Author's response to reviews

Title: Interrater and intrarater reliability of Photoplethysmography for measuring toe blood pressure and toe-brachial index in people with Diabetes Mellitus

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Interrater and intrarater reliability of photoplethysmography for measuring toe blood pressure and toe-brachial index in people with diabetes mellitus

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Please find attached the revisions of the above journal article. See below individual responses to the reviewers comments.

Editor’s comments:

The manuscript has been reformatted to align with the guidelines.
Manuscript has been formatted using standard English.
All vertical lines removed from tables.

Reviewer 1 – Keith Rome:

The paper by Romanus was sited in the initial manuscript. We have discussed this paper in particular, further in the revised manuscript. Both paper’s are indeed similar, however the machine’s used were different. IE: one automated and one manual inflation.

1. Discussed the training of the assessors more thoroughly to make clearer.

2. We initially collected the data relating to the NAFF and FHSQ with a plan to write a paper on foot care behaviours in patients with diabetes. We have subsequently removed that information from this manuscript as we wanted to keep information specifically related to toe pressures and the TBI

3. Clinical characteristics updated with more information to give a better understanding of the population

Reviewer 2 – Byron Perrin:

1. Adjusted keywords and abbreviations to meet with guidelines.

2. Standard English used and edited in revised manuscript
3. Have revised manuscript to be more explicit when talking about peripheral arterial disease in particular. This will make for easier, more clearer reading for the practitioner.

4. Adjusted

5. Adjusted

6. Adjusted

7. Have discussed in more detail throughout the article the concepts of ABI, TBI and toe pressures for those who do not have a basic level of understanding regarding these topics.

8. Have made this paragraph clearer. The term limited was in relation to reliability studies with diabetes, and the references also suggest that there is a need for further research.

9. Have tried to reword to make aim more clearer.

10. Clinical characteristics updated with more information to give a better understanding of the population

11. Removed

12. Discussed in more depth the method of operation of the Doppler as well as why we chose this Doppler in particular

13. We initially collected the data relating to the NAFF and FHSQ with a plan to write a paper on foot care behaviours in patients with diabetes. We have subsequently removed that information from this manuscript as we wanted to keep information specifically related to toe pressures and the TBI

14. Have provided more detail and discussed this in a clearer fashion to give the reader the most accurate information

15. Fleiss reference was complete.

16. Edited to make my point clearer, that the reliability results are similar to the reliability results for the general population and therefore we can now use toe pressures in the diabetic population with confidence, whereas previously it was the general population in which we could use the toe pressures on with confidence.

17. Using this paper’s reliability results then allows us to use other authors results relating to cut off’s for healing potential. This paper alone does not give us this information, but with known reliability we can use other authors reference ranges with more confidence, which then allows us to determine healing potential of a wound. We use the cut off of <30mmHg systolic toe pressure regularly with our vascular surgeons in clinic to determine healing potential. This is a widely accepted level.

18. Adjusted to include all authors.
19. This is an interesting topic relating to possible uses of the Doppler for things other than wound care and healing. This idea is similar to regular measurement of a patient's cholesterol with any given intervention. IE: the GP taking baseline bloods, than instigating a diet and exercise program for cholesterol, and assessing bloods again in 3/12. In this case the test is systolic toe pressures, and the intervention could be anything from an exercise program, anticoagulant therapy, etc etc.

20. Have made point clearer.

21. Have made point clearer. We were not interested in using a manual sphygmo instead of the automated system, but as a secondary measure of the brachial blood pressure to compare results to ensure validity.

22. Have tried to make take home message clearer.

Reviewer 3 - Magnus Löndahl:

1. “Microvascular disease” If results via ABI and Doppler ultrasound are normal, whilst the TBI or toe pressures are significantly reduced, this may indicate microvascular disease. This can be a major issue as vascular surgeon may not have any scope to improve blood flow to the periphery.

2. For intrarater reliability we analysed each assessors results between week 1 and week 2. However for interrater we assessed the results of assessor 1 Vs assessor 2 from the week 1 measures. We had to chose which week would analyse the results for interrater reliability, and chose prior to running SPSS. After determining the results, we actually went back and ran the same query for week 2 results and found them to be slightly higher reliability, however we had already chosen to use week 1’s results and therefore did not change any of the results.