

PEER REVIEW HISTORY

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ARTICLE DETAILS

TITLE (PROVISIONAL)	Natural Aging Course of Paraspinal Muscle and Back Extensor Strength in Community-dwelling Older Adults (Sarcopenia of Spine, SarcoSpine): A Prospective Cohort Study Protocol
AUTHORS	Kim, Ju Chan; Lee, Shi-Uk; Jung, Se Hee; Lim, Jae-Young; Kim, Dong Hyun; Lee, Sang Yoon

VERSION 1 – REVIEW

REVIEWER	Yoshiharu Fukuda Japan
REVIEW RETURNED	08-Jul-2019

GENERAL COMMENTS	<p>The manuscript described the study protocol of a prospective cohort study about sarcopenia. It is an interesting and challenging study and I expect it propose meaningful finding for further studies in this topic. I have one comment for revision of the paper.</p> <p>The study set several outcome measurements. But the readers might not understand the figures of these measurements, especially primary outcomes. Also, the authors could not estimate the sample size because of no literature on these outcome measurements. Some data such as baseline data of outcome measure should be shown.</p>
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REVIEWER	Philip Chilibeck University of Saskatchewan
REVIEW RETURNED	08-Jul-2019

GENERAL COMMENTS	<p>The manuscript outlines a protocol for prospectively evaluating older adults and spinal muscle sarcopenia.</p> <p>Some find the use of the word “elderly” to be derogatory. Instead of using the word “elderly”, used “older adults” throughout the manuscript.</p> <p>Line 38 and 286: It is stated the data will be analyzed using the intent-to-treat principle. This usually applies to studies were there is an intervention (i.e. randomized controlled trials). I am not sure this is applicable in your study since there is no “treatment”.</p> <p>Line 74: “originating from sarcopenia on lumbar paraspinal” This phrase is awkward...I suggest some re-wording</p>
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	<p>Line 89: Reword “dynamometer of hand-grip strength” to “hand-grip strength dynamometer”</p> <p>Line 121: Provide a reference here for the back pain scale you are using</p> <p>Page 8: The exclusion criteria are very extensive. I suggest relaxing your exclusion criteria to make the study more feasible. Also, you will probably be excluding a large number of typical older adults, reducing the applicability of your study.</p> <p>Page 9: What is the range of motion for the back extension test (i.e. the starting and finishing angles)?</p> <p>Line 213: Replace “Similarly, with the isokinetic back muscle strength test” with “In addition to the ioskinetic back muscle strength test”</p> <p>Page 15: Table 1: Nutritional status and fear of falling are listed as outcomes; however, I don’t think you have described these in the methods.</p> <p>Lines 321-322: “The study methods are in accordance with the SPIRIT guidelines for reporting randomised trials” Is this applicable to your study, since your study does not involve a randomized trial?</p> <p>As per the journal’s recommendations, please indicate the dates the trial will be conducted.</p>
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VERSION 1 – AUTHOR RESPONSE

Reviewer #1:

The manuscript described the study protocol of a prospective cohort study about sarcopenia. It is an interesting and challenging study and I expect it propose meaningful finding for further studies in this topic. I have one comment for revision of the paper.

The study set several outcome measurements. But the readers might not understand the figures of these measurements, especially primary outcomes. Also, the authors could not estimate the sample size because of no literature on these outcome measurements. Some data such as baseline data of outcome measure should be shown.

We agree with the reviewer’s comment. However, our study is under “not yet recruiting” state and we have no baseline data to be shown in this study protocol paper. So, we have added some reference articles to describe each outcome measurement to help reader’s understanding.

Reviewer #2:

The manuscript outlines a protocol for prospectively evaluating older adults and spinal muscle sarcopenia. Some find the use of the word “elderly” to be derogatory. Instead of using the word “elderly”, used “older adults” throughout the manuscript.

As the reviewer’s comment, we revised the word “elderly” to “older adults” in the whole manuscript.

Line 38 and 286: It is stated the data will be analyzed using the intent-to-treat principle. This usually applies to studies where there is an intervention (i.e. randomized controlled trials). I am not sure this is applicable in your study since there is no “treatment”.

We thank the reviewer for the exact comment. We deleted the sentence.

Line 74: “originating from sarcopenia on lumbar paraspinal” This phrase is awkward...I suggest some re-wording

We revised the phrase

“...originating from sarcopenia on lumbar paraspinal, ...” to

“...originating from sarcopenia, ...”. (New Line 74)

Line 89: Reword “dynamometer of hand-grip strength” to “hand-grip strength dynamometer”

As recommended, we revised the phrase to “hand-grip strength dynamometer”. (New Lines 88-89)

Line 121: Provide a reference here for the back pain scale you are using

As the reviewer’s suggestion, we added one reference about numeric rating scale of back pain as follows:

“...low back pain with moderate severity (numeric rating scale¹ 5 and over)” (New Line 121)

Page 8: The exclusion criteria are very extensive. I suggest relaxing your exclusion criteria to make the study more feasible. Also, you will probably be excluding a large number of typical older adults, reducing the applicability of your study.

We thank the reviewer for the kind suggestions. As recommended, we deleted two exclusion criteria about medical conditions such as 8) severe cardiopulmonary disease (such as heart failure with New York Heart Association Class III or IV) and 9) uncontrolled chronic disease (such as hypertension with systolic blood pressure >165 and diastolic blood pressure >95).

Page 9: What is the range of motion for the back extension test (i.e. the starting and finishing angles)?

We added one sentence and reference about the range of motion for the test as follows:

“The back range of movement was 22 limited at 50°, with 30° (-30°) of trunk flexion and 20° (+20°) of trunk extension, relative to the anatomical reference position (0°)²” (New Lines 152-154)

Line 213: Replace “Similarly, with the isokinetic back muscle strength test” with “In addition to the isokinetic back muscle strength test”

We modified the sentence as the reviewer recommended. Thank you for suggesting a more natural expression.

Page 15: Table 1: Nutritional status and fear of falling are listed as outcomes; however, I don’t think you have described these in the methods.

Thank you for your confirmation. We removed two outcome variables from the table that were present in the table but not in the manuscript.

Lines 321-322: “The study methods are in accordance with the SPIRIT guidelines for reporting randomised trials” Is this applicable to your study, since your study does not involve a randomized trial?

We also agree with the reviewer's comment and removed the sentence.

We hope the revised manuscript will better meet the requirements of the *BMJ Open* for publication. We thank you once again for the constructive review comments.

Sincerely,

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REFERENCES

1. Childs JD, Piva SR, Fritz JM. Responsiveness of the numeric pain rating scale in patients with low back pain. *Spine* 2005;30:1331-4.
2. Juan-Recio C, Lopez-Plaza D, Barbado Murillo D, Garcia-Vaquero MP, Vera-Garcia FJ. Reliability assessment and correlation analysis of 3 protocols to measure trunk muscle strength and endurance. *Journal of sports sciences* 2018;36:357-64.

VERSION 2 – REVIEW

REVIEWER	Yoshiharu Fukuda Teikyo University
REVIEW RETURNED	01-Aug-2019

GENERAL COMMENTS	At previous review, I recommended to show base-line data. But the authors did not reply to my comment. I think that the base-line data is important since general figures of fundamental measurements in this study are unknown. The protocol paper in BMJ can include base-line data, and thus the paper should be submitted after recruiting and measuring data.
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REVIEWER	Philip Chilibeck University of Saskatchewan
REVIEW RETURNED	08-Aug-2019

GENERAL COMMENTS	The authors have addressed all my comments
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