Author’s response to reviews

Title: Does the application of Opsite Flexigrid occlude the oxygen saturation readings in healthy individuals using the moorVMS-OXY machine?

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Response to Reviewers for JFAR publication – JFAR–D–20–0003
Does the application of Opsite flexigrid occlude the oxygen saturation readings in healthy individuals using the moorVMS-OXY machine?

Recommendations and Actions taken

Reviewer #1: An interesting study which will have some value within the field of wound healing. Thank you for the opportunity to review this. I have some comments/queries which I have listed below.

1. It is unclear of the clinical applicability of MVO or equivalent and how often this is used routinely for treating chronic wounds? More information and evidence would be appropriate. Added to Page 2, line 18, to clarify the current use. And page 3 – line 2 – 4

2. Briefly include details of the Fitzpatrick score. Included on page 5, line 1.

3. It would be better to talk about participants rather than referring to limbs. On page 6 line 9 you refer to 'limbs included did not have history of anemia, PAD previous MI, heart attack etc.' in this instance it would be best to say participants as opposed to limbs. Page 6 – ‘limbs’ changed to Participants. Document checked and changed other similar wording to match. Participant section on page 3 and 4 reworded.
4. Page 6, line 16 Twenty instead of 20 at the start of a sentence. If 20 participants were included (40 limbs) why do you mention in your discussion that 29 participants were included (5 male: 24 female). Please amend according to reflect exact participant numbers included. Paragraph structure amended and reorganised to aid clarity.

5. Line 16 page 7, it is unclear what you mean by 800 samples were collected. More details on the exact process of how this was carried out. Altered the text on Page 6 line 15 and page 6 line 3 – to clarify further.

6. The test protocol is relatively clear to follow No changes required – thank you

7. Was the experiment carried out in duplicate or triplicate? It would appear that the measurements over the 30 second period for no OF, OF and double OF includes all the data collected. The data was collected at the test site 3 times, No OF, OF and double OF. So triplicate. Text added to clarify page 6, line 3.

8. Within the study protocol, there is no details to describe the process of ensuring prevention of cross infection between healthy participants - what was the procedure for cleaning, sterilising the probe between participants when testing 'no layer of OF'. Could this procedure be used clinically already? Probe cleaning details included in Page 6 line 5 and page 8 line 1.

9. Results section line 5, all participants does not equal 29, information in the brackets should include limbs = 29 or n = number of participant, a limb isn't a participant. Clarified wording in participant section to explain how data of was obtained. Please see paragraph starting on page 4 line 19, and page 5 line 19, for a hopefully clearer explanation of the 29. Also page 9 line 4.

10. Page 10 - line 11, no need to mention 29 twice in this sentence - remove one. Sentence reworded.

11. Page 11 - line 5, grammar Altered the text

12. Figure 1 - is the purpose of this to display the average readings? I don't think this is the best way to present this as it would appear that these should be on a scale with the lines included for each limb measured Have included a box plot instead as figure 1.

13. Visually it looks like the figures always appear to move lower from 'no layer' through to two layers however on inspection of the numbers this is not always the case. Remove the use of individual lines for each limb unless this reflects the numbers present would be more appropriate. Should be addressed with the above

14. Table 1 - it is unclear what the * means, I think the symbols need to align with the current key that you have. There is a key at the bottom of the table indicating the meaning of the *
15. Figure 2: important to include the min and max values, consider the use of box plots to display this more appropriately. Box plot included as Figure 1.

16. Discussion - why would there be a need to add double OF in the first instance? If OF causes skin stripping it would seem sensible to add this to the probe instead of attaching this to the skin, effectively this would be same without the skin attachment. Text Modified to support this statement, the results show that this would have to be the case. We were trying to avoid sticking the OF to the probe just in case the adhesive, over time, causes an issue with the readings. This would be the recommendation for the results in clinical practice. See page 13 line 8.

Reviewer #2: Thank you for the opportunity to review this paper which is a cross sectional within-subject repeated measures pilot study, aiming to determine if the application of opsite tape (one or two layers) impacts on tissue oxygenation readings using a moor device. This study was in 29 limbs from 27 participants. Overall I believe this research answers an important clinical question, and was executed well, however in its current form, requires some substantial revisions in order to make it easier for the reader.
Thank you for your comments – I have included parts of your overall summary into the text.

Abstract
The abstract requires some revision in order to give a clear, concise account for the reader about the study. At present, there is a lot of information in the background, which I believe could be significantly condensed. The justification for the study should be made clearer. More information should be inserted into the methods and results, and the aims of the study should be clearly stated. The first sentence does not make sense, please review - "People who suffer have been diagnosed with peripheral arterial disease are susceptible to chronic wounds"

Abstract revised. Many thanks for your comments, they were very helpful.

Background
There are multiple instances of unnecessary capitalisation, please amend (eg Ischemia does not need a capital letter, either does peripheral arterial disease, or diabetes mellitus)
More focus on the issues around measurement should be considered as this is the argument for the study and the overall justification for the study - is there a problem with cleaning of the probe? Why would we need to use tape? Make this clearer and this will add to the strength of the study
Measuring So2 at a wound bed creates risk factors? I believe you mean "can place the patient at risk"
The aims should be made clearer (ie spelt out)….i.e. Therefore the aims of this study were….Altered capitals.

Reworded page 3.
Method
7 limbs were used to train efficient use of the MVO - what does this mean? I assume it means you were trialling the equipment and practicing the protocol? This needs to be clearly stated as such
Could you clearly state that the probe was on the plantar aspect of the 1st MTPJ? It is currently not clear and open to interpretation
Now amended and altered the wording so if hopefully clearer to the readers.

Added to page 4 line 20.
Line 35 - data was collected for 30 seconds per layer - do you mean each test condition (no tape, one layer, two layers)? Was there a rest period in between measures? Does your sensor include a heating probe?

Information about data storage is not necessary in a manuscript
"To ensure reliability, repeatability and accuracy....." It is currently not clear what exactly was done here? Could you make this clearer? And what type of accuracy?
The information about rest time and temperature controlled room requires a reference
Was the MVO protocol previously validated?
This needs a reference Yes – test condition – wording changed.
No rest between each measurement.

The sensor does not have a heating probe.
No Heating – added to the text. Page 3.
Removed.

Rewarded.


Yes it is in accordance with the manufacturers’ protocol.
Page 6. – added from user manual.
Results
You refer to "this excel graph" - please refer to as Fig 1
"therefore the evidence shows" - may be better phrased as The results of this study demonstrate that…
Amended

Amended page11 line 6.
Discussion
The discussion is very long with some information which could be condensed. The first paragraph should be reconsidered - Cleary summarise what you found, how it relates to previous research, why it is important, and clinically relevant, and then outline your limitations. I believe it is currently not clear to the reader and should be revised.
Another limitation is the use of paired data - please consider
You mention "an equal gender ratio would be beneficial because the results would be more reliable" - reliable is not the right word - I think you mean representative?

New paragraph at the start of the discussion.
Reordered the discussion section to help with clarity.
Re ordered the references to match the new section layout.

Added to the text of the discussion

Amended
Conclusion
So are you recommending the use of a single layer? What should the clinician do? Perhaps they need to clinically assess the situation and make a judgement based on your findings? - ie A single layer is going to impact on your measure, however only minutely and to the extent that it is not clinically significant? What does this study add? We now know that even one layer can impact on our measures…..should be considered carefully by the clinician taking into account the risks of use etc……

Altered the content of the conclusion to summarise more appropriately. – Thank you.
Ethics reference number should be added please The University at this time did not issue ethics reference numbers, it was approved by the School Research Ethics and Governance Panel on the 21st June 2017.

Associate Editor Comments:
Please consider removal of all non standard abbreviations. These make it difficult for the reader and impede the flow of the article. Done – Removed MVO and replaced with the full machine name.

Please also considered person centred language through out ie: People who suffer replace with People who are diagnosed.
A diagnosis does not always equate to suffering etc. Altered in the text.
Inconsistency in reference format - please check the journal guidelines and amend Checked and reordered the reference numbers, now in correct sequence in text.