

## **Preliminary study on an added VOR visual conflict task for postural control**

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Handling editor:

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*Assistant Professor University of Nevada Reno School of Community Health Sciences*

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07-Feb-2020

Ref.: Ms. No. JCTRes-D-19-00041

Preliminary study on an added VOR headshake dual task for postural control

Journal of Clinical and Translational Research

Dear Dr. Moran,

Reviewers have now commented on your paper. You will see that they are advising that you revise your manuscript. If you are prepared to undertake the work required, I would be pleased to reconsider my decision.

For your guidance, reviewers' comments are appended below.

If you decide to revise the work, please submit a list of changes or a rebuttal against each point which is being raised when you submit the revised manuscript. Also, please ensure that the track changes function is switched on when implementing the revisions. This enables the reviewers to rapidly verify all changes made.

Your revision is due by Mar 08, 2020.

To submit a revision, go to <https://www.editorialmanager.com/jctres/> and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely

Nicholas G Murray, Ph.D.  
Editorial Board Member  
Journal of Clinical and Translational Research

Reviewers' comments:

Reviewer #1: The authors provide rationale for postural control assessment beyond clinician scored balance assessments, as well as the addition of horizontal head shake movements to established postural control assessments. Further, the authors emphasize the potential value of isolating the vestibular-ocular system during postural control. The findings of the current study indicate worse sway index scores in a VOR conflict added task compared to eyes open on both firm and foam conditions, and increased sway index on eyes-closed foam compared to VOR foam. However, the authors do not identify the magnitude of these significant differences. Also, the authors do not address the nature of dual task testing within their results. In dual task paradigms, participants compete tasks simultaneously to compare against single-task results. What is lacking, especially within the methods and discussion is if these results identify competing systems, which may not be appropriate as there was no assessment of VOR performance. Specific comments and minor editorial requests are included.

Abstract:

Line 32: There are inconsistencies throughout the paper for how the author addresses the added VOR visual conflict task (VOR dual task condition, visual conflict dual task, VOR visual conflict headshake task, VOR task).

Introduction:

Line 45: Change additional to "Adding" or "An addition".

Line 71: Can the authors should clarify what the CTSIB is similar to? The SOT?

Line 104: Edit "was to use add a.."

Methods:

Line 119: Where the participants wearing shoes and/or socks?

Line 141 - 142: The sway index is the standard deviation of the sway angle, so authors should think to mention this in the methods.

Line 143. The authors provide statistical analyses to support the purpose of this study, to determine differences in sway index score between conditions and test-retest reliability. However, the authors should consider providing an effect size to identify the importance of the differences seen between VOR conditions in each stance. Also, the authors completed correlations for the test-retest reliability, but should consider also providing the SEM and MDC that may be used in future comparisons to identify meaningful change in injured participants.

Line 154 - 155: The authors address that the eyes closed foam was worse than the VOR visual conflict condition, but do not display the significance.

Line 162: Again, with the table the reader can see the differences in scores, but adding the

effect size would help with interpretation of the differences.

#### Discussion

Line 174 - 177: The authors use Honaker et al. 2016 to support their findings of a worse eyes-closed foam condition compared to the VOR conflict foam condition. In the study by Honaker et al., there are decreasing equilibrium scores with increasing task difficulty. However, in each of the SOT and HS-SOT tasks, the eyes are closed. Therefore, the statements in lines 178 - 179 does not match the current study's findings.

Line 197: This is also rationale for the m-CTSIB test, and should be included as well.

Line 214: Another limitation that the authors didn't address was the measurement of the headshake movement. The addition of the headshake to the SOT by Honaker et al. included a head mounted rate sensor, where in the current study participants were following a metronome. The reliance on auditory signaling and no definitive measurement of horizontal head movement is a limitation and could alter the results.

Reviewer #3: Overall this manuscript examined the addition of the VOR dual task to a firm and foam surface using the m-CTSIB. As well as examining the test-retest reliability of a VOR dual task. The addition of the VOR dual task was a novel idea to compare it to the current m-CTSIB tasks. However, I had 2 concerns with the manuscript. 1) small sample size which I will allow the editor to make the decision if it is too small this for journal. The title indicated preliminary but that is not stated in the introduction. I would state it in the purpose statement then the reader at least knows this is just a preliminary study therefore understands the small sample size. 2) inconsistent use of the terminology. The inconsistent use of the terminology made this manuscript difficult to read and interpret. I believe with careful review of this manuscript this can be corrected with a revision to this manuscript.

Abstract - your abstract is very inconsistent and missing pertinent information. Individuals just reading the abstract really don't get an idea of what you are doing in this study.

Background- second sentence doesn't make sense- VOR assessment for what? Adding a VOR task for what? Postural control? Concussion?

Aim- retest reliability?

Methods- What was the VOR dual task? You only stated measures consistent of m-CTSIB on foam and firm surface. The title indicates it is a VOR headshake dual task but no where in the methods does it state headshake.

Result - please state p values. How did these tasks differ?

Conclusions - you now state 'VOR visual conflict task condition' but this is also not described in the methods, is this the same as a VOR Dual task? VOR headshake task? Please be consistent with terminology. The last sentence is the first time you stated concussion assessment. If this for concussion assessment?

#### Introduction

Lines 66-67- how does the HS Shake implement the headshake during the eyes closed conditions of the SOT?

Lines 93-94- How would adding VOR assessment to the vestibular-spinal assessment hinder the vestibular assessment? Please elaborate on this point.

Lines 98-101- this opening sentence doesn't make sense. 55% of athletes do not report their concussion to an authoritative figure, how does subjective symptom reporting jeopardize the

VOR? Please make this point more clear.

Lines 101-104- please elaborate on this point of test-retest reliability using the headshake task on m-CTSIB as this is one of your purpose statements and this is the only sentence you mention it.

Line 104- "The purpose of this study was TO USE ADD A VOR..." maybe take out 'use'

Line 104- I believe this is the first time you used the words "VOR visual conflict dual task" which is in your purpose statement. What is a VOR visual conflict dual task? It hasn't been explained anywhere in the introduction and this is your main point of the paper. If it has then please be consistent with your terminology as it is very difficult to follow this introduction and what it is you plan on studying. Is this the headshake task on the m-CTSIB as indicated in the above sentence?

Lines 106-108- above paragraph you stated it may be clinically useful, but here you hypothesize that it would be worse. What is your rationale for this hypothesis? You need to explain this hypothesis better as to how you came up with it as so far no information you presented indicates that it would be worse.

Lines 108-109- here you state VOR tasks? Are these dual tasks as in the previous purpose statement?

Lines 109-110- this sentence seems out of place. I would either present it earlier or delete it.

## Methods

Lines 113- please use '17'

Participants - 17 subjects for a test-retest and determining differences is extremely low sample size for any published study. What did the power analysis determine was an appropriate number of subjects?

Line 126- m-CTISB please change to m-CTSIB

Lines 133-142- are these 2 tasks also performed with hands on hip and for 20 seconds?

The procedures section is lacking in detail. I would separate this out from the participants section and place after measures. For example, did you have IRB approval? Did you get consent? Both of these 2 things are very important criteria for conducting a study, and are missing from this manuscript. Did the subjects stand on the m-CTSIB with shoes on? Socks on? How long did it take to complete the tasks? Did they complete anything else on the demographics form? Was the testing done in a quiet room?

Statistical analysis - this is confusing as well as the purpose statement as to what difference you are comparing. So you are comparing the VOR visual conflict task as this the headshake dual task to what? You are comparing it to the eyes open firm m-CTSIB? Then you are doing the VOR HS foam surface to the eye open firm m-CTSIB? So you are doing 8 separate wilcoxin tests? The table indicates you will only compare the tasks on the same surfaces but it is not indicated here. Is it unclear why you are comparing all these tests?

What is the p value for the Wilcoxin tests? Are you correcting for all the tests you are running?

Results - similar to above this is really hard to follow. Second sentence you state 'similar' then the next sentence you state it wasn't similar as the eye-closed were worse. Please be clear on your results what was different, what was worse, stating similar than contradicting half the sentence just confuses the reader.

Lines 156-157- why did you only report 2 tasks and not the other ones for test-retest reliability? In the statistical analysis section you didn't indicate that you would only examine 2 of the 6 tasks for test-retest.

Table 1- if you only compared it to their respective surface that needs to be explained in the statistical analysis section as it was not very clear.

#### Discussion

Lines 166-169- you cannot have a paragraph with 1 sentence

I feel like you need to expand on your findings a little bit more. You had 3 out of 4 tasks worse for VOR dual task 2 on foam and 1 on firm. But the m-BESS on the SCAT only includes firm surfaces and 1 of your VOR is worse and the other is better on firm. Why were these different on the firm surface? Most ATs may not have access to the foam surface for testing on the sideline and if they do the VOR dual task on the firm surface than you have conflicting results as it if it helps or hinders the results of this test for concussion testing.

Line 190- first test to do test-retest reliability on the m-CTSIB or m-CTSIB using a VOR dual task? If it is just the m-CTSIB then you need to present these results as you only included test-retest for the VOR.

Lines 194-196- you may have found good reliability but above you found conflicting results on the eyes-closed firm surface so not sure that this provides clinical utility. Please expand on this point and if it really provides clinical utility.

Line 201- deemed adequate by who? Power analysis?

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#### Author's rebuttal

Dear Dr. Murray, Editorial Office, and Reviewers,

Thank you for the review of our manuscript, JCTRes-D-19-00041, "Preliminary study on an added VOR visual conflict task for postural control." We have addressed each of the reviewer's comments/revisions below. Thank you again and we look forward to your decision.

#### Reviewers' comments:

Reviewer #1: The authors provide rationale for postural control assessment beyond clinician scored balance assessments, as well as the addition of horizontal head shake movements to established postural control assessments. Further, the authors emphasize the potential value of isolating the vestibular-ocular system during postural control. The findings of the current study indicate worse sway index scores in a VOR conflict added task compared to eyes open on both firm and foam conditions, and increased sway index on eyes-closed foam compared to VOR foam. However, the authors do not identify the magnitude of these significant differences. Also, the authors do not address the nature of dual task testing within their results. In dual task paradigms, participants compete tasks simultaneously to compare against single-task results. What is lacking, especially within the methods and discussion is if these results identify competing systems, which may not be appropriate as there was no assessment of VOR performance. Specific comments and minor editorial requests are included.

**PI Response: We have corrected the terminology and added limitations to the manuscript.**

Abstract: Line 32: There are inconsistencies throughout the paper for how the author addresses the added VOR visual conflict task (VOR dual task condition, visual conflict dual task, VOR visual conflict headshake task, VOR task).

**PI Response: we have corrected the terminology for the entire manuscript.**

Introduction: Line 45: Change additional to "Adding" or "An addition".

**PI Response: corrected as recommended.**

Line 71: Can the authors should clarify what the CTSIB is similar to? The SOT?

**PI Response: corrected to SOT**

Line 104: Edit "was to use add a.."

**PI Response: corrected as recommended.**

Methods: Line 119: Where the participants wearing shoes and/or socks?

Response to Reviewers

**PI Response: clarified participant information**

Line 141 - 142: The sway index is the standard deviation of the sway angle, so authors should think to mention this in the methods.

**PI Response: Corrected as recommended.**

Line 143. The authors provide statistical analyses to support the purpose of this study, to determine differences in sway index score between conditions and test-retest reliability. However, the authors should consider providing an effect size to identify the importance of the differences seen between VOR conditions in each stance. Also, the authors completed correlations for the test-retest reliability, but should consider also providing the SEM and MDC that may be used in future comparisons to identify meaningful change in injured participants.

**PI Response: We have added table 2 to reflect SEM and MDC/**

Line 154 - 155: The authors address that the eyes closed foam was worse than the VOR visual conflict condition, but do display the significance.

**PI Response: added significance**

Line 162: Again, with the table the reader can see the differences in scores, but adding the effect size would help with interpretation of the differences.

**PI Response: Added effect size and created table 2.**

Discussion Line 174 - 177: The authors use Honaker et al. 2016 to support their findings of a worse eyesclosed foam condition compared to the VOR conflict foam condition. In the study

by Honaker et al., there are decreasing equilibrium scores with increasing task difficulty. However, in each of the SOT and HS-SOT tasks, the eyes are closed. Therefore, the statements in lines 178 - 179 does not match the current study's findings.

**PI Response: corrected citation and justification**

Line 197: This is also rationale for the m-CTSIB test, and should be included as well.  
PI Response: Added as recommended.

Line 214: Another limitation that the authors didn't address was the measurement of the headshake movement. The addition of the headshake to the SOT by Honaker et al. included a head mounted rate sensor, where in the current study participants were following a metronome. The reliance on auditory signaling and no definitive measurement of horizontal head movement is a limitation and could alter the results. PI Response: We have added this to the limitations.

Reviewer #3: Overall this manuscript examined the addition of the VOR dual task to a firm and foam surface using the m-CTSIB. As well as examining the test-retest reliability of a VOR dual task. The addition of the VOR dual task was a novel idea to compare it to the current m-CTSIB tasks. However, I had 2 concerns with the manuscript. 1) small sample size which I will allow the editor to make the decision if it is too small this for journal. The title indicated preliminary but that is not stated in the introduction. I would state it in the purpose statement then the reader at least knows this is just a preliminary study therefore understands the small sample size. 2) inconsistent use of the terminology. The inconsistent use of the terminology made this manuscript difficult to read and interpret. I believe with careful review of this manuscript this can be corrected with a revision to this manuscript.

**PI Response: Terminology has been corrected throughout.**

Abstract - your abstract is very inconsistent and missing pertinent information. Individuals just reading the abstract really don't get an idea of what you are doing in this study.

Background- second sentence doesn't make sense- VOR assessment for what? Adding a VOR task for what? Postural control? Concussion?

**PI Response: corrected throughout for terminology**

Aim- retest reliability?

**PI Response: corrected to address reliability**

Methods- What was the VOR dual task? You only stated measures consistent of m-CTSIB on foam and firm surface. The title indicates it is a VOR headshake dual task but no where in the methods does it state headshake.

**PI Response: We have clarified the terminology about headshake and VOR dual task.**

Result - please state p values. How did these tasks differ?

**PI Response: p values added**

Conclusions - you now state 'VOR visual conflict task condition' but this is also not described in the methods, is this the same as a VOR Dual task? VOR headshake task? Please be consistent with terminology. The last sentence is the first time you stated concussion assessment. If this for concussion assessment?

**PI Response: We have clarified the terminology about headshake and VOR dual task.**

Introduction Lines 66-67- how does the HS Shake implement the headshake during the eyes closed conditions of the SOT?

**PI Response: corrected wording**

Lines 93-94- How would adding VOR assessment to the vestibular-spinal assessment hinder the vestibular assessment? Please elaborate on this point.

**PI Response: added statement of provide visual stability**

Lines 98-101- this opening sentence doesn't make sense. 55% of athletes do not report their concussion to an authoritative figure, how does subjective symptom reporting jeopardize the VOR? Please make this point more clear.

**PI Response: clarified to reflect subjective nature of VOMS**

Lines 101-104- please elaborate on this point of test-retest reliability using the headshake task on m-CTSIB as this is one of your purpose statements and this is the only sentence you mention it.

**PI Response: clarified in the purpose**

Line 104- "The purpose of this study was TO USE ADD A VOR..." maybe take out 'use'

Line 104- I believe this is the first time you used the words "VOR visual conflict dual task" which is in your purpose statement. What is a VOR visual conflict dual task? It hasn't been explained anywhere in the introduction and this is your main point of the paper. If it has then please be consistent with your terminology as it is very difficult to follow this introduction and what it is you plan on studying. Is this the headshake task on the m-CTSIB as indicated in the above sentence?

**PI Response: We have clarified the terminology about headshake and VOR dual task.**

Lines 106-108- above paragraph you stated it may be clinically useful, but here you hypothesize that it would be worse. What is your rationale for this hypothesis? You need to explain this hypothesis better as to how you came up with it as so far no information you presented indicates that it would be worse.



**PI Response: Clarified hypothesis to central hypothesis as study is preliminary.**

Lines 108-109- here you state VOR tasks? Are these dual tasks as in the previous purpose statement?

**PI Response: Corrected terminology to improve readability.**

Lines 109-110- this sentence seems out of place. I would either presented it earlier or delete it.

**PI Response: Sentence removed.**

Methods Lines 113- please use '17'

**PI Response: Corrected as requested**

Participants - 17 subjects for a test-retest and determining differences is extremely low sample size for any published study. What did the power analysis determine was an appropriate number of subjects?

**PI Response: We did not run a power analysis as this was preliminary data.**

Line 126- m-CTISB please change to m-CTSIB

**PI Response: Corrected as requested**

Lines 133-142- are these 2 tasks also performed with hands on hip and for 20 seconds? The procedures section is lacking in detail. I would separate this out from the participants section and place after measures. For example, did you have IRB approval? Did you get consent? Both of these 2 things are very important criteria for conducting a study, and are missing from this manuscript. Did the subjects stand on the m-CTSIB with shoes on? Socks on? How long did it take to complete the tasks? Did they complete anything else on the demographics form? Was the testing done in a quiet room?

**PI Response: Participant position and IRB information has been added to the participants subsection.**

Statistical analysis - this is confusing as well as the purpose statement as to what difference you are comparing. So you are comparing the VOR visual conflict task as this the headshake dual task to what? You are comparing it to the eyes open firm m-CTSIB? Then you are doing the VOR HS foam surface to the eye open firm m-CTSIB? So you are doing 8 separate wilcoxin tests? The table indicates you will only compare the tasks on the same surfaces but it is not indicated here. Is it unclear why you are comparing all these tests? What is the p value for the Wilcoxin tests? Are you correcting for all the tests you are running?

**PI Response: We have clarified the results section and terminology.**

Results - similar to above this is really hard to follow. Second sentence you state 'similar' then the next sentence you state it wasn't similar as the eye-closed were worse. Please be clear on

your results what was different, what was worse, stating similar than contradicting half the sentence just confuses the reader.

**PI Response: we have clarified terminology**

Lines 156-157- why did you only report 2 tasks and not the other ones for test-retest reliability? In the statistical analysis section you didn't indicate that you would only examine 2 of the 6 tasks for test-retest.

**PI Response: we have added all m-CTSIB reliability in a newly created table 2 and expanded in the results.**

Table 1- if you only compared it to their respective surface that needs to be explained in the statistical analysis section as it was not very clear.

**PI Response: We have clarified in the analysis section**

Discussion Lines 166-169- you cannot have a paragraph with 1 sentence

**PI Response: Merged with the paragraph below.**

I feel like you need to expand on your findings a little bit more. You had 3 out of 4 tasks worse for VOR dual task 2 on foam and 1 on firm. But the m-BESS on the SCAT only includes firm surfaces and 1 of your VOR is worse and the other is better on firm. Why were these different on the firm surface? Most ATs may not have access to the foam surface for testing on the sideline and if they do the VOR dual task on the firm surface than you have conflicting results as it if it helps or hinders the results of this test for concussion testing.

**PI Response: We have added clarification into m-BESS clinical application**

Line 190- first test to do test-retest reliability on the m-CTSIB or m-CTSIB using a VOR dual task? If it is just the m-CTSIB then you need to present these results as you only included testretest for the VOR.

**PI Response: we have added all m-CTSIB reliability in a newly created table 2 and expanded in the results.**

Lines 194-196- you may have found good reliability but above you found conflicting results on the eyes-closed firm surface so not sure that this provides clinical utility. Please expand on this point and if it really provides clinical utility.

**PI Response: we have clarified this statement**

Line 201- deemed adequate by who? Power analysis? PI Response: we have removed this sentence

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11-Mar-2020

Ref.: Ms. No. JCTRes-D-19-00041R1

Preliminary study on an added VOR visual conflict task for postural control

Journal of Clinical and Translational Research

Dear author(s),

Reviewers have submitted their critical appraisal of your paper. The reviewers' comments are appended below. Based on their comments and evaluation by the editorial board, your work was FOUND SUITABLE FOR PUBLICATION AFTER MINOR REVISION.

If you decide to revise the work, please itemize the reviewers' comments and provide a point-by-point response to every comment. An exemplary rebuttal letter can be found on at <http://www.jctres.com/en/author-guidelines/> under "Manuscript preparation." Also, please use the track changes function in the original document so that the reviewers can easily verify your responses.

Your revision is due by Apr 10, 2020.

To submit a revision, go to <https://www.editorialmanager.com/jctres/> and log in as an Author. You will see a menu item call Submission Needing Revision. You will find your submission record there.

Yours sincerely,

Nicholas G Murray, Ph.D.  
Editorial Board Member  
Journal of Clinical and Translational Research

Reviewers' comments:

Reviewer #1: I believe that the author appropriately addressed my comments. I agree with the other reviewer, that the small sample size and use of preliminary data should be reflected in the purpose statement as well as the abstract. As such the author should consider adding this to each purpose statement. Also, I appreciate the inclusion of the requested statistical analyses, and it would be beneficial to include a sentence about these additional findings in the text of the results, so readers can refer to the table. Otherwise, I have small specific comments for this manuscript.

Specific comments:

Abstract:

Line 33: correct to "72-hours"

Line 39: correct to "VOR tasks"

Line 67: If you are abbreviating the headshake SOT task to HS-SOT, why is "headshake" included after the task? This is confusing to the reader.

Line 132: correct to "consists"

Line 139: missing end parentheses.

Line 158-163, and 194: I appreciate the inclusion of these statistical analysis, and inclusion in the table. However, it would be beneficial of the reader to include a sentence about these additional findings in the text of the results, so they can refer to the table.

Reviewer #3: I applaud the authors in their revision, overall the manuscript now reads more concisely and clear. The terminology is now very consistent which makes it easier to understand. However, I still have a few things that need to be addressed prior to acceptance of this manuscript.

#### Abstract

Results - please state p values, or at least the range of p values

Results -line 38-39 how did they differ?

line 38-40- please state the correlation for test-retest reliability

#### Introduction

Line 67- remove headshake as isn't it implied in the HS-SOT?

Lines 103-106-this sentence needs references to show it has strong coefficients, also you need to elaborate on these studies. What is the current test-retest reliability of the mCTSIB? What was the interval for doing the reliability, ie. 72 hours? 1 week? Why did you pick 72 hours? Is this comparable to the current reliability of the mCTSIB? You cannot have a secondary purpose statement and have 2 sentences for justification. This needs to be a stand alone paragraph.

#### Methods

Line 122- what is the rational for 72 hours?

Lines 133-134- where there socks on?

Lines 142- no need to spell out VOMS again as it has already been abbreviated

Line 162- 'sore' please change to 'score'

#### Discussion

Lines 198- no need to spell out VOR again as it has already been abbreviated

Lines 231-232- at what time interval for reliability?

Lines 233-242- can you elaborate and provide a rational why this study had low reliability for the mCTSIB compared to other studies which had high reliability?

Line 263- no need to spell out VOR

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#### Author's rebuttal

Dear Dr. Murray, Editorial Office, and Reviewers,

Thank you for the review of our manuscript, JCTRes-D-19-00041R1, "Preliminary study on an added VOR visual conflict task for postural control." We have addressed each of the reviewer's comments/revisions using track changed and have provided a response to those changes below. Thank you again and we look forward to your decision.

#### Reviewers' comments:

Reviewer #1: I believe that the author appropriately addressed my comments.

I agree with the other reviewer, that the small sample size and use of preliminary data should be reflected in the purpose statement as well as the abstract. As such the author should consider adding this to each purpose statement. Also, I appreciate the inclusion of the requested statistical analyses, and it would be beneficial to include a sentence about these additional findings in the text of the results, so readers can refer to the table. Otherwise, I have small specific comments for this manuscript.

**PI Response: added preliminary study to purpose statement. Expanded on SEM and MDC results too.**

Specific comments:

Abstract:

Line 33: correct to "72-hours"

**PI Response: corrected as recommended.**

Line 39: correct to "VOR tasks"

**PI Response: corrected as recommended.**

Line 67: If you are abbreviating the headshake SOT task to HS-SOT, why is "headshake" included after the task? This is confusing to the reader.

**PI Response: deleted repetitive headshake.**

Line 132: correct to "consists"

**PI Response: corrected as recommended.**

Line 139: missing end parentheses.

**PI Response: corrected as recommended.**

Line 158-163, and 194: I appreciate the inclusion of these statistical analysis, and inclusion in the table. However, it would be beneficial of the reader to include a sentence about these additional findings in the text of the results, so they can refer to the table.

**PI Response: Added SEM and MDC interpretation to the results.**

Reviewer #3: I applaud the authors in their revision, overall the manuscript now reads more concisely and clear. The terminology is now very consistent which makes it easier to understand. However, I still have a few things that need to be addressed prior to acceptance of this manuscript.

**PI Response: Thank you. We have addressed your other comments below.**

Abstract

Results - please state p values, or at least the range of p values

**PI Response: have added p values as recommended.**

Results -line 38-39 how did they differ?

**PI Response: added that scores differed with worse scores on eyes open and improved scores on eyes closed foam conditions.**

Line 38-40- please state the correlation for test-retest reliability

**PI Response: added correlation statistics as recommended.**

Introduction

Line 67- remove headshake as isn't it implied in the HS-SOT?

**PI Response: removed repetitive headshake.**

Lines 103-106-this sentence needs references to show it has strong coefficients, also you need to elaborate on these studies. What is the current test-retest reliability of the mCTSIB? What was the interval for doing the reliability, ie. 72 hours? 1 week? Why did you pick 72 hours? Is this comparable to the current reliability of the mCTSIB? You cannot have a secondary purpose statement and have 2 sentences for justification. This needs to be a stand alone paragraph.

**PI Response: added the 72 hour as a common measurement and BESS return to baseline study for justification.**

Methods

Line 122- what is the rational for 72 hours?

**PI Response: Added 72 for justification of common measurements and BESS study**

Lines 133-134- where there socks on?

**PI Response: added that socks were removed**

Lines 142- no need to spell out VOMS again as it has already been abbreviated

**PI Response: corrected abbreviation as recommended.**

Line 162- 'sore' please change to 'score'

**PI Response: corrected as recommended.**

Discussion

Lines 198- no need to spell out VOR again as it has already been abbreviated

**PI Response: corrected abbreviation as recommended.**

Lines 231-232- at what time interval for reliability?

**PI Response: added at 3 days/72 hours.**

Lines 233-242- can you elaborate and provide a rational why this study had low reliability for the mCTSIB compared to other studies which had high reliability?

**PI Response: added our hypothesis, as no literature to yet support these findings as this was the first to compare m-CTSIB to VOR condition.**

Line 263- no need to spell out VOR

**PI Response: corrected abbreviation as recommended.**

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3<sup>rd</sup> Editorial decision

26-Mar-2020

Ref.: Ms. No. JCTRes-D-19-00041R2

Preliminary study on an added VOR visual conflict task for postural control

Journal of Clinical and Translational Research

Dear authors,

I am pleased to inform you that your manuscript has been accepted for publication in the Journal of Clinical and Translational Research.

You will receive the proofs of your article shortly, which we kindly ask you to thoroughly review for any errors.

Thank you for submitting your work to JCTR.

Kindest regards,

Nicholas G Murray, Ph.D.

Editorial Board Member

Journal of Clinical and Translational Research

Comments from the editors and reviewers:

Reviewer #1: I believe that the author appropriately addressed my comments and comments made by the other reviewer.