale for this topic in the introduction. It is necessary to add some sentences in the first paragraph to state this issue. Why balance impairment is important in females? - Why did you select only females for the balance evaluation?

Material and Methodology:

- Study design, sample, and randomization:

- Elderly participants between the age of 65-75 years commonly have vestibular and visual disorders. - Have you considered these issues in the sampling? Have you excluded participants with a weak visual or weak hearing ability? Please clarify.

About the Static balance:

- Why did you select a quite double leg standing for the balance assessment? I think that one leg standing could better challenge the postural demands of the participants. Please clarify.

Discussion:

- Authors have concluded that elderly people have an altered ML COP velocity during the standing posture. However, some studies showed that people with a history of falling have a significantly increased COP velocity in the AP direction. I think that the significant reduction of the ML (mediolateral) COP velocity after the NPT program obtained in this study is not a good result (Elderly fall risk prediction using static posturography Jennifer Howcroft, Edward D. Lemaire,* Jonathan Kofman,1 and William E. McIlroy). The authors should consider this issue in the discussion.

Thanks.

REFEREE: Reviewer | **Revision** (0) 6 Jun 2020

Dear AE,

Comments for the authors:

1. It is not known why this study was done?
2. There are some spelling mistake (swings instead of sways)
3. In results, the author only mentioned interaction and did not use the other analysis for the conclusion and they cannot conclude with interaction. They should do other analysis and determine the result.
4. How did the authors conclude that one session training can improve balance?

Thanks.

REFEREE: Associate Editor | **Revision** (0) 7 Jun 2020

Dear EIC,

According to the reviewer's comments, the manuscript needs to be revised majorly.

Thanks.

REFEREE: EIC | **Revision (0)** 7 Jun 2020

Dear Author,

The reviewers' comments are mentioned. Please correct the details as mentioned above carefully according to reviewers' request.

Thanks.

OPEN PEER REVIEW

Revision (1)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

REVIEWER RESPONSE LETTER

Dear Referee No.1,

Thank you very much for your letter and the opportunity to review the manuscript. Your suggestions are immensely helpful and are appreciated. Your comments were included immediately after this letter and have been responded to them, exactly shown how each concern or problem was solved and has been explained the changes made. The changes are marked with the highlight color in the revised manuscript.

Reviewer 1:

-This is a randomized controlled trial study to evaluate the acute effects of the NPT program on the COP oscillation in elderly females. Authors have concluded that the NPT program improved balance ability through COP velocity sways while standing on the platform.

Response: we would like to draw your attention to the study design, mentioned in the text of the manuscript: This quasi-experimental research comprised forty-eight females from 65 to 75 years old (69.7 ± 4.7 years) with a sedentary lifestyle. The target population has selected without random assignment. This design was not a controlled trial study. Participants obtained from a convenience sample were only randomly divided into two groups (Rezaeipour & Nychyporuk, 2019). Convenience sampling is a type of non-probability sampling that involves the sample being drawn from that part of the population that is close to hand. In fact, it is a prospective experimental study or a cross-sectional study, in which participants were divided randomly into two groups. In the method section for clarification, additional explanations are now added to the revised manuscript.

-Despite the study has an interesting topic for the readers of the Middle East Journal of Rehabilitation and Health, some issues should be considered. First, the study evaluated the balance ability using only one parameter "COP velocity sways" which is not enough for the proper conclusion of the balance issue. The authors should clarify the positive value of this variable for the readers.

Response: More explanations and references are now added to the revised manuscript in the background section.

-Another issue is that the study hasn't a normal control "adult" group to compare the COP velocity between adults and the elderly. I think that the significant reduction of the ML (mediolateral) COP velocity after the NPT program obtained in this study is not a good result. Moreover, some studies showed that older people with falling history have an increased COP velocity in the AP direction (Elderly fall risk prediction using static posturography Jennifer Howcroft, Edward D. Lemaire,* Jonathan Kofman,1 and William E. McIlroy). Therefore, decreased ML COP velocity after one session of the NPT program in your study might increase the risk of falling in this group. The authors should consider this issue their result in the discussion.

Response: Reply to your comments are now added as more explanations to the discussion section of the revised manuscript to clarify the findings.

Abstract:

-Method: "The center of pressure (COP) in the static state in barefoot conditions were recorded" revise to "was recorded".

Response: Corrected in the revised manuscript.

Background:

-Your study evaluated the balance impairment in the elderly female participants. However, authors haven't stated any rationale for this topic in the introduction. It is necessary to add some sentences in the first paragraph to state this issue. Why balance impairment is important in females? Why you selected only females for the balance evaluation?

Response: More explanations and references are now added to the background section in the revised manuscript.

Material and Methodology:

Study design, sample, and randomization:

-Elderly participants in the age of 65-75 years commonly have vestibular and visual disorders. Have you considered these issues in the sampling? Have you excluded participants with a weak visual or weak hearing ability? Please clarify.

Response: Thank you. Appropriate responses that control body posture occur based on information coming from proprioceptors, the eyes, and the vestibular system. Sensory organs undergo structural and functional changes with age, which leads to balance disorders (Makowska, Pierchała, & Niemczyk, 2014). This was modified in the revised manuscript to clarify the presentation. Although the exclusion criteria of this study have been used by other studies in the past, several more references thus have now been added to the revised manuscript. To clarify the issue, explanations according to the reviewer's suggestions have now added to the revised manuscript and it has been stated that participants have been undergoing medical examinations and have entered the study after obtaining a health certificate. They were certainly excluded from the study if they had an uncorrected problem in the visual or auditory apparatus.

About the Static balance:

-Why you selected a quite double leg standing for the balance assessment? I think that one leg standing could better challenge the postural demands for the participants. Please clarify.

Response: Thank you for your suggestion, there are two common ways to evaluate the postural balance of older adults. Functional balance scales, which assess balance through functional tasks such as the Berg Balance Scale (BBS); However, these scales cannot quantify postural balance accurately. Another method is to measure the excursion of the center of pressure (COP) with a force platform during quiet standing.[1, 2] Although, Silva et al. assessed the balance parameters obtained with a force platform in 28 healthy older adults during a one-leg stance. But as you know, the reliability and validity of the COP-based measures obtained with the force platform were found to be acceptable for

evaluating balance in older adults when standing with eyes open or eyes closed, and in a seated position.[1, 2] Thus, the standardized method used in this study was derived from previous literature (Prieto et al., 1996; Lafond et al., 2004; Abrahamova et al., 2008; Zemková E., 2014; Khayat et al., 2014; Fukusaki et al., 2016; Rezaeipour M., 2018). As well as, our study participants were 65 - 75 years old. As you know by the age grows, postural stability decreases. So, measuring the postural stability on one leg for all participants might be problematic. However, the suggestion of the respectable referee is remarkable, and it's interesting for us to consider it in another study in the future.

1. https://www.jstage.jst.go.jp/article/jpts/28/4/28_jpts-2015-1119/_pdf
2. https://www.sciencedirect.com/science/article/pii/S000399930301067 0

Discussion:

-Authors have concluded that elderly people have an altered ML COP velocity during the standing posture. However, some studies showed that people with a history of falling have a significantly increased COP velocity in the AP direction. I think that the significant reduction of the ML (mediolateral) COP velocity after the NPT program obtained in this study is not a good result (Elderly fall risk prediction using static posturography Jennifer Howcroft, Edward D. Lemaire,* Jonathan Kofman,1 and William E. McIlroy). The authors should consider this issue in the discussion.

Response: Thank you again for your thoughtful comments. As mentioned in the study results: The decrease in CoP velocity after a single NPT session occurred mainly in the ML plane. Although, some researchers believe that the

increase and fall in age are associated with increased COP velocity in the direction of the AP (Howcroft et al, 2017). Previous studies have shown that improved postural swings in the ML plane are more closely connected with balance deficiency following an increase and fall in age than the postural swing in the AP plane (Rezaeipour & Nychyporuk, 2019; Melzer et al, 2010). The current results therefore provide further support for the idea that the NPT has a positive impact on the postural steadiness. More explanations are now added to the discussion section in the revised manuscript to clarify the findings.

We acknowledge the reviewer's comment and suggestion very much, which are valuable in improving the quality of my manuscript.

Best Regards

Dear Referee No.2,

We greatly appreciate your thoughtful comments that have helped to improve the manuscript. We trust that all of your comments have been addressed accordingly in a revised manuscript. In the following, We give a point-by-point reply to your comments. The highlight color has been used to show the location of corrections in the manuscript.

Reviewer 2:

1. It is not known why this study was done?

Response: The main symptom of postural instability is the body balance disorders that lead to falls (A Wiśniowska-Szurlej et al., 2019). There are many factors that increase the risk of falls, such as reduced physical fitness, the presence of chronic diseases, lack of physical activity, taking many medications and the un-acquaintance with a new environment (AL-AAMA T., 2011). Women are generally weaker than men in all age groups (Ditroilo et al, 2010; Palmer et al, 2017). Their differences can lead to increases in their relative number of problems with balance and various conclusions regarding the gender and steadiness of posture (Palmer et al, 2017; Kim et al, 2017). In this study, the reaction of balance to neuromuscular and proprioceptive training as a daily, but not regular exercise affect balance was evaluated in elderly women (Rezaeipour,2019). More details and resources have now been added to the background section in the revised version for clarification.

2. There are some spelling mistake (swings instead of sways)

Response: Corrected.

3. In results, the author only mentioned interaction and did not use the other analysis for the conclusion and they cannot conclude with interaction. They should do other analysis and determine the result.

Response: As you know, the most common interaction is when having two groups (typically a treatment and control group—but it could be non-exercise/exercise) who are both measured on a single continuous dependent variable two times. In this design, we have evaluated the steadiness of posture by a 2 × 2 × 2 [group (NPT exercise and Seated rest) × time (pre- and post-training) × Eye condition (open and close)]. This design is commonly used by researchers seeking to test an intervention (rezaeipour & Apanasenko, 2020).

4. How did the authors conclude that one session training can improve balance?

Response: Acute effects of exercise were studied in many fields of life (Dawson et al, 2018; Fatela et al, 2016), including stability of posture (Faulkner et al, 2017; Laudner et al, 2019; Levi et al, 2019). Previous studies have shown that improved postural swings in the ML plane are more closely connected with balance deficiency following an increase and fall in age than the postural swing in the AP plane (Rezaeipour & Nychyporuk, 2019; Melzer et al, 2010). The current results therefore provide further support for the idea that the NPT has **an acute positive impact** on postural steadiness. More explanations are now added to the revised manuscript to clarify the findings.

We acknowledge the reviewer's comment and suggestion very much, which are valuable in improving the quality of my manuscript.

Best Regards

Associate Editor's Comments:

Associate Editor 1:

According to the reviewer's comments, the manuscript needs to be revised majorly.

Response:

Dear Associate Editor 1,

Thank you very much for your letter and the opportunity to review the manuscript. The manuscript has been carefully revised and replied to all comments of reviewers (one-by-one).

Best Regards

EIC Decision:

Dear Corresponding Author

Your valuable manuscript has been reviewed by our peer reviewers who reported some MAJOR issues that need to be addressed in the manuscript. I would also like to emphasize that the English writing needs to be edited by NATIVE SPEAKER of ENGLISH.

Please revise the manuscript according to the provided comments and the following suggestions, highlight the changes and resubmit it along with a point by point response letter to the reviewer's comments. We are looking forward to hearing from you as soon as possible.

Response: We followed the editor in chief suggestions and the manuscript has been carefully revised by Native Speaker of English. All Comments indicated above are in the revised manuscript. We acknowledge the reviewer's and associate editor's comments and suggestions very much, which are valuable in improving the quality of our manuscript.

IMPORTANT: One of the major concerns regarding to the clinical trials is about Registry Clinical Trial (RCT) code. As, the RCT code has not submitted yet, it is strongly recommended to submit the code with your revised version of the manuscript. Otherwise, I would be regretful to reject the manuscript.

Response: we would like to draw your attention to the study design, mentioned in the text of the manuscript: This quasi-experimental research comprised forty-eight females from 65 to 75 years old (69.7 ± 4.7 years) with a sedentary lifestyle. The target population has selected without random assignment. This design was not a controlled trial study. Participants obtained from a convenience sample were only randomly divided into two groups (Rezaeipour &

Nychyporuk, 2019). Convenience sampling is a type of non-probability sampling that involves the sample being drawn from that part of the population that is close to hand. In fact, it is a prospective experimental study or a cross-sectional study, in which participants were divided randomly into two groups. In the method section for clarification, additional explanations are now added to the revised manuscript.

In the following you may find some general comments that may help you to make your manuscript more clearly informative:

General Editorial concerns:

Please make sure that the following issues also have been addressed accurately in addition to the reviewer's comments.

In the abstract;

1) Reporting all interventions and instruments used in the study.

Response: Checked again in the revised version.

2) Reporting important findings of the study in the "Results" section including mean changes (SD) and exact P values (for example; P=0023, instead of P<0.005).

Response: Checked again in the revised version.

3) The conclusion should be written according to the "Objective" of the study.

Response: Checked again in the revised version.

4) Keywords should be chosen by using MeSH.

Response: Some of the existing keywords were selected from the subsets of words MeSH, which has now been changed to the primary keyword of the MeSH browser, such as Women.

In the main text;

1) Every used abbreviation should be defined at the first time of use.

Response: Checked again and corrected in the revised version.

2) Report and state the approval of the Local Ethics Committee on the study in the "Methods" section.

Response: Checked again.

3) Report the process of the Singing consent form for all participants in the text.

Response: Checked again.

4) Present the validity and reliability of used instruments and tools.

Response: Checked again in the revised version.

5) Always use the maximum of two decimal places for presenting data, for example, “21.36” instead of “21.357”.

Response: Checked again in the revised version.

6) Always present error line (SD or SEM), when presenting data by the bar or line graphs.

Response: Checked again at the table of the revised version.

7) Do NOT repeat reporting data in both table and graph formats.

Response: Checked again in the revised version.

8) All used abbreviations in tables should be defined in the legend of tables.

Response: Checked it in the revised version.

9) All numbers and data should be written in English format, for example; “3.44” instead of “3/44”.

Response: Checked again in the revised version.

10) Report on the limitations of the study and discuss how those limitations may affect the results.

Response: Checked again in the revised version.

References

1) check the references carefully, all mentioned references in the text should be introduced at the "References Section".

Response: Checked again in the revised version.

2) Use Endnote software with the "VANCOUVER" style to enter your references, It is useful for your future research as well.

Response: Checked again and modified in accordance with the journal instructions in the revised version.

Best Regards

OPEN PEER REVIEW

Revision (1)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (1) 15 Jun 2020

Dear AE,
The authors did not answer my important question about interaction in the result part. When the interaction is significant. We should use adjustment Bonferroni tests or other follow-up tests.
Thanks.

REFEREE: Reviewer | **Revision** (1) 27 Jun 2020

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Associate Editor | **Revision** (1) 28 Jun 2020

Dear EIC,
According to the reviewer's comments, the revised manuscript still needs to be revised clearly, in order to answer one of the major concerns from the previous review. The author should also provide the following information in Table 1;
1) Are the pre and post-presented data mean and standard deviation?
2) the Table should present the p-value as well.
Thanks.

REFEREE: EIC | **Revision** (1) 28 Jun 2020

Dear Author,
The reviewers' comments are mentioned. Please correct the details as mentioned above carefully according to reviewers' request.
Thanks.

OPEN PEER REVIEW

Revision (2)

Reply to Reviewers

Ideally, the reviewing process can significantly improve the submitted manuscripts by allowing the authors to take into account the advice of reviewers. Author(s) must reply to all reviewers' comments in a separate Word file, point by point. A "**Reply to Reviewers**" document is submitted along with revised manuscript during submission of revised files, summarizing the changes that the authors made in response to the reviewers' comments. The responses to reviewers' comments specifies how the authors addressed each comment the reviewers made.

You can read the authors' responses to the reviewers' comments in the next page.

REVIEWER RESPONSE LETTER

Dear Referee No.2,

Thank you very much for your letter and the opportunity to review the manuscript. Your suggestions are immensely helpful and are appreciated. Your comments were included immediately after this letter and have been responded to them, exactly shown how each concern or problem was solved and has been explained the changes made. The changes are marked with the highlight color in the revised manuscript.

Reviewer 2:

- The authors did not answer my important question about interaction in the result part. When the interaction is significant. We should use adjustment Bonferroni tests or other follow up tests.

Response: I'm sorry we didn't perceive what you mean. Thank you for your thoughtful comments. As mentioned in the statistical analysis: The results were corrected using the Bonferroni adjustments test.

As you know well when using Bonferroni correction, only significant differences with p level lower than corrected value are discussed. Therefore, the results section has also been rewritten.

Best Regards

Associate Editor's Comments:

Associate Editor 1:

According to the reviewer's comments, the revised manuscript still needs to be revised clearly, in order to answer one of the major concerns from the previous review. The author should also provide the following information in Table 1; 1) Are the pre and post presented data mean and standard deviation? 2) the Table should present the p-value as well.

Response:

Dear Associate Editor 1,

Thank you very much for your letter and the opportunity to review the manuscript. The manuscript has been carefully revised and replied to comment of reviewer (one-by-one).

As well as, your comments have been followed, and to clarify, further details added to the table. The table has also been modified.

Best Regards

EIC Decision:

Dear Corresponding Author

Thank you for submitting the revised manuscript. One of the reviewers indicated that there are still some issues that need to be addressed clearly. Please revise the manuscript according to the provided comments and the following suggestions, highlight the changes and resubmit it along with a point by point response letter to the reviewer's comments. We are looking forward to hearing from you as soon as possible.

Response: We followed the editor in chief suggestions and the manuscript has been carefully revised. All Comments indicated above are in the revised manuscript. We acknowledge the reviewer's and associate editor's comments and suggestions very much, which are valuable in improving the quality of our

manuscript.

Best Regards

OPEN PEER REVIEW

Revision (2)

Here, you can see the **Reviewers**, **Associate Editors** and **EICs'** comments from the beginning to the end of the revision process.

REFEREE: Reviewer | **Revision** (2) 12 Jul 2020

Dear AE,
The study is reviewed carefully. According to comments and revisions by the author, this manuscript is accepted.
Thanks

REFEREE: Associate Editor | **Revision** (2) 15 Jul 2020

Dear EIC,
All comments have been addressed clearly and the manuscript is ready for publishing.
Thanks.

REFEREE: EIC | **Revision** (2) 15 Jul 2020

Dear Author,
The document is reviewed carefully by the reviewers. According to their comments and your revisions as requested, this manuscript is accepted.
Thanks.