Reviewer’s report

Title: A biomechanical study of gait initiation in Down syndrome

Version: 2 Date: 15 Jan 2019

Reviewer: Talita Silva

Reviewer's report:

1- Abstract: I recommend using more Keywords, such as "Gait" and "Gait analysis" in order to increase visibility of the paper.

Background:

2- First paragraph (page 5, lines 9-11) - there is no reference cited for this statement.

3- Second paragraph (page 5, lines 16-18) - this is only repetition of the beginning of the paragraph, I would recommend taking this off.

4- Second and third paragraph (page 6, lines 6 - 13) - once the subject of the paragraphs is the same, I would keep both as one paragraph.

5- The background lacks a justification other than only lack of studies about gait initiation. I believe that something about how the results would benefit people with DS, or professionals from rehabilitation, would be a good justification.

6- I strongly recommend citing more papers throughout the paragraphs, since there are endpoints with no citations, it can be understood that these statements are from the author.

Methods:

7- Subjects, Second paragraph (page 7, lines 11 - 19) - how the visual and auditory impairments were assessed.

8- I think more data about characterization of the DSG would better for the reader and for results comprehension (QI for example).
9-

Results

10- CoM analysis (page 10) - legends should be done for all abbreviations.

11- I would recommend perform a correlation analysis (or Generalized Linear Model) in order to find out if the factors: age, QI, sex, height, weight, BMI etc would influence the results.

Discussion

12- The authors discuss the data initially by the point of view of the cognitive impairment in people with DS, but it was not assessed initially. The same for the statement "In particular, the higher duration could be related to some features of DS individuals like reduced height, ligamentous laxity, hypotonia and short foot, which may alter the initiation of the task." that has no data about and is only speculation. I think the previous recommendation I've made (about correlation/regression) would help in these statements made in the first paragraphs of the discussion, but if you don't have this data, consider to talk only about motor impairments.

13- Page 15, line 9: the authors state that the Body mass was higher in the DSG, but there was no statistical analysis that evidences it.

14- Page 16, lines 15 to 21: there is much speculation, with no references.

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 recommend additional statistical review

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Please indicate the quality of language in the manuscript:

Acceptable

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