Reviewer’s report

Title: Influence of bi- and tri-compartmental knee arthroplasty on the kinematics of the knee joint

Version: 2 Date: 23 November 2010

Reviewer: Denis Brunt

Reviewer’s report:

This cadaver study investigated knee kinematics during progressive loading in different simulated surgeries. In general the paper is well written and organized. Please consider the following comments to improve the manuscript.

Abstract

It is unclear as to what you mean by muscle-loaded flexions. Can this be rephrased.

Background

Is there another term for leg-axies. axies is incorrect spelling.

ACL does not need to appear in parenthesis both in the abstract and text.

Are there previous data to show that the cadaveric knee actually simulates normal knee motion. It seems some data should be presented to show this.

Methods

How do the actuators generate motions of the muscles. Surely it is the motion of the tibia as determined by muscle forces. The meaning of muscle movement, which occurs later, is also unclear.

Should be unconstrained not ‘unconstraint’ tibiofemoral movements.

Would not motion of the hip move the knee from 15 to 90 degrees and not 90 to 15.

Do you need both Figure 1 and 2. One could easily use just Figure 2 but with improved labeling of the actuators and tendons.

How figure 3 is referenced in the text is different from the caption. For example, the figure does not show soft tissue balancing.

Is there a reason you chose 10Hz. Granted motion was only 1 deg/s

Results

Figures 4 and 5 need improvement. How they were presented to the reviewers is inappropriate. Error bars need to be changed so that they do not overlap. If this is
not possible then an alternative way of showing variability should be explored.

Discussion

How reasonable is it to compare cadaver studies for translation to in vivo data as you do in the second paragraph of the discussion. Should there be discussion as to why you found differences as you do with internal rotation and also alluded to in limitations. See comment in background

**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