

**Author's response to reviews**

**Title:**A consensus definition and rating scale for minimalist shoes

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**Author's response to reviews:** see over

## Reviewer 1

No revisions suggested.

## Reviewer 2

*This paper presents a series of studies that validate a scale for rating the structure of minimalist-style running shoes. The work presented is comprehensive and the authors have done well to condense the information into a single paper. Reflecting on my comments below, the key issue is that there are several instances where the authors speculate, unnecessarily, about the effects of minimalist footwear. This gives the impression of prevailing bias toward the use and importance of minimalist shoes. I am left wondering if members of the research team are strong minimalist/barefoot running advocates or have commercial/clinical agenda. If so, this should be declared/explained in the conflict of interest statement. Irrespective, the authors need to revise the paper, (particularly the introduction), to restore balance. For example, I am a podiatrist without a conscious preference for barefoot or traditional running shoes. However, I develop educational material for an orthotic laboratory, which one could argue might induce preferential bias against minimalist shoes or indeed this paper. So I declare this as a potential conflict of interest.*

We thank the Reviewer for his comments. As outlined below, modifications were made to the manuscript to maintain neutrality in some parts of the text. These statements were not originally meant to “favor” minimalist over traditional shoes. We would like to emphasize, however, that all authors of this manuscript have absolutely no conflict of interest relative to funding, salary or gifts from footwear companies, should they be pro-minimalist or pro-maximalist. JFE is a physiotherapist who is pursuing PhD studies related to the prevention and treatment of running injuries. He and BD work as clinicians specialised with a clientele of runners, and both teach continuing education courses relative to the best practice with regards to prevention and treatment of running injuries. In their courses, although less structured shoes are recommended more often, detailed recommendations regarding footwear are given, and both minimalist and traditional footwear are part of these recommendations depending on the location of the injury, acute vs. chronic phase, experience of runners, etc. Since there is no black or white, but rather several shades of grey in running shoe categories, they felt the need to perform this study so that a rating scale can be created. The goal of the Minimalist Index is to provide clearer clinical recommendations about footwear and transition times (to minimise injury risk) as well as to improve research on running shoes. CED and JSR are full-time faculty at Laval University, and do not have any conflict of interest either. Based on these arguments, and the absence of a “commercial / clinical agenda”, we decided not to report any conflict of interest.

## **Major Compulsory Revisions**

*General comments:*

*1. First sentence of background. ‘might have a possible influence’ is two ‘maybes’. This sets the paper up as being speculative from the start.*

This error was corrected. The sentence was modified as follows: “While minimalist running shoes **may** have an influence on running biomechanics and on the **incidence** of overuse injuries, the term “minimalist” is currently used without standardisation.”

2. Line 69 [**Line 49**] – ‘weight and stack height – should read ‘low weight and stack height’?

This sentence is the definition as it was accepted by the panel. No modification was made.

3. Line 52-53 seems to repeat the quoted text in lines 48-50.

The sentence running from lines 48-50 represents the definition as it was agreed by the panel. The characteristics to be included within the Minimalist Index (**lines 50-51**) certainly reflect the definition, but we feel that they need to be mentioned to differentiate between study results about the definition and about the rating scale. Therefore, no modification was made.

4. Line 57. What is ‘market use’

“Market use” was replaced by “clinical recommendations”.

5. Line 58-59. ‘May have [**help**] to decrease injuries related to footwear transition’ – this statement is too speculative and doesn’t really make sense as stated (without explanation in the conclusion).

One of the objectives of the Minimalist Index is to provide runners with guidance when selecting their running footwear. The creation of the scale was the first step; future research should study the effects of transition times depending on rating changes on the incidence of injuries. We feel that this point should be included within the manuscript, especially because the paper will be open-access and available to the general public. Therefore, the following sentence was added to the discussion: “Although more evidence is needed to establish guidelines, it could be reasonably hypothesised that transitioning from shoes rated 10% to others rated 30% within one month is more likely to be safer than switching to shoes rated 80% within the same timeframe.”

## *Introduction*

6. Line 84. ‘Such disparities are certainly related to different shoe models’ — this is a **BIG** statement, suggesting that the lack of consistent findings are clearly related to variations in shoe structure.

From a clinical point of view, the incidence (and location) of injuries can be very different when transitioning from cushioned shoes to either Vibram FiveFingers or Nike Free. We agree that the use of “certainly related” was suboptimal. The sentence was modified as follows: “Such disparities may be related to the different shoe models that have been utilised, some of which are closer to barefoot than others”.

7. Lines 72-76 of the introduction is a little bias toward the minimalist concept and would be seen to be provocative to readers who are pro-traditional running shoes. I completely understand the authors’ responsibility here is to tell a story and provide a compelling case for the study. Line 73 ‘hypothetically result in injury risk’ is a weak argument to make and unnecessary.

We removed the last statement: “which could hypothetically result in increased injury risk”.

## Conclusion

*8. Line 59 - the comment 'may help to decrease injuries related to footwear transition' is a new concept not discussed elsewhere (i.e. discussion). It is only raised in the conclusion of the abstract and the main conclusion of the paper. If this authors wish for this to be a key message for the reader to take away from the paper, then further discussion and explanation is required. My feeling is that the content in this paper is unlikely to provide evidence to support this statement.*

The concept of safer transition is introduced early in the paper: “The term "minimalist" is currently used in the literature and on the shoe market without standardisation. Furthermore, no rating scale is available to state potential differences between different types of running shoes a runner seeking to buy new shoes can relate on a difference in MI score to guide his transition, and adjust training accordingly so that injury risk is minimised [32, 33]”

A sentence was added to the discussion regarding this point. Please see answer to comment #5 above.