Reviewer's report

Title: Effect of Head and Limb Orientation on Trunk Muscle Activation During Abdominal Hollowing in Chronic Low Back Pain

Version: 2 Date: 2 October 2013

Reviewer: Birthe Thomsen

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Major Compulsory Revisions:

1. Apparently, different inclusion/exclusion criteria have been applied to the two groups. If this is correct, then it is a very severe problem and invalidates any conclusion regarding an effect of the intervention.

2. Factors used for matching must be included as potential confounders in the analyses. Otherwise, bias may have been introduced by the design.

3. The "novel approach" corresponds to using 50% confidence intervals instead of 95% confidence intervals. This corresponds to having a 50% chance of a Type 1 error, that is, falsely concluding that there is a substantial effect, when there is no true substantial effect. I believe that a Type 1 error rate of 50% is too large. Therefore, this "novel approach" should not be considered relevant unless the 95% confidence interval does not cover 0, and should then only be used as supplementary information in relation to defining the difference as "worthwhile".

4. How are the effects "standardized"? It should be specified which data are used to derive the standard deviation (SD) used in the standardization. Is it the control group in the current study? Or have the two groups been combined in some way? Or did the authors use some external standardization? Since the authors put quite a lot of emphasis on the specific size of the standardized effect, it is important to know which population the standardization refers to. Different choices of data/population can lead to quite different SDs.

5. The statistical model/analysis must be described. Did the authors apply standard analysis of variance techniques to the "standardized", but otherwise untransformed, measurements?

6. In general, all ratios should be log-transformed before analyzed using standard, normal distribution based techniques, since ratios are highly likely to be very skewed distributed. Considering the small sample size, this may be very important. The results (including the confidence limits) should be back-transformed afterwards and presented either as the ratio CLBP/control or as the % difference= (CLBP/control - 1)*100%.

Minor Essential Revisions:
7. To facilitate the interpretation of the results, please always present the effects using the control group as the reference group. Thus, higher values in the CLBP group compared to the control group should be presented as positive numbers, and lower values in the CLBP group compared to the control group should be presented as negative numbers. Right now the results are presented one way in Figure 2 and the other way round in Figure 3.

Declaration of competing interests:

I declare that I have no competing interests.