Author’s response to reviews

Title: Musculoskeletal application and validation of speckle-tracking ultrasonography

Authors:

Lars Frich (lars.henrik.frich@rsyd.dk)
Kate Lambertsen (klambertsen@health.sdu.dk)
John Hjarbaek (john.hjarbaek@rsyd.dk)
Jordi Dahl (jordi.sanchez.dahl@rsyd.dk)
Anders Holsgaard-Larsen (ahlarsen@health.sdu.dk)

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Author’s response to reviews:

Dear Editor

Re: BMSD-D-18-01312R1

Enclosed please find a 2nd revised version of our manuscript “Musculoskeletal application and validation of speckle-tracking ultrasonography” by Frich et al. A detailed point-by-point list of our replies to the issues raised is listed below and the corresponding changes are underlined in the manuscript.

Our use of the expression “strain” has been a concern of the editor. Initially, we used “strain” and “deformation” (and not muscle shortening) synonymously due to the fact that some muscle fibers are active elongated while others are active shortened during muscle contraction. However, we do acknowledge using multiple terminologies for “strain” might confuse the reader. In accordance with the literature we therefore suggest that “strain” is the most suitable to express muscle contractility evaluated by speckle tracking ultrasonography: J Am Coll Cardiol. 2003 Nov 5; 42(9):1584-6. Strain rate imaging: why do we need it? By Smiseth OA & Ihlen H. The reference has been added to the manuscript.
Point-by-point reply:

Response to reviewer John Drazan, Ph.D. (Reviewer 2):

Ad 1: The manuscript has been edited by a native English-speaking person in style and spelling as requested.

Ad 2: The manuscript has been changed accordingly to the arguments written above. In accordance with the literature, we have argued to continuously use “strain” as the most appropriate expression of muscle contractility evaluated by speckle-tracking ultrasonography. “Deformation” has been deleted throughout the manuscript.

Ad Abstract: “during isometric contractions” has been added to the background of the abstract.

The aim/hypothesis has been clarified in the abstract to the following:” This study aimed to test the hypothesis that muscle strain can be tracked in two upper extremity skeletal muscles by speckle-tracking ultrasonography (STU) and correlates with isometric muscle contractions.”

Line 60-61 has been changed and it is now hopefully clear that we found strain to vary between 10-20%.

Ad background: “Deformation” has been changed to “strain” as already argued in the paragraph above.

Ad methods: It has been stressed in the text that the probe was held in the same place relative to the skin.

Ad discussion: Previous line 267 has been changed to the following in the revised version: “Isometric dynamometry is a different construct from muscle strain, but it is reliable and still qualifies as a reference for the present validation analyses.”

We hope that the manuscript in its present form is now acceptable for publication in BMC Musculoskeletal Disorders.

Yours Sincerely

Lars Henrik Frich

MD PhD