Reviewer’s report

Title: Cross-sectional area of the paraspinal muscles and its association with muscle strength among fighter pilots: A 5-year follow-up

Version: 1 Date: 04 May 2018

Reviewer: Mati Paasuke

Reviewer's report:

General Comments

This is an interesting study, assessing the longitudinal changes (5-yr follow up) in paraspinal and psoas muscle mass (by cross-sectional area, CSA) and composition in young Finnish Air Force fighter pilots. This paper contains new data in this context, clearly indicating that CSA of paraspinal muscles in young fighter pilots increased significantly during the first 5-yr period of their career. Also, authors demonstrated that the CSA of paraspinal and psoas muscles correlated positively with isometric maximal strength of leg extensor muscles and also with strength of trunk flexor and extensor muscles. No significant association between low-back pain and CSA of paraspinal or psoas muscles has been suggested in this study. The manuscript is generally well written. However, the design of this paper should be little improved before publishing. Authors should be to correct description of trunk muscle strength measurement, also Tables 2, 3 and 4 (see Specific comments).

Specific Comments

Abstract (Page 2)

Please add information about subjects measured (gender, mean age at baseline).

Methods

Page 9 line 208 - Please add information about the duration of a single trial, and duration of rest interval between two maximal isometric trunk flexion and extension strength measurement trials performed.

Page 10 line 244 - Please add (± SD) after ...standard deviations...
Results

Page 12 line 288 (Table 2) Please rephrase this Table as follows: Longitudinal changes of CSA (cm²) of the paraspinal and psoas muscles (mean ± SD).

Line 289: Please delete „Baseline”, „Follow-up and Pa) from this line and replace these terms on lines 290 and 291, deleting CSA (cm²).

Line 300: Please add abbreviations: R, right; L. Left.

Page 13 line 311 (Table 3) and Page 14 (Table 4) Please rephrase the Tables as follows: Correlations (r) between ...... . Please use r instead of CC as correlation coefficient (r is classic term) in Table 3 and Table 4.

Discussion

Page 18 lines 440-442 Please delete sentence indicating the interarater reliability for CSA, because this is also indicated in Methods (Pages 17 to 18, lines 180-183).

Are the methods appropriate and well described?  
If not, please specify what is required in your comments to the authors.

Yes

Does the work include the necessary controls?  
If not, please specify which controls are required in your comments to the authors.

Yes

Are the conclusions drawn adequately supported by the data shown?  
If not, please explain in your comments to the authors.

Yes

Are you able to assess any statistics in the manuscript or would you recommend an additional statistical review?  
If an additional statistical review is recommended, please specify what aspects require further assessment in your comments to the editors.

I am able to assess the statistics

Quality of written English  
Please indicate the quality of language in the manuscript:

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