Author's response to reviews

Title: Are cervical multifidus muscles active during whiplash and startle? An initial experimental study.

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Version: 5 Date: 14 May 2008

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Response to Reviewer’s Comments

MS: 197980699717171411
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We thank Dr. Ivancic for accepting the prior revisions to our manuscript. Below is our response to Dr. Ivancic’s final comment.

1) Dr. Ivancic noted that the average multifidus response at the C4 level (137% sled, 136% startle) appears to be larger than the average multifidus response at the C6 level (40% sled, 57% startle). Based on this difference, Dr. Ivancic asked us to discuss the different effect multifidus might have on the capsule injury potential in the middle and lower neck.

Although the activation levels at the C4 and C6 levels appear to be different, they are in fact not significantly different (p=0.32, see Results in manuscript). Not only are the standard deviations large, but three of these four values were not normally distributed. For this reason, the median and range for each variable is provided in Table 1 of our manuscript, and a non-parametric Friedman ANOVA was used to compare these values.

Since there was no statistical difference between the amplitude of the multifidus response at the C4 and C6 levels, we do not think it is appropriate to discuss how differences in activation levels at these two spinal levels affect injury potential.