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Peer Review Report for "Comparison of Biomechanical, Clinical Indicators, and Quality of Life in People Undergoing Hip Replacement Surgery with Anterior and Posterior Approaches"

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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

8 Jun 2024

Dear Associate Editor

This study compared the biomechanical, clinical indicators, and quality of life of people undergoing hip replacement surgery with anterior and posterior approaches. Explain the reason for choosing this sample size. It seems that according to the studies, this amount of the sample size is very low.

The description of how to collect the forceplate system data is very incomplete. Was the bottom of the foot hard or soft? Eyes open or eyes closed? Foot wear? How to maintain balance? Was the reliability of forceplate data measured?

In the findings regarding the COP velocity variable, a significant difference was

observed in open eyes condition. In this case, no justification is given in the discussion section.

REFeree : Reviewer

22 Jun 2024

Dear AE

In the introduction, the author should clarify the significance of the between anterior and posterior hip replacement methods in the outcomes and implications on rehabilitation and performance.

Add the study design briefly at the first of the method section.

How were the participants selected and identified at Akhtar Hospital? Who carried out this process? Was this person one of the authors of this manuscript? What criteria were used to select the healthy individuals?

Was there the agreement between the anterior and posterior hip groups in terms of age and other aspects?

How did participants complete the consent form? Who explained the study objectives to them? How were participants selected based on inclusion criteria?

Please add a reference for the force plate.

Based on the Canadian Occupational Performance Measure (COPM), what outcome was evaluated? The outcome evaluated based on the Canadian Occupational Performance Measure (COPM) requires a more detailed description for better understanding.

What were the limitations of the study? Include this after the discussion. Furthermore, the author should emphasize the study's implications in the treatment. What are the author's suggestions for future research?

Thanks

REFeree : Associate Editor

26 Jun 2024

Dear EIC

Thanks the authors for submitting the manuscript in MEJRHS. According to the reviewers' comments, the article needs to be revised majorly, especially in the method and result sections. Please response the reviewers' comments point by point and revise the manuscript.

Best Regards

Fatemeh Ehsani : EIC

26 Jun 2024

Dear Authors

According to the reviewers and associate editor's comments, your article needs to be revised majorly. When revising your manuscript, please consider all issues mentioned in the reviewers' comments carefully: please outline every change made in response to their comments and submit the required files up two months.

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.

Dear reviewers/editor, please accept our warm appreciation for your careful reading and your valuable comment on the manuscript. We did our best to address all of your comments. Your comments significantly improved our manuscript. I hope our revision as well as our answers would justify you. We addressed comments of reviewer 1 by **red** color and reviewer 2 by **blue** color in the main file.

In addition, there were some typing/grammatically errors in the manuscript. We tried to review whole manuscript and fix them.

Reviewers' Comments:

Reviewer 1:

In the introduction, the author should clarify the significance of the between anterior and posterior hip replacement methods in the outcomes and implications on rehabilitation and performance.

Thank you for your comment. We have reorganized this section in the introduction. We tried to point out and highlight the advantages and disadvantages of each of surgical approaches and then concluded that each has its own advantages and disadvantages, and it should be seen that each of them has better functional results.

Add the study design briefly at the first of the method section.

Thank you for your comment. We added the study design to the manuscript

In this **cross-sectional observational** study, twenty people after anterior hip replacement, 20 after posterior hip replacement, and 20 healthy people participated.

How were the participants selected and identified at Akhtar Hospital? Who carried out this process? Was this person one of the authors of this manuscript?

Thank you for your comment. We added the following to the manuscript:

The patients of surgery groups were referred for the present study by orthopedic hip surgeon. Then, main researcher (first author) selected the patients according the inclusion/ exclusion criteria. The participants in the healthy control group were selected from those who referred to the School of Rehabilitation of Shahid Beheshti University of Medical Sciences

What criteria were used to select the healthy individuals?

Thank you for your comment. We added the following to the manuscript:

The inclusion criteria for the healthy group were as follows: being in the age range of 50 to 65 years, absence of neurological problems or other orthopedic disorders that disturb the balance, not using balance-disrupting drugs during the study period, having the ability to walk and balance standing without an aid, and no history of any lower limb surgery in the last year.

Was there the agreement between the anterior and posterior hip groups in terms of age and other aspects? Thank you for your comment. Both the anterior and posterior groups were aged between 50 and 65 years. They underwent their first unilateral hip joint replacement surgery within a range of 6 to 12 months ago.

We tried to make it clearly in inclusion criteria.

In addition, as shown in Table 1, there was no significant difference in any of the demographic variables including age, height, weight, time since surgery and etc. among the three groups ($P>0.05$)

How did participants complete the consent form? Who explained the study objectives to them?
How were participants selected based on inclusion criteria?

Thank you for your comment. We added the following to the manuscript:

- During the study, the researcher (first author) provided a full explanation of the study's purpose and the methodology to all participants. Participants were screened based on entry criteria and if they met the criteria and were willing to take part in the study, they were asked to fill out written consent form. Then, all participants of three groups were asked to refer the biomechanics laboratory of School of Rehabilitation, Shahid Beheshti University of Medical Sciences, ...

Please add a reference for the force plate.

We added the reference 26 to the manuscript

Based on the Canadian Occupational Performance Measure (COPM), what outcome was evaluated? The outcome evaluated based on the Canadian Occupational Performance Measure (COPM) requires a more detailed description for better understanding.

COPM is one of the most common tools used in occupational therapy to evaluate occupational performance and satisfaction of performance in various occupational areas including self-care, leisure, and productivity. This is explained in other words in this section.

What were the limitations of the study? Include this after the discussion. The presence of multiple inclusion criteria in this study made us examine and research a smaller number of samples.

Thank you for your comment. We added the following to the manuscript:

We need to acknowledge some limitations of this study. Firstly, the study's multiple inclusion criteria restricted the number of samples we could examine and research. Secondly, all patients in the study were operated on by the same surgical group in the same hospital, which may limit the generalizability of the results to other doctors and environments. Thirdly, individuals with a weaker functional level, those whose surgery did not lead to favorable results, or those who experienced surgery with multiple complications were not included in the study. This omission could impact the significance of the results and findings.

Furthermore, the author should emphasize the study's implications in the treatment.

What are the author's suggestions for future research?

Thank you for your comment. We added the following to the manuscript:

It is recommended to conduct research by following up with patients and evaluating them at two different time periods: less than six months and more than six months. The goal is to determine whether the changes in performance between the two groups will persist. Additionally, since Bartel's questionnaire does not capture minor differences in daily activity performance, it is advisable to use a scale that can detect minor performance differences in future studies. Finally, for future studies, it is suggested to include cases of joint replacement surgery accompanied by complications such as nerve damage, as well as cases that required repeat surgeries. This will allow for a comparison of people with a wide range of functional levels.

Reviewer 2:

This study compared the biomechanical, clinical indicators, and quality of life of people undergoing hip replacement surgery with anterior and posterior approaches

Explain the reason for choosing this sample size. It seems that according to the studies, this amount of the sample size is very low.

Thank you for your comment.

The study's multiple inclusion criteria restricted the number of samples we could examine and research. According to the inclusion criteria, therefore, many people undergoing anterior and posterior hip replacement surgery were excluded from the study. In the revision, we added this issue in the limitation at end of the discussion.

The description of how to collect the forceplate system data is very incomplete. Was the bottom of the foot hard or soft? Eyes open or eyes closed? Foot wear? How to maintain balance? Was the reliability of forceplate data measured?

Thank you for your comment.

- For eyes open or eyes closed, we had already mentioned in method (2.3. Procedure). We highlighted that again.

- For bottom of the foot, people stand on the forceplate by barefoot. We added in the manuscript. Also, force plate surface is hard.

- For maintaining balance, we took the test just in standing on two legs, not one-leg. It should be noted that we evaluated some patients in one-leg condition as well. However, due to the fact

that balance of healthy people also decreases when standing on one leg, and besides the effect of hip replacement surgery, there are many factors, including genetics, the condition of the vestibular system, strength, coordination, flexibility, and etc. are involved in maintaining one-leg posture (1), it may not be appropriate to evaluate balance in standing position on one leg to compare the balance of two groups of people undergoing hip replacement surgery. Therefore, two-leg posture is more reliable for surgery groups.

-For the reliability of forceplate, we tried to make it clearly in the previous comment. In addition, Bertec forceplate data is valid and reliable device as it has been confirmed in many previous studies and there was an operator at computer in the gait laboratory for checking any error or noise. Also, for force plate data and TUG test, the average of three repetitions was analyzed. We added the following sentence to the manuscript.

“for force plate data and TUG test, the average of three repetitions was analyzed for each condition”

In the findings regarding the COP velocity variable, a significant difference was observed in open eyes condition. In this case, no justification is given in the discussion section?

Thank you for your comment.

In discussion, page 10, we had discussed about COP velocity.

“Compared to healthy control group, COP displacement in medial-lateral direction and COP **velocity** in anterior-posterior one during two-leg standing with eyes open was significantly higher in anterior replacement group.“

Associate Editor 1:

Thank you for submitting your manuscript in MEJRHS. According to the reviewers' comments, your article needs to be revised majorly, especially in the method and result sections. Please response the reviewers' comments point by point and revise your manuscript.

Dear editor

We did our best to address all comments. We hope our corrections are satisfactory on the revision.

1. Kilroy EA, Crabtree OM, Crosby B, Parker A, Barfield WR. The effect of single-leg stance on dancer and control group static balance. *International journal of exercise science*. 2016;9(2):110.

OPEN PEER REVIEW

Revision (1)

REFEREE : Reviewer

28 Jul 2024

Dear Editor

While thanking the authors for their efforts to correct the article, many of the explanations are inside the file of "responses to the reviewers" that should be transferred to the main text of the article.

No data is given regarding reliability data.

REFEREE : Reviewer

31 Jul 2024

Dear AE

- This sentence needs the citation in the introduction:

"As explained, each of the total hip arthroplasty approaches has its own advantages and disadvantages, and it is not yet clear which of these two common approaches is the most effective in achieving better functional outcomes."

- It is necessary to add the "Canadian Occupational Performance Measure (COPM)" scoring method in the measures section with valid citations.

- In the procedure, it is suggested to use "complete" instead of "fill" in the sentence "to fill out written consent form".

- What is the reason for the limitations of the study and in the third option?

"Thirdly, individuals with a weaker functional level, those whose surgery did not lead to favorable results, or those who experienced surgery with multiple complications were not included in the study".

REFEREE : Associate Editor

11 Aug 2024

Dear EIC

my comments to the authors:

It appears that some of your responses to the reviewers' comments have not been incorporated into the text. Please carefully consider all the issues mentioned in the reviewers' comments and make revisions to the manuscript accordingly. Please add the reliability data and related results in the manuscript. Please also edit the manuscript in native English.

Fatemeh Ehsani : EIC

11 Aug 2024

Dear Authors

According to the reviewers and associate editor's comments, your article needs to be revised minor. When revising your manuscript, please consider all issues mentioned in the reviewers' comments carefully: please outline every change made in response to their comments and submit the required files up to one month.

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.

Reviewers' Comments:

The corrections on this revision have been highlighted by yellow

Reviewer 1:

- This sentence needs the citation in the introduction:

"As explained, each of the total hip arthroplasty approaches has its own advantages and disadvantages, and it is not yet clear which of these two common approaches is the most effective in achieving better functional outcomes."

We added the related reference (a systematic review) for this sentence

- It is necessary to add the "Canadian Occupational Performance Measure (COPM)" scoring method in the measures section with valid citations.

The COPM score calculation method was added to this section by referring to the tool development article. It has been highlighted in the manuscript by yellow.

- In the procedure, it is suggested to use "complete" instead of "fill" in the sentence "to fill out written consent form".

We used "complete" instead of "fill"

- What is the reason for the limitations of the study and in the third option?

"Thirdly, individuals with a weaker functional level, those whose surgery did not lead to favorable results, or those who experienced surgery with multiple complications were not included in the study".

Dear reviewer, we meant that we defined the inclusion/ exclusion as narrow. So, we had to excluded participants with weaker functional level, those whose surgery did not lead to favorable results, or those who experienced surgery with multiple complications. So, our results cannot generalize to these populations.

Reviewer 2:

While thanking the authors for their efforts to correct the article, many of the explanations are inside the file of "responses to the reviewers" that should be transferred to the main text of the article.

Dear reviewer, we transferred all corrections into the text. The most was for discussion part. Also, some corrections were short. The corrections of the previous revision have been still highlighted in the text by red and blue colors. Please recheck.

No data is given regarding reliability data.

Dear reviewer, we did not check the reliability data of forceplate because the reliability of forceplate data has been proved in many studies. Also, for force plate data and TUG test, the average of three reparations was analyzed for each condition (**it was also added to the text in the previous revision**). Also, all tests were done by one researcher.

OPEN PEER REVIEW

Revision (2)

REFEREE : Associate Editor

28 Aug 2024

Dear Editor-in-Chief

The authors revise the manuscript based on the reviewer comments completely. I think this study is eligible for publish.

Fatemeh Ehsani : EIC

28 Aug 2024

Dear Authors

We are pleased to inform you that your article is accepted for publication in the MEJRHS. We hope to receive the other qualified articles from your group.