Reviewer's report

**Title:** The Diagnostic Validity of Musculoskeletal Ultrasound in Lateral Epicondylalgia: A Systematic Review

**Version:** 1 **Date:** 4 October 2013

**Reviewer:** Emilio Puertedura

**Reviewer's report:**

Minor Essential Revisions

Thank you for the opportunity to review this interesting manuscript.

The title indicates that this will be a systematic review of the diagnostic validity of musculoskeletal ultrasound in lateral epicondylalgia (i.e. pain over the lateral epicondyle of the elbow) and yet, the studies included in this systematic review reported on diagnostic and ultrasound findings in ‘tennis elbow’, ‘lateral epicondylitis’, and ‘lateral elbow tendinopathy’. I think this is a major problem because the terms epicondylalgia and tennis elbow/epicondylitis/ tendinopathy are not interchangeable. This is not addressed by the authors in the introduction and really should be.

The manuscript has many grammatical errors throughout and I would strongly recommend a more detailed read and review by the co-authors. Some examples:

a) In the abstract, first sentence “Ultrasound is considered A reliable, widely available, non-invasive….” and second sentence “… there is no consensus in the current literature as to the best abnormal ultrasound FINDINGS that CONFIRM lateral epicondylalgia.”

b) In the abstract, results section “Among the 15 included diagnostic studies in this review, seven WERE …”

There are many more throughout the manuscript.

Some comments/ suggestions/ concerns:

**ABSTRACT**

The first sentence doesn’t appear to be complete. Ultrasound is considered reliable for assessing soft tissue involvement….. in what? Lateral epicondylalgia? Tennis elbow? Epicondylitis?

The first sentence in the results section of the Abstract does not make sense. What are “high primary researches generalized for chronic lateral epicondylalgia”?

**INTRODUCTION**

As previously stated, you need to distinguish between ‘epicondylalgia’ (the term
you have introduced in this systematic review) and lateral epicondylitis, tennis elbow, and tendinopathy (the terms actually used in the studies included in your systematic review).

I don’t like the excessive use of abbreviations that begin in the first paragraph of the introduction. It makes it difficult for readers to follow the narrative if they have to constantly refer back to determine what a particular abbreviation means. A classic example is CEO for common extensor origin – it looks too much like chief executive officer. Also, by using the abbreviation LE, it makes it difficult for the reader to determine if you mean lateral epicondylalgia (as stated in the first line) or lateral epicondylitis (as referenced in the reviewed articles).

Second paragraph – instead of ‘standardly-used clinical provocation tests’ consider using ‘commonly used provocation tests which are considered positive if they reproduce lateral elbow pain’.

Don’t use the abbreviation of MSUS – spell it out

Last line of page 4 states that ‘the higher the frequency of the transducer head, the shallower the depth of penetration’. I think this is unnecessary to state in a journal on medical imaging.

Don’t use abbreviations for PDU and RTSE

The last paragraph of the introduction states that the primary aim was to establish the diagnostic validity of gray-scale ultrasonography for lateral epicondylalgia, so why include color Doppler ultrasonography in the discussion?

METHODS

I don’t think you need the first sentence – delete this and move straight into eligibility.

Most readers of systematic reviews know what a PRISMA flow diagram is, and indeed, they expect to see one. So I don’t see the need to spell it out in the second last paragraph of page 8.

If a third independent reviewer was available, why were they not used for arbitration? Wouldn’t this be considered a weakness in the study?

The authors mention that missing data were requested through e-mail from corresponding authors, but fail to provide any information on whether or not it was successful.

First paragraph of page 10, when explaining the steps for pooling of ultrasound findings, the last sentence is incredibly long and quite difficult to understand. Could this be broken up to improve readability?

On the subject of heterogeneity, the authors mention the Inconsistency square test for homogeneity (I²) and mention that it describes the percentage of variation across studies that are due to heterogeneity rather than chance. This
needs a citation.

On the high vs low frequency ranges being 9-17 MHz and 5-15 MHz respectively, it might be appropriate to explain the significant overlap in frequency range.

RESULTS

The authors state that “the number of database ‘hits’ was comparable between the three independent researchers”. What does that mean? How comparable was it? How were differences reconciled?

DISCUSSION

This may just be a matter of style, but why draw immediate focus to the insufficient evidence regarding the use of Power Doppler Ultrasonography, Real-Time Sonoelastography, etc. in the first paragraph? Why not discuss the positive findings from the review first?

The table “Key findings and their agreement with the current literature” seems to be a summary of the discussion points, so I'm not sure it adds any value to the manuscript. It seems to be repetitive.

The list of abbreviations seems unnecessary as not all of the listed abbreviations were used in the manuscript.

Figure 1 – the diagram shows that 19 full-text articles were assessed for eligibility, and after excluding 2 for reasons explained, there were 15 studies left for quantitative synthesis. What happened to the other 2?

Level of interest: An article of importance in its field

Quality of written English: Needs some language corrections before being published

Statistical review: Yes, and I have assessed the statistics in my report.

Declaration of competing interests:

I declare that I have no competing interests