Reviewer's report

Title: The reliability of three-dimensional scapular attitudes in healthy people and people with shoulder impingement syndrome.

Version: 1 Date: 16 January 2007

Reviewer: Joseph B Myers

Reviewer's report:

General

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)

Abstract Methods:
Humeral position is reported as 70 degrees of flexion and 90 degrees of abduction. Is this terminology consistent with ISB recommendation? Rather these humerothoracic motions should be stated as amount of elevation, plane of elevation, and axial rotation.

Abstract Results:
I would include the range of ICC and SEMs for all of your measures and sessions, not just intersession.

Background
The authors may want to consider being more specific with the term shoulder impingement. Impingement can be subacromial (primary or secondary) or could pathologic internal impingement. Both subacromial and internal impingement have been shown to have altered scapular kinematics.

Please check the references for the statement “Some authors reported …shoulders with impingement … less posterior tilting [2-4, 6] … lateral rotation [3-4] … It is my impression that reference #3 (Borstad) did not examine shoulders with impingement in this paper.

Methods
Study Design Section
Same comment related to ISB recommendations as above. Is flexion and abduction ISB recommended terminology.

Measurements
How were landmarks digitized? Specifically, some of those landmarks are large and rounded. How was site selection on those landmarks standardized?

In general, a picture of the methods would be helpful. It was difficult to visualize what was being performed until I referred to reference #11 Hebert. Rather then have readers rely on obtaining your previous work, please provide all of the details of the methods and include a figure to illustrate. Please remember that some readers may not have access to reference #11.

Page 9, 2nd paragraph
Please comment on the more than 45 degree differences in L-MR between your methods and ISB recommendations. Will this pose a problem with measurement, interpretation and comparisons with other literature that follows ISB recommendations?

Data Analysis
What ICC models are being used -- (1,1),(1,k),(2,1),(2,k),(3,1),(3,k)? Please provide this information.

Results
I would suggest including a table with all ICCs that were calculated. It is difficult to evaluate the ICCs from the figures alone.

Discretionary Revisions (which the author can choose to ignore)

**What next?:** Accept after minor essential revisions

**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:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.

Joseph Myers