Author's response to reviews

Title: Relationship of moderate and low isometric lumbar extension through architectural and muscular activity variables: a cross sectional study

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Author's response to reviews: see over
Dear Editor

Please, find a revision of our manuscript entitled “Relationship of moderate and low isometric lumbar extension through architectural and muscular activity variables: a cross sectional study”. We would like to thank the Reviewers for their thoughtful and constructive comments. We have considered all suggestions, and have incorporated them into the revised manuscript. Changes to the original manuscript are with “track changes” to highlighted (in yellow background). We believe our manuscript is stronger as a result of the modifications. An itemized point-by-point response to the Reviewers’ comments is presented below.

REVIEWER 1

1. Abstract: The abbreviation like Torque Mod etc should be described in advance.
   - Authors: We thank you for the suggestions. We have completed the abbreviation because no words were saved using it.

2. Introduction (last paragraph): six variables?
   - Authors: We thank you for the correction. We deeply regret the error. We have modified the number of variables (seven) and we have included each variable considered “(pennation angle, muscle thickness and EMG (right and left side) and torque)".
3. EMG: low pass filter? Which Hz.

- **Authors**: All recorded signals were passed 20 HZ low pass Butterworth filter to remove high-frequency noise from the sample. This sentence has been included in manuscript.

- Data Analysis: Architectural and functional variables need have a clear definition and illustrate including what variables. Same with in introduction section.

- **Authors**: We thank you for the suggestions. We have introduced the following paragraph as follow; “The average value of muscle activation and torque during relative isometric contractions (66% and 33%) were considered as the measure of these variables during each contraction. Muscle thickness and pennation angle were measured following an adapted procedure described by Hodges et al. Thickness was measured as the distance between the superficial and deep aponeuroses. Pennation angle was measured between a parallel aponeurosis line and the line of the clearest fascicle as the positive angle”, within data analysis to define the functional and architectural variables.


- **Authors**: We appreciate your correction. We have corrected the indicated typing error and we have reviewed the complete document to indentify similar errors.

5. Results: RMQ, OMPQ were already abbreviated in method. The abbreviation like AL Mod, AR Mod should be described in advance.

- **Authors**: We thank you for the suggestion. We have added within introduction section de following paragraph “Thus, the variables considered for analysis in this study were: Moderate contraction: pennation angle right side (AR Mod), pennation angle left side (AL Mod), muscle thickness right side (TR Mod), muscle thickness left side (TL
Mod), muscle activation right side (EMG R Mod), muscle activation left side (EMG L Mod) and torque (Torque Mod). Light contraction: pennation angle right side (AR Light), pennation angle left side (AL Light), muscle thickness right side (TR Light), muscle thickness left side (TL Light), muscle activation right side (EMG R Light), muscle activation left side (EMG L Light) and torque (Torque Light)” to describe the abbreviation used along results and discussion section.

6. Figure 2 shows the pennation angle and muscle thickness, however, the illustration do not go with the figure.

   • **Authors**: We thank you for the suggestions. This was a submission error, and we have arranged now.