Reviewer's report

Title: Stress and Stability Comparison between Different Systems for High Tibial Osteotomies

Version: 3 Date: 21 February 2013

Reviewer: Thomas Gardner

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General Comments to Authors
The authors have addressed most of the concerns raised for the first manuscript. Several new minor grammatical errors exist throughout the paper, which have been noted in the Minor Essential Revisions. The stress maps are a welcome addition to the paper. The idealized clinical relevance of the findings of the study are meaningful, but the actual clinical relevance is somewhat limited by basing all the simulations on a healthy individual rather than performing several sets of simulations on pre-surgical CTs of actual patients. The addition of the “limitations” paragraph to the Discussion section is also welcome.

Minor Essential Revisions

Abstract
line 44: change “medial opening was” to “medial opening is”
line 29: change “two-leg system was” to two-leg system is”

Background
line 56: change “have been” to “has been”
line 66: change “construct especially” to “construct, especially”
line 68: change "system was the one-leg design that the knee loads were transferred” to “system is a one-leg design such that the knee loads are transferred”
line 69: change “through a single and straight” to “through a single straight”
line 77: change “current authors hypothesized that” to “authors hypothesize that”
line 82: change “were discussed” to “were examined”
line 83: change “The outcome can provide” to “The outcome of this study provides”

Materials and Methods
line 104: change “opening at” to “opening in”
line 122: change “criterion for delimiting adherence from friction, and the friction coefficient was assumed to be 0.3” to “criterion, ignoring any friction from adherence with the friction coefficient assumed to be 0.3.”
lines 141 and 142: change “At the tibial bottom, the ...” to “The degrees-of-freedom of the nodes are totally fixed at the distal end of the tibia.”

Results

general questions:

a) how do stresses compare between locking and non-locking screws in the screws, the plate and the underlying bone? - good

b) why are there no figures showing the stress distributions in the plates? - good

c) how did the shear stresses compared between the different constructs? – I agree that the von Mises stress is of most importance for this study, with the Tresca stress of lesser importance. If the authors do not wish to include the Tresca stress as well as the von Mises stress, nothing of importance is left out.

Discussion

line 243: change “due to” to “due to the”

line 259: change “partially weighted by using the” to “partially loaded by using a”

line 262: change “viewpoints” to “viewpoint”

line 265: change “involved” to “involves”

line 268: change “However, the surgical” to “However, surgical”

line 269: change to “for the plate placement was” to “for plate placement is”

line 271: change “stability was” to “stability is”

Figure Captions

line 402: change “usedin” to “used in”

line 410: change “onto” to “on”

line 417: change “develops” to “develop”

Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Needs some language corrections before being published

Statistical review: No, the manuscript does not need to be seen by a statistician.

Declaration of competing interests:

I declare that I have no competing interests in the review of this manuscript.