Reviewer's report

Title: How Does Scapula Motion Change after Reverse Total Shoulder Arthroplasty?

Version: 1 Date: 3 February 2012

Reviewer: Peter Rundquist

Reviewer's report:

The effects of RTSA on scapular kinematics is an interesting topic. I have several concerns with your manuscript in its current state.

Major Compulsory Revisions

Abstract

1. Page 3, line 56 – You have not measured muscle fatigue. Preventing periscapular muscle fatigue is likely beyond the scope of your manuscript.

Methods

2. Page 5, line 84 – Why 7 participants?

3. Page 5, line 85 – Are your participants representative of the RTSR population (age, gender distribution)?

4. Page 5, line 89 – You should define “…pseudoparalysis with cuff tear arthropathy…”

5. Page 6, line 112 – Has the technique you outlined been used previously? How accurate is it? How does it compare to other potential techniques (electromagnetic, goniometry, video)?

Results

6. Page 6, lines 121-124 – Why are you using these tools? The rationale should be outlined either in the Background or Methods section. Are the changes in scores of the various tools clinically significant? What are the psychometrics of the KSS?

7. Page 6, lines 125-126 – SHR is the ratio between humerus to scapula to scapula to trunk motion. A higher value indicates a larger humerus not a larger scapula contribution.

Discussion

8. Page 8, lines 159-160 – I believe your interpretation is backward. An increase in SHR would indicate an increase in the humerus component.

9. Page 9, line 182 – Yano's interpretation of SHR is opposite of what you have
discussed.

10. Page 8, line 167 – As you did not measure muscle activity, it may be inappropriate to discuss periscapular muscle fatigue.

Minor Essential Revisions

Abstract

11. Page 2, lines 36-39 – It is unclear whether you are investigating scapular position or motion.

12. Page 2, lines 40 and 54 – You should define the acronym (RTSA) here. Additionally, be consistent with your use of either reverse total shoulder replacement (RTSR) or reverse total shoulder arthroplasty (RTSA).

Background

13. Page 4, line 63 – There have been several more recent studies of SHR than Inman’s. Utilizing a more recent citation would be appropriate.

14. Page 4, lines 71-72 – This statement is essentially your hypothesis. If the amount of biomechanical change is already known, there would be no need for your investigation.

Methods

15. Page 4, line 83 – For the purposes of this manuscript, the appropriate term would be participants rather than patients.

16. Page 4, line 92-107 – This may be more descriptive than necessary. Do the specifics of surgical technique impact the kinematics?

17. Page 6, line 110 – Why was passive external rotation initially avoided?

Results

18. Page 6, lines 127-143 – Could this information be summarized in a table? Could scapula motion around the other planes (rotation and tipping) affect your results?

Discussion

19. Page 7, line 147 – This is your first mention of the other 2 planes of scapular motion. Are they important?

20. Page 9, line 188 – “…not internal, external rotation…” implies they are around different axes.

References

21. Check your references. Reference 1 appears to be incomplete.

Discretionary Revisions
Background

22. An outline of the progression toward and rationale for performing a RTSR would be a useful addition to your background.

Discussion

23. This appears to be a pilot study. Do you have any recommendations on how this research could progress?

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.