Reviewer's report

Title: The effect of running task on muscle shear elastic modulus of posterior lower leg

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Reviewer: Toshiyuki Kurihara

Reviewer's report:

This study was mildly interesting, but I think there is a lot of concern before publishing it to this journal. My major concerns are study design and the results of the absolute values.

#1
Was the subject selection appropriate for the aim of this study?
The author wants to know the changes in elastic moduli of the muscles after running task, since which could be a possible reason for MTSS occurrence. But, why the author excluded the person with history of musculoskeletal injury? The author indicated that the higher elastic moduli were found in subjects with MSST history and hypothesized that the elevation of shear elastic moduli of FHL and TP would occur after running task. I wonder whether the baseline values of elastic moduli would influence to the change in those values after tasks. Even if the results indicated the elevation of the elastic moduli after tasks, were the elastic moduli of normal subjects achieved to the substantial for inducing MTTS? I don't know whether there is the threshold of abnormal elastic moduli, but could the elevation of elastic moduli on this study explain enough elevation for occurrence of MTTS? Moreover, how do the authors think it possible to apply the results of the healthy subjects into the patients?

#2
Please clearly indicate the unit in Table 1 and 2. It can be kPa.
If I accept it would be kPa, according to Ref. #15, the absolute values of shear elastic modulus in each muscle was 2~6 times smaller than those in previous report (Ref. #15). I guess it too small. Actually, subject of their work were collegiate runners, while this study investigated normal subjects. Is that the subject-difference? or methodological difference? Please explain why.

My specific comments are listed by order of appearance in the manuscript.

#3
In Background, Page 5 Line 62- and 72-
The topics of these paragraphs seem obscure. Please stick to one topic in one paragraph.
I conceive the implication of the author on these paragraphs, which would be "Higher shear elastic modulus of the posterior leg could be one of the reasons for MTSS occurrence. But the previous studies investigated only the relationship between elastic modulus and the pain, or MTS history; it has never done if the changes of elastic modulus occur after prolonged running". Is that correct? If so, please reorganize the paragraphs.

#4
Page 5 Line 80-81
I could not figure out the meanings on "the pain at the time of measurement could influence the shear elastic modulus". Pain and physical properties were a bit different concept. What influences elastic modulus, indeed? I guess it should not to be a pain itself. Please explain the detail.

#5
Page 6 Line 100-
Please indicate the participants' daily physical activity level of fitness level, if possible.

#6
Page 7 Line 122-130
It seems to be insufficient information on the measurement locations to replicate the research. Especially, the longitudinal location was well described but not axial or mediolateral location. And not mentioned the orientation of ultrasound probe. How to confirm the measurement location before and after the task? Is it identical to the location and the orientation of the probe? I admit that the author would avoid duplicating the Ref. #15, but I would recommend the author should provide more of a description in the text and figure.

Why the author did not collect the data of SOL and FHL, which were measured in Ref. #15? Figure 1 would be cited at the wrong place, or the explanation of the figure legend would be different.

#7
Page 11 Line 206-211
Why the author said "tension", in spite of the measurement was performed at resting state? Is that correct to change the word "tension" into "passive tension"? Please use appropriate word. Why the elevation of the shear elastic moduli could be a risk factor? What makes passive tension? Does the passive tension cause the pain? The author seems to avoid the mechanism and only describe the phenomenon. If possible, please discuss the mechanism.

#8
Page 11 Line 212- Page 12 Line 223
Please write a topic sentence at the beginning of a paragraph, which apply throughout the manuscript. It makes me lost the meaning of the paragraph many many times.

By the way, this paragraph is written about the foot abnormality but I feel it does not fit to the flow of the discussion. Actually, the readers of this journal most interest the topic of foot and ankle; but please rewrite the paragraph in order to get in to the stream.

#9
I am wondering if the elevation of elastic moduli disappears or sustains after prolonged resting. It may be beyond this manuscript, but if sooner the elastic moduli recover to the baseline, the results of this study do not a significant matter.

#10
Page 12 Line 230-233
The author discuss about the myofascial transmission. I wonder if the myofascial transmission occurs acutely, it seems less reasonable just 30 min running cause myofascial transmission.
#11 Followings are the minor comments
Page8 Line 166
0.710 or 0.709?

Page 11 Line 213-214
I could not figure out the meaning "which is commonly affected in MTSS at 95% in males and 100% in females".

References
Please indicate detailed information of Ref. #15.

Level of interest
Please indicate how interesting you found the manuscript:

An article whose findings are important to those with closely related research interests

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Please indicate the quality of language in the manuscript:

Needs some language corrections before being published

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