Reviewer’s report

Title: Dynamic 3D computed tomography for non-invasive identification of femoroacetabular impingement: cadaver validation study

Version: 2 Date: 11 October 2014

Reviewer: C Meskers

Reviewer’s report:

The paper describes a straightforward study into assessment of impingement of the hip joint. A number of issues need to be clarified.

1) As I understand correctly, a method of ROM assessment based on CT scans is validated against ROM assessment in vivo as the gold standard. I can imagine it is the other way around, i.e. that ROM assessment by the software is more accurate than ROM assessment in vivo: manipulation of the joint may introduce variability as well as that the accuracy of the motion tracking system is lower than that of image processing software? This requires a further specification of the research question: what exactly is the problem that is being addressed. Did the authors assess repeatability of the measurements? The authors should at least elaborate on this issue.

2) In order to judge the possible weak points in the software algorithm, more details on the way the software determines ROM is required. Was there really a concern and is this solved now?

3) The ROM is assessed by the software algorithm with the K-wires in situ. Would accuracy be different if these were absent (as is within real life)?

4) In real life, ROM is not compared between no cam deformity and cam deformity. Can the authors elaborate on the applicability of the software algorithm in real life?

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

Quality of written English: Acceptable

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

No conflicts of interest