Reviewer’s report

Title: A cadaveric and sonographic study of the morphology of the tibialis anterior tendon – a proposal for a new classification

Version: 0 Date: 13 Dec 2018

Reviewer: Jill Halstead

Reviewer's report:

Dear Authors

This is an interesting article highlighting the lack of knowledge in this key anatomical structure, which has implications for US evaluation, surgical treatment approaches and injection therapy. There appears to be some key data missing and an absence of scientific references. The aims and statistical analysis requires some re-writing. I think with these changes the paper will be of interest to many health professionals.

I have minor concerns about some of the literature review and study justification in the introduction.

Please revise see sentence and related references:

Tables I would recommend you change the terminology for 'length of the crus' to accepted anatomical terms.

Line 40 - reference needed to support there is an increased prevalence of TAT injuries.

Line 43 - reference needed to support that palpation does not relate to pathology.

Line 50 - foot Orthesis typo - change to an orthotic device

Line 54 - tear treatment methods - please revise sentence is poorly written and there is no reference to support it.

Line 55-7 The most commonly-used approach combines eccentric training with manual therapy, kinesiology taping, isometric and stretching exercises, electrotherapy or improvement of lumbo-pelvic control [12-15].

please re-write and use appropriate references.

Line 69 (35-88) is this the range ? please specify.

Line 95 (25-55) is this the range ? please specify.
Line 140 presented in supplemental materials (Table 2 and 3) - there is no table 3 in supplementary data

I have major concerns about the statistical handling:

The aim does not reflect the measurement or analysis undertaken in the manuscript.

"The aim of our work is to systematize the classification of TAT insertion by two complimentary approaches: anatomical dissection of cadavers and ultrasound examination of living patients. The knowledge gained regarding the variability of its attachment of the TAT to the bone and the ability to evaluate it with ultrasound will be of great value in future management strategies.” Yet the statistical analysis suggests there were some comparisons made within the data but this was not clearly stated in the analysis plan below.

The statistical analysis was performed using Statistica 12 software (StatSoft Polska, Cracow, Poland). A p-value lower than 0.05 was considered significant. The results are presented as mean and standard deviation unless otherwise stated. The normality of the continuous data distribution was checked with the Shapiro-Wilk test. As the data was not normally distributed, the Mann-Whitney test and the Wilcoxon sign-rank test were used to compare anthropometric measurements between sexes and body sides, respectively. The Kruskal-Wallis ANOVA with dedicated post hoc test was used to compare these measurements between TAT types.

Please revise your aims and ensure you clearly state and justify all the data analyses you have undertaken. This section requires re-writing.

Having completed statistical comparisons between the TAT types, gender and limb for tendon and morphology please can you summarise this in the results and discussion.

To improve the readability of the article, I suggest you include supplementary table 1 and 2 (muscle and tendon morphology and compared between sex and tendon type) in the main body of the manuscript.

Please clarify if supplementary table 1 is the cadaver group? If so, where are the same results for the US group which are summarised in sonographic studies section?

The data for the US group requires including in the manuscript and also summarising in the results and discussion.

**Level of interest**

Please indicate how interesting you found the manuscript:

An article of importance in its field

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

Needs some language corrections before being published

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