Author's response to reviews

Title: Evaluation of the accuracy of shoe fitting in older people using three-dimensional foot scanning

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Author's response to reviews: see over
REFEREE 1

You do describe this study as part of a larger trial which you reference. The detail about the trial I think can be removed ie 'Briefly, the trial is a two-group randomised controlled trial design with a 16-week follow-up period, with participants randomly allocated to either a “usual care” control group or the intervention group' or alternatively describe what the usual care and the intervention are and then that the intervention was the Dr Comfort shoes (or is this the usual care?) Anyhow this was a little confusing and just needs a minor amend for clarification.

RESPONSE: Although a full description of the trial is provided in the cited protocol paper (reference #13), we feel it is necessary to provide some detail within the manuscript to provide the reader with an understanding of the context in which the footwear fitting study was undertaken. Therefore, we would prefer to add some detail rather than remove it. In response to the referee’s suggestion, we have added the following:

“Briefly, the trial is a two-group randomised controlled trial design with a 16-week follow-up period, with participants randomly allocated to either a “usual care” control group or the intervention group. Both the control and intervention groups continued to receive usual podiatry care for the study period. This typically involved regular (every 6 to 8 weeks) toenail maintenance and scalpel debridement of keratotic lesions (corns and calluses). In addition, the intervention group was provided with off-the-shelf footwear at the baseline assessment, and data obtained from this group form the basis of the current study.”

Also, there needs to be a clearer message for clinical practice within the discussion. It is alluded to in respect of footwear fit (and some mention of patient choice for longer shoes). Maybe the message is around the tools (whether the Brannock device or scanning) and that these offer a guide to fit but patient preferences can be taken into account if we are to achieve the patient focussed outcomes that we wish for (Art and science!).

RESPONSE: We have changed the concluding paragraph to reflect the implications of our findings as follows:

“In conclusion, this study has shown that shoe size selection in older people using the Brannock device® combined with participant feedback resulted in the allocation of Dr Comfort® shoes with last dimensions that were well matched to the dimensions of the foot determined by a high resolution 3D foot scanner. There are two main implications of these findings. Firstly, in the context of the randomised controlled trial, we can be confident that the protocol used resulted in the provision of appropriately-fitting shoes to the intervention group. However, the longer term follow-up of these participants will assist in determining whether this approach is effective at reducing foot pain. Secondly, in the broader context of clinical practice, our findings suggest that the Brannock device® is a useful clinical tool, but optimum shoe size selection in this age-group may need to take into account a range of factors specific to the individual in addition to accurate measurement of foot dimensions.”
REFEREE 2

Minor discretionary changes suggested in manuscript file:

Background

This reference is to a comment made by Rossi which was based on his experience in the industry and not published research. It is also likely that Rossi’s comment was contextual (i.e. he may very well have been basing this comment on footwear selection in typical/particular settings). As such the authors should consider toning down this comment to something on the lines of ”It has been suggested that shoe selection may be based on aesthetic considerations” etc

RESPONSE: As requested, this has been changed to: “It has been suggested that shoe selection may be primarily based on aesthetic considerations, many of which are incompatible with the optimal function of the foot”.

Participants

Given the International nature of JFAR the use of a footnote to explain what a DVA Gold Card client is would be helpful to the non-Australian readership

RESPONSE: DVA Gold Card clients are eligible for treatment for all their health care needs at DVA’s expense. This has been changed to:

“…be a current DVA Gold Card client (eligible for treatment of all their health care needs covered by the DVA) but not eligible for medical grade footwear”.

Shoe fitting procedure

I see from the photos provided that the Brannock device used is that of the Dr Comfort company. As there are various different types of Brannock device available it would be helpful to specify that this sub-category of Brannock was the one used.

RESPONSE: This has been changed to: “Two trained research assistants (MA and SR) determined each participant’s shoe size with a Brannock device® [14] labelled with Dr Comfort® sizings using a standardised procedure [21]”.

Does this mean an average of one heel-to-toe and one heel-to-ball measurement or an average of several measurements of each? While I think this is the former it would be helpful to clarify this for the reader.

RESPONSE: This was an average of a single measurement of each parameter. To clarify this, the wording of this section has been changed to: “An average of one heel-to-toe measurement and one heel-to-ball measurement was taken to determine the ball width”.

Discussion

Is there also something to be considered here about the fact that the Brannock device measures linear width only (with inherent assumptions about the girth of the shoe being fitted to a foot of that recorded width) whereas the style of the shoe may not necessarily reflect those assumptions re: girth? Perhaps this could be considered briefly by the authors here.
Had a non-Dr Comfort Brannock been used it would also have been possible that the length indicated by the Brannock (which reflects length requirements according to Brannock) may have differed from the length given by the manufacturer given that shoe size can vary by manufacturer? The authors could perhaps briefly mention this to show to readers why this had not been a consideration here.

This is a very important point that should be emphasised. There is also the matter of given sizes differing according to manufacturer which links to this consideration and should be included by the authors.

RESPONSE: We have addressed the above three comments by providing a more detailed discussion of this issue in the limitations paragraph, which now reads:

“Finally, these findings may not be generalisable to other footwear brands, as (i) we used a Brannock device® marked with sizings specific to the Dr Comfort® range, and (ii) the Brannock device® only measures linear ball width, so it cannot be assumed that the appropriate fitting of ball girth obtained in this study would necessarily translate to other shoes, as the relationship between ball width and girth is not standardised.”

Last paragraph: suggest ‘prescribed’ or ‘provided with’

RESPONSE: As the concluding paragraph has been altered in response to a suggestion from Referee #1, this change is no longer required.