Reviewer’s report

Title: Etiological Factors in Hallux Valgus, a Three-dimensional Analysis of the First Metatarsal

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Reviewer: Mark Gilheany

Reviewer's report:

I found this article very stimulating. The investigation and its results are of significance both clinically and academically to the undertraining of a complex condition. The limitations are well identified and these should lead to further investigations.

I have one area of clarification that I would like the authors to assist with.

The section on "radiographic evaluation" as currently written I found somewhat confusing.

The text "The torsional angle of the 1MT 130 is positive for eversion, i.e., the 1MT articular surface of the head faces externally with" in respect to the base of the 1MT (Fig. 1-c)" seems to describe a rotation of the cartilage in the transverse plane such as would be seen with an increase in PASA, yet the study results and conclusions focus on torsional rotation in the metatarsal shaft.

This confusion appears again in line 154 "However, the present study clarified that the 1MT is not only rotated, but is also twisted, in the HV group" again suggesting two rotations have been measured.

Can the authors please clarify this.

In addition I would suggest that a review of the language used would be worthwhile.

EG

1. Title might be worded more simply such as - Etiological factors in Hallux Valgus, a Three dimensional Analysis of the First Metatarsal.

2. The following line should be reworded - the medial arch is not the cause of ground reaction force. Line 77 - The first ray bears a large magnitude of ground reaction force during locomotion due to the presence of the medial longitudinal arch.

3. Line 87 Planar should be replaced by plain?

4. Line 109 The words "It was confirmed that" are not necessary from a grammatical perspective.
5. Line 123 "planto dorsal;" - is this correct?

6. Line 199 the word "the" should be added as second word in sentence.

There are further examples of such grammatical areas, as such and indicated above a through review of grammar is recommended.

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