Reviewer's report

Title: The impact of subacromial impingement syndrome on muscle activity patterns of the shoulder complex: a systematic review of electromyographic studies

Version: 2 Date: 30 November 2009

Reviewer: Karen Søgaard

Reviewer's report:

This is a focused and systematic literature review on a topic mainly relevant for physiotherapy treatment of Neck shoulder pain and disorder.

Major Compulsory revision
In the method should be stated how decisions were made regarding which studies to contact authors for including individual data. And maybe this should also be in Figure 1. This part of the study is not mentioned at all in the method section.

Minor essential:
The limitation of the EMG variables that relate to the lack of standardized normalization should be outlined more clearly as a limitation. Further it would be a help if this could be discussed in relation to the findings in specific studies. Could this explained opposite findings or the general results of lower activation? If MVC is decreased in the patients this will bias the normalized data towards higher relative values even though the same absolute activation is required for an external load. Also the issue of calculating external load and how the weight of the arm is is handled is essential; if MVC is low then just lifting the arm will give a higher relative load. This also relate to the timing of activation, how is onset defined? Is it based on a relative threshold or an absolute level of activation?

Discussion should be shorter, more focused on the limitations of the EMG variables in the studies that may explain the findings or make interpretation impossible. Parts that could be omitting are the pain adaptation model in the upper part of page 11 (since no longitudinal studies were found) and the pain inhibition only referencing low back studies (bottom page 11).

Be consistent with terminology, the result of reflex response mentioned in discussion on page 10 is not mentioned in the results but may relate to the response time?

Discretionary Revisions
Part of the discussion would serve better as background for doing the literature search.
Level of interest: An article whose findings are important to those with closely related research interests

Quality of written English: Acceptable

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' below