Author's response to reviews

Title: Assessment of the paraspinal muscles of subjects presenting an idiopathic scoliosis: an EMG pilot study.

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Dear Editor

According to the comments of the reviewer, the following changes have been made to the manuscript:

Minor essential revisions:
Page 7: We do agree that the changes in the power spectrum are more likely caused by accumulation of metabolic waste and that the explanation related to derecruitment is obscured. We decided to withdraw the explanation of derecruitment and we changed it for:
"It has been hypothesized that during sub-maximal contraction of back muscles type I muscle fibers, which generally have a smaller diameter and consequently a slower conduction velocity than type II muscle fibers, are predominantly recruited. That could also explain the shift of the MF of the power spectrum towards lower frequencies".
The reviewer suggested the omission of the data on lateral bending and axial rotation since these data are sufficiantly described in the text but he also suggested to combine figures 2 and 3. Since the results related to these data seemed sufficient in the text, we choose to withdraw figure 2 and 3.

Discretionary revisions:
Page 11 and 16: We do agree with the reviewer that the MF is primarily related to muscle fiber conduction velocity. We therefore made the following corrections:
"The slope values for the MF/force relationship reflected the average conduction velocity of the muscle and indirectly, muscle fiber type composition". For page 11.
"The cross sectional area occupied by type II muscle fibers is larger in the paraspinal muscles on the concave side than in those on the convex side and is also larger than in the paraspinal muscles of normal subjects. The average muscle conduction velocity should be faster in the muscles on the concave side than in those on the convex side. Considering this, a more pronounced shift of the MF values towards higher frequencies would have been expected in the paraspinal muscles on the concave side of the thoracic curve of scoliotic subjects as the force level increases". For page 16.

Finally, as far as the interpretation of or results regarding the cause or the consequence of the scoliosis is concerned, we choose to be causious and avoid any comment of that nature since this was only a pilot study.

We hope that these corrections will meet the standards of BioMed Central BMC;
Sincerely yours,
Nathaly Gaudreault, M.Sc., PT