Reviewer's report

Title: Changes in the flexion-relaxation response induced by hip extensor and erector spinae muscle fatigue.

Version: 1 Date: 22 March 2010

Reviewer: Christophe Demoulin

Reviewer's report:

It is a very interesting and well-written article. However, I have a few comments:

Major Compulsory Revisions

1) Page 5: could you please tell me why the movement period had to last 5 seconds. Isn't it too long? Does it reflect a natural bending time? You should add a sentence in the text about that.

2) One of the main comment I have is about your fatigue test: page 6 you wrote that you induced a hip and back extensor muscle fatigue. However, your MVC required hip (and not back!?) extensor contraction efforts... Can you tell me more about that... Why did not you use the Sorensen test for example? Besides, inserting a figure would make the test better understandable for the readers.

3) I am not sure you used the SENIAM recommendations to choose electrode locations... If you use them, you should tell that; otherwise, justify your choices. Besides, the location of the electrode over the ES should be more detailed (width lateral from the proc spin,...).

4) Results section: P9: you stated that the rate of decline in MedF/Timùe indicate that muscular fatigue was induced. However, based on the standard deviation, we observe that a significant rate of decline was not present in all subjects (regarding gluteus maximus and hamstrings)... Therefore the fatigue occurrence based on your EMG parameters is not so evident...

5) P10: the two first sentences about RMS values increase are not clear to me. Besides, you should refer to Figure 2-3.

Minor Essential Revisions

1) The "cessation of the flexion-relaxation response" is not very clear to me in the paper. Is it the period/time of reduced or silent myoelectric activity?

2) Figure 1: you should add on the figure and in the legend the letters "a", "b",... "h" to make the figure clear.

3) Results section, P9: F-R phenomenon: 2nd sentence: you should end the sentence by "after the fatiguing protocol".

4) Results section, P9: F-R phenomenon: 3rd sentence: you should start the sentence by "During loading conditions".

5) Limitations: you should change the last sentence of your conclusion into your
limitations section.

6) Conclusions section: I am not convinced you can conclude with your study that muscle fatigue of the hip extensor and ES muscles may "potentially put previously-injured structures...".

7) References section: use systematically full journal article name or abbreviated names according to the instructions of the current journal.

8) References section: check you references to avoid "((14))" or "9::10",... (cfr your reference number 3, 8,...)

8) Table 1: legend: add "degree" after "angles" as well as the significance of SE (is it standard error, standard deviation?). Furthermore, it is not clear what 1 and 2 means? 1 = no fatigue and 1= fatigue? If it is the case, add that information in the legend.

Discretionary Revisions

1) Background chapter: I think the first two sentences should be integrated (to avoid repetition).

2) Background chapter: last sentence of page 3: change "suggest" into "suggested".

3) Page 5 and 6: you wrote numbers in brackets [] as if they corresponded to references; that could be confusing.

4) Results section, P9: I do not understand why you refer to Figure 2 there.

5) Figure legend 2 and 3: write "no load-fatigue" instead of "no load fatique".

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Acceptable

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

**Declaration of competing interests:**

'I declare that I have no competing interests'