Author's response to reviews

**Title:** A comparison of various types and thicknesses of adhesive felt padding materials in the reduction of peak plantar pressure of the foot. A case study.

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**Author's response to reviews:** see over
Covering letter in response to reviewer’s comments.

A comparison of various types and thicknesses of adhesive felt padding materials in the reduction of peak plantar pressure of the foot. A case study.

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Version 3 July 2015

Reviewer 1 Healey

Reviewer

Case presentation paragraph 4:
The authors’ state a treadmill was used to determine walking pace, however it is unclear if the measurements were recorded on the treadmill or over ground. I assume the measurements were completed on a treadmill but clarify in the text where the measurement were recorded.

Author response

Case presentation paragraph 4

The treadmill was used to measure to determine walking pace and the readings were taken on it and this is now written in this section of the manuscript.

Reviewer

Additional information is required to describe how the metatarsal area was defined in the Tekscan software by the authors.

Author response

Case presentation paragraph 5

Explanation written into manuscript as to how metatarsal heads were defined.

Reviewer

It is unclear if all 75 readings per foot for each felt were used in the pressure analysis to determine the mean peak pressure value, confirmation on this is required in the text.

Author response

Acknowledgement in the manuscript and figure 3 about how the 75 readings were used to analyse the data.
Reviewer comment

Statistical analysis:
There is incorrect use of statistics in the manuscript. It is not valid to complete t-test and ANOVA statistics on a sample size of one, and these statistics should be removed from the manuscript. For this case study I suggest reporting means and standard deviations for the mean peak pressure of the different felt conditions and percentage change in mean peak pressures from the control condition. The statistical analysis section will then need to be rewritten.

Author response

Statistical analysis
This has been analysed as means and standard deviations as suggested and the section re-written.

Discussion

The discussion will need to be rewritten following the removal of the t-test and ANOVA statistical analyses. While the authors have provided valuable information on the effectiveness of felt padding in pressure redistribution on first application I think it is important that they point out that the present study was not a longitudinal study and that no information is available at present to suggest how long the felt padding will be effective in pressure redistribution and how often the padding should be changed. There is no reference to Figure 4 within the manuscript, I suggest either providing information within the manuscript to justify its inclusion or to remove it from the manuscript

The discussion has been re-written following the change in statistical analysis.
Figure 4 has been totally changed with the revision in statistics.
Reviewer 1 – also requested we do the following

“I believe that these conclusions are not justified unless there is a full assessment of the peak plantar pressures at and on the periphery of the cut out on the felt padding. This is necessary to establish if the cut out is increasing peak pressures in the periphery, as potential harmful increases in peak pressures at the periphery of cut outs have been found in previous research (Paton and colleagues).”

To this end, we have run through one cycle of 7mm felt (14 data points). We used a box across the whole metatarsal area and boxed each periphery of the cut out.

Above you can see an example illustrating the different boxes (pink, blue, red) used to analyse the periphery and our original box (green) (Please see attached word document to see the whole run)

For this run the box across the whole metatarsal region (as expected) produces the highest peak pressure. All sensor points, including those on the periphery of the cut out, are included. Analysing this section separately has no effect on our numerical data outcome.
Minor issues not for publication:

Case presentation paragraph 4: “The Shoes were of a flat slip on type” – change Shoes to shoes.

Changed

Case presentation paragraph 5: Change “…act as controls.” To “…act as a control.”

Changed

Discussion Line 1: Remove “at all” from the end of the sentence.

Changed

Discussion: The discussion should be written in the past tense.

Changed

Reviewer 2-Martinez

Reviewer comment

The authors have written an interesting case for a sometimes forgotten issue, especially transcendent in diabetic foot offloading. The manuscript was written very well, clear and concise. However I think some reflection should be included as limitation of the study. The peak plantar pressure was measured immediately after its application, but it would be interesting some discussion about how the felt is decreasing during its use, and for this reason the effect might not be the same after 24-48 or 72 hours using it. Therefore this could have some influence in offloading effect and by the way in the therapeutics effects, especially in patients with diabetic foot ulcer. Another concerns is regarding the increasing of the pressure after using 5 mm of felt in the right foot. The authors should be explaining better this matter.

Author response.

Mentioned in the discussion how another study could look at the effect longer term. In fact that study is currently been undertaken.

Explanation provided in the discussion for the increase in pressure on the right foot for 5mm soft felt.