Well done on a very interesting paper. The use of neurocognitive techniques to assist with pain/function is of great interest. Please find below comments/suggestions that I believe will help to strengthen the paper.

Introduction

The introduction provides a clear basis for the intervention. I just have a few comments regarding some specific statements:

Line 46: please provide some examples of what encompasses this multidimensional condition (eg. Pain processing issues, cortical changes).

Line 54: *maladaptive neuroplasticity* – are you suggesting that this maladaptive neuroplasticity in the somatosensory area is specifically influencing motor planning/refinement or joint position sense? Please make clear what you propose these changes in the somatosensory area are causing.

Line 60: Is there any evidence for this? While this might be true clinically, is there evidence of the performing them incorrectly and having a negative clinical outcome?

Methods

Line 129: please provide more information on what the documentary included (what was it about?).

Line 142: full stop needed after (1991).

Line 147: please include information about the x and y planes within the joint position sense assessment.

Line 155: and ICC of 0.75 is regarded as good/substantial, not almost perfect. Almost perfect is typically regarded as >0.8. Please modify accordingly. Also, please include full text reference for Juul 2013 paper rather than just website.

Line 222: why include partial eta squared if presenting Cohen's d effect sizes based on post-hoc comparisons?

Discussion

Can you please relate your findings to clinically meaningful differences/changes? While Moderate-large effect sizes provide some information, what do these changes/improvements mean clinically? Are they large changes compared to physical training previously identified?

Line 340: Please expand on this as this distinction between studies is very important. Training for an outcome measure (Beinert 2015) is very different to training a movement pattern (your study). I think you can make a stronger case for the importance if your finding from a clinical perspective.

Line 377: missing "to" between difficult and imagine

Line 383: how did your participants' imagery ability compare to other chronic pain populations?

388: please expand on this issue with training volume. There are several papers relating to volume in MI/AO training loads and strength/balance. Perhaps relate to them in terms of JPS. Or link JPS physical training literature to your findings. How many sessions would be expected to promote more

long-term improvements? You mention this in terms of minutes per session in limitations, I think this is an important issue.

Line 391: you should also include some of the evidence that AO + MI is superior to either alone (eg. Taube 2015).

Line 399-400: relate this statement back to your cohort – this statement is particularly pertinent if patient's have poor imagery ability