Reviewer’s report

Title: The effect of continuous ultrasound on chronic non-specific low back pain: A single blind sham-controlled randomized trial

Version: 2 Date: 26 March 2012

Reviewer: Gráinne Kelly

Reviewer’s report:

Minor Essential Revisions:
This manuscript reports on a study investigating ‘the effect of continuous ultrasound on chronic non-specific low back pain’. The authors have clearly, and adequately addressed the study aims and need for such research. Overall the manuscript is clear, logical and well thought out. Some aspects of the methodology require more detail and clarification. The discussion lacks some depth of thought in relating previous research to the current findings.

General comments:
The manuscript would benefit enormously from proof-reading as there are quite a considerable number of punctuation and character spacing errors throughout, with too many errors to comment on here e.g. are spacing between words and punctuation marks, brackets, and can spacing between separate words. Also consideration should be given to the ‘tense’ in which each section of the manuscript is written, in general past-tense for abstract, methods, results, discussion.

Abstract:
Results section (final sentence): spelling of lumbar not lumber, also please check throughout manuscript.

Conclusion: The authors conclude that ‘larger trials are needed to confirm the results’, both here and in the discussion section of the manuscript. A revision of this statement is perhaps needed, as it raises the question ‘would differences between groups be seen, even with larger number, and also based on the authors pre study powering?’.

Introduction:
Second paragraph commencing ‘specific back pain’ – could the authors remove the words ‘no more than’, to improve sentence structure. Also no reference is included for this statement, could the authors address this.

Third paragraph commencing ‘non-pharmacological’ – could the authors include a reference(s) for this sentence and the subsequent sentence commencing ‘therapeutic ultrasound’. Within the same paragraph the authors state that ‘none of the international guidelines have recommended ultrasound for the treatment of non-specific LBP’, could they please detail why this is the case i.e. lack of
evidence, and therefore why are they investigating it’s use.

Fourth paragraph, sentence commencing ‘this increased temperature’ – could the authors change the sentence structure to read ‘this increased temperature, named thermal effects, is thought to cause changes in nerve conduction velocity, ….’.

Fifth paragraph – the authors introduce the concept of continuous ultrasound, this section may benefit from a brief description of continuous and pulsed ultrasound, their physiological mechanisms, and why the authors chose to focus on continuous ultrasound.

Methods:
Please write in past-tense throughout.

Study design section
First paragraph - include the full written phase for TUMS on initial introduction and then its abbreviation.

Second paragraph - restructure introductory sentence to remove personal terminology i.e. ‘We’, e.g. ‘Inclusion criteria for participation in this study was as follows: patients with NSCLBP, aged between 18 and 60, ….’.

Intervention section
Second paragraph under ultrasound application – again restructure the sentence commencing with ‘We’ e.g. ‘Ultrasound was applied using Enraf ….’.

Second paragraph under ultrasound application - the manufacturer name and country of the Enraf Nonius Sonoplus 434 should be included.

Second paragraph under ultrasound application – reference of Robertson should be numbered and not named. Also a reason should be given as to why these parameters were chosen.

First paragraph under exercise therapy – more information is needed on the type of exercise performed, and the rationale for including exercise as a treatment/management strategy.

Second paragraph under exercise therapy - restructure the sentence commencing with ‘We’ e.g. ‘All patients were given written instructions for home….’.

Outcome measures
First paragraph - restructure the sentence commencing with ‘We’ e.g. ‘Readers are referred to the design article….’.

Under secondary outcome measures correct the sentence commencing ‘lumbar flexion and extension’ to include one ‘modified’.

Please include the manufacturer and country for the DATA LOG PC software.
A brief description should be included in this section of the rationale for choosing pain, function and the secondary measures as the outcome measures of choice.
References need to be incorporated into this section when referring to the Biering Sorensen test, the modified Schober test, EMG.

Detail needs to be included in the final paragraph explaining where electrodes were placed, and the rationale for the selection of electrode placement.

Data analysis

Please include the manufacturer and country for the SPSS software.

Results:

First paragraph - detail the word Figure in full not Fig 1.

First paragraph - information needs to be included in this paragraph relating to which group(s) the ‘nine more patients’ were lost from.

First paragraph, last sentence – replace the word ‘didn’t’ with ‘did not’.

Second paragraph, first sentence – include the word ‘years’ after mean age i.e. ‘34.7 (SD 12.6) years, with a mean pain ....’.

Primary outcome measures, within group changes section – replace the word ‘in’ with ‘at’ in the final sentence to read: ‘functional ability and pain intensity at 1 month follow-up ...’.

Secondary outcome measures – correct spelling of ‘lumbar’, and detail abbreviation SEMG.

Figure 1 – this figure would benefit from a review of punctuation and character spacing. Also final numbers for each group at follow-up should be given at the end of the figure. The numbers under each caption should be reviewed e.g. under allocation, 25 patients are allocated to each group, however, on addition of the numbers reported under each group the commencing number is 26 (25 +1).

Table 1 – again this table would benefit from a review of punctuation and character spacing. No legend is included. A suggestion would also be to incorporated a column detailing analysis to compare both groups were not statistically different i.e. inclusion of P values.

Table 2 – this table details differences between assessment times or within groups, but not between groups, perhaps a separate table might document differences between groups as these results are omitted. Again no legend is included. No reference is made to biceps femoris for the left muscles. Please correct spelling of Illiocostalis-lumborum, and gluteus maximus.

Discussion:

Second paragraph - the authors discuss findings from Grubisic et al, however, reference is made to only having read the abstract. This would appear inappropriate and of poor scientific rigour, suggesting the reference be removed, or only included if the authors can justify its inclusion through translation of the reference.

Second paragraph – the authors make reference to ‘strong evidence that
exercise is an effective treatment in CLBP’, please supply a reference to support this statement. Similarly, reference material should be included for the statement: ‘exercise programs for CLBP may be designed to reverse deconditioning ....'.

Second paragraph – the final sentence should be restructured to omit the words ‘didn’t’ and ‘we’, e.g. ‘Since the real US group did not show any improvement over that of the sham US group, improvements can only be attributed to the placebo ....’.

Third paragraph – please explain the abbreviation ‘MMS’.

Sixth paragraph – please remove the word ‘couldn’t’ and replace with ‘may not’.

Sixth paragraph – please include more detail on the study by Mohensi et al, and Sung, to further substantiate the findings detailed in the manuscript.

Conclusion:

Please correct spelling of ‘gluteus maximus’.

The conclusions could be revised to incorporate future research ideas such as inclusion of a control non-treatment group, an exercise only group.

References:

Please correct for spelling, punctuation and character spacing errors.

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.