Reviewer's report

Title: Differences in the pectoralis minor length test in subjects with and without symptoms: a study of intra-rater reliability and validity.

Version: 1 Date: 2 May 2007

Reviewer: Andrea Bialocerkowski

Reviewer's report:

General
This manuscript evaluated the intra-rater reliability and diagnostic accuracy of the pectoralis minor length test, a frequently-used physical measure for shoulder disorders. The authors found that although this test was highly reliable for one examiner, it has poor diagnostic accuracy when compared with Sahrmann’s recommendations. Based on these results, they recommend that the result of the pectoralis minor length test should be interpreted with caution. This manuscript is of interest to the readership of BMC Musculoskeletal Disorders. It was a pleasure to read as it was well written. I encourage the authors to consider the comments listed below to increase the quality of their work.

Major Compulsory Revisions (that the author must respond to before a decision on publication can be reached)
1. The questions posed by the authors are new and well defined. However, to place in context the importance of reliability, a couple of sentences should be added to the introduction which state why reliability is important to assess and the implications for clinical practice. This information should be balanced with the information regarding diagnostic accuracy. The information regarding diagnostic accuracy in the introduction is very lengthy. It should be reduced by transferring some information to the methods section and incorporating the formulae into Table 7 or 8.
2. The methods were appropriate and generally well described. Three minor issues need to be clarified:
   o Inclusion criteria: Define “area of the shoulder”
   o Starting position: Did the subjects hold their arms in the neural glenohumeral rotation or did their forearms rest against their abdomen and therefore their glenohumeral joint would be in internal rotation?
   o Measurement instrument: Was there any bend in the plastic right angle? If so, this should be acknowledged as a limitation of the study in the Discussion
3. The statistical analyses section requires revision
   o This section was incomplete. For example, the comparison of reliability between the first measurement and the mean of three measurements was not detailed in this section
   o The ICC model used also requires further consideration. ICC (3,1) was used. This means that the results were derived from one measurement and are not generalisable to other clinicians with similar skills. First, was the assessor representative of therapists who would undertake this measurement? If so, then model 2 should be used. This may yield a more conservative ICC but it would be generalisable to all therapists with similar characteristics. Model 2 may be more appropriate for this study as you could demonstrate that the pectoralis minor length test has broad application as a measurement tool. Second, two types of ICCs were calculated: for a single measurement and the mean of three measurements. Therefore, two different models should be used. If model 3 is used, then the ICC from one measurement would be ICC(3,1) and the ICC from the mean of three measurements would be ICC (3,3). Portney and Watkins (2000), page 562, provides a detailed explanation regarding ICC models.
4. The data provided has been organized well into a series of tables but very little explanation is provided in the text. A brief summary to the key features of each table, ie the reliability, sensitivity, specificity and likelihood ratios, would be greatly beneficial
5. The Discussion is very detailed and lengthy. Seven paragraphs have been devoted to detailing the results of other relevant studies. This information should be reduced substantially, perhaps by summarizing the results of previous studies in a table and discussing them in relation to the findings gained in this study

Reference

Minor Essential Revisions (such as missing labels on figures, or the wrong use of a term, which the author can be trusted to correct)
1. Keep terms consistent throughout the manuscript with respect to the type of reliability evaluated: intra-rater versus intra observer
2. Methods: Did subjects have unilateral shoulder symptoms? If so, this should be added
3. Results: the first sentenced does not make sense and should be revised. In the third sentence the term “categories” should be changed to “diagnoses”
4. Discussion: fifth paragraph, line 7, the term “investigating” should be changed to “investigation”
5. Discussion, fifteenth paragraph, third line, the phrase “category of pathology” should be changed to “type of pathology”
6. Tables: Table 8 comes before Table 7. Therefore these tables should be renumbered

Discretionary Revisions (which the author can choose to ignore)
1. Consider revising the title. “Pectoralis minor length in subjects with and without shoulder symptoms: a study of intra-rater reliability and diagnostic accuracy” or “The intra-rater reliability and diagnostic accuracy of the pectoralis minor length test”
2. A photograph showing the measurement method would add clarity to the explanation provided in the text

What next?: Unable to decide on acceptance or rejection until the authors have responded to the major compulsory revisions

Level of interest: An article of importance in its field

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 not completing interests