Author's response to reviews

Title: Upper limb position control in fibromyalgia

Authors:

Ellen Marie Bardal (ellen.bardal@svt.ntnu.no)
Karin Roeleveld (karin.roeleveld@svt.ntnu.no)
Tonje Okkenhaug Johansen (tonje.okkenhaug.johansen@stolav.no)
Paul J Mork (paul.mork@svt.ntnu.no)

Version: 3 Date: 27 August 2012

Author's response to reviews: see over
Responses to editor and reviewers comments:
Again, we thank the editor and the reviewers for the positive evaluation of the paper and the efforts in further improving the manuscript. The manuscript has been revised in accordance with the reviewers’ comments and suggestions.

Reviewer #1 (page reference follows revised manuscript):
Version: 2 Date: 20 June 2012
Reviewer: Christian Duval

Reviewer’s report:
The authors have significantly improved the text. However, one part should be fixed before considering it for publication. Minor Essential revisions.

Reviewers comment: The authors should have the 6th paragraph of the frequency domain section of the Discussion removed. This is why: first, it is difficult to make assumptions on the 8-12 Hz component using results obtained from power distribution (normalized power to 100%). If power increases in one band, it must decrease in another one to maintain a total of 100%. In fact, the amount of relative power within the 8-12Hz band may have been altered, but absolute power may have been reduced, remain the same, or increase. The only way to know for sure is to use a comparison between epochs of oscillations having equal amplitude between patients and controls (please see the papers (Duval et al. 2000 and 2005 for that methodology). Then, you compare absolute power within each frequency band to determine whether the 8-12 Hz is different in each group. This was not done here. I would strongly suggest, for the purpose of simplification, and to avoid misinterpretation of your results, to simply talk about preponderance of power within low frequency bands compare to controls and remove any reference to the 8-12 Hz in the Discussion section. Finally, I would advise the authors to have the paper read from someone outside their field so as to make sure that the English (which seems fine to me) is optimal.

Best regards


Response to comment: We agree and understand you concern. We have now removed the 6th paragraph from the frequency domain section of the discussion (p. 14). Accordingly, we have also made a minor change to the conclusion (p. 15). We have had a native speaking English person reading the paper and have corrected some language errors throughout the manuscript.

Level of interest: An article of limited interest
Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.
Reviewer's report:
To investigate motor limb strategy in fibromyalgia stands forth as an important task also from the perspective of finding mechanisms effective in this particular syndrome of pain whether it resembles other pain syndromes or not. Therefor this task preferably needs to be contextualized in a way that it sheds light on the enigma of this particular pain syndrome.

major compulsory revisions

1. Reviewers comment: The concept of chronic pain is still used in a wide sense as in the first version of the manuscript. As an example might serve the wording in the discussion section p 12 that “that limb stability is only mildly influenced by fibromyalgia or other chronic musculoskeletal pain conditions”. This kind of wording also create difficulties regarding logic structure since in the background section fibromyalgia is presented in the context of alterations in central processing of sensory feedback. In the discussion this alterations in central processing of sensory feedback should return and be discussed in relation to particularly fibromyalgia and not to “chronic pain”. Similarities and differences between fibromyalgia and other conditions of chronic pain could of course also be discussed but then with some depth and somewhat separately also thereby shedding even more light on the phenomenon of fibromyalgia.
Response to comment: We have now made a change to the discussion part mentioned by the reviewer to more clearly indicate that chronic pain conditions and FM may differ in terms of the possible effects on motor control characteristics (p. 12). Moreover, we have made a minor change to the last paragraph of the Background section (p. 4) to more clearly place the current study in the context of motor performance in FM, i.e., removed the reference to altered sensory feedback processing (see also response to comment 2 below).

2. Reviewers comment: In the background section, as mentioned above, the question on alterations in central processing of sensory feedback is put forward. The patterns discovered in these studies needs to be shortly summarized and then linked to the specific attempt in the present study.
Response to comment: Regarding alterations in central processing of sensory feedback in FM, most studies have investigated mechanisms related to development and/or maintenance of chronic pain (e.g., see reference 1-4). Accordingly, these studies did not investigate motor control patterns in FM (when the reviewer refer to “patterns” we assume that she think of motor control patterns). A few studies have found alterations in motor control in FM, indicated by altered muscle activation patterns (see 2nd paragraph in 'Background'). However, none of these studies investigated whether the altered muscle activation patterns were accompanied by alterations in motor performance. The latter constitute the ‘context’ for our study (see comment 1 above).

One way to investigate motor performance is to record the ability to control limb oscillations during fine motor task or precision tasks. Several studies have described motor control patterns in terms of limb oscillations in healthy subjects and in diseases affecting the motor system (e.g., tremor in Parkinson patients). The findings in these studies are summarized at the end of the 3rd paragraph in 'Background'. As we state in the 3rd paragraph in the Background section, the physiological correlates to the different oscillatory frequencies are not fully understood. Nevertheless, we maintain that the power distribution of limb oscillations can provide important information about possible underlying neural processes in FM that may affect motor performance. The latter provide the link to the question posed in the current study.

3. Reviewers comment: Again on p 4 the wording of chronic pain appears regarding underlying neural processes that might induce alterations in neuromuscular control. The logic
structure could be questioned here since what is obviously a common feature between fibromyalgia and all syndromes of “chronic pain” is chronic pain but pain mechanisms, brain mechanisms and motor control are not gathered/concentrated and built upon neither in the background section or in the section of discussion. The manuscript seems still somewhat unfinished and reasoning that is presently concentrated to motor performance should include the areas as mentioned above (4)

Response to comment: A change has been made to the last paragraph of the Background section to more clearly place the study in the context of motor performance (see also response to comment 1 above). We feel that any inference regarding brain mechanisms would be very speculative since our study does not include such data.

Level of interest: An article whose findings are important to those with closely related research interests
Quality of written English: Acceptable
Statistical review: Yes, but I do not feel adequately qualified to assess the statistics.