**Reviewer's report**

**Title:** Truncal Changes in Children with Mild Limb Length Inequality: A Surface Topography Study

**Version:** 0  **Date:** 21 Jul 2018

**Reviewer:** Yong-Ping Zheng

**Reviewer's report:**

SCOL-D-18-00016

This is a study using surface topography to measure a set of parameters related to spine deformity for children with mild limb length inequality. The topic is clinical important, the study is straightforward, and the results should have clinical significance. Following improvements and comments are suggested for authors.

1. The abstract is in too much details, it should be more concise. For example, there is no need to describe the statistics software and its version used. Also, for results, only highlight those most important findings. In the currently version, the results section in the abstract is almost the same as the that in the Results section of the whole manuscript.

2. The introduction section should be enhanced to demonstrate more the significance of the study. The first three paragraphs of the Discussion section can be moved to the introduction section, as they are introduction of the importance of the system.

3. The Discussion section should be used to discuss more on the results and findings of the study, and in comparison with similar findings in the literature, its clinical meanings, and the limitations of the study. The current version of discussion does not have enough depth. In the last paragraph of discussion, it was mentioned that "... we advice the correction of even mild limb length inequality below the classic definition of 2.0 cm with the use of several insoles, as the parameters measured were statistically significant and impacted to pelvic imbalance and spinal posture." This is a very important finding, however, there is no detailed descriptions in the Methods and Results sections, and no statistical significance has been described in the results. Since the results presented in the current version are just a set of values, and there clinical meanings have not been elaborated or discussed. If insole correction was conducted for all the subjects, and they were scanned before and after applying insole, then the authors can analyze what parameters (currently there are too many, but we do not know which parameters are more clinically relevant) are most useful clinically.
4. The current results are straightforward, but also too simple. We do not know which parameters are more clinically important related to the intended application. It is easy for the system to generate all these parameters, but they may not have equal clinical significances. This should be one of the aim of this study to tell readers of this paper.

5. Has the reliability of the reported parameters been tested, or reported previously in the literature, then they should be cited in this paper for reference. The only reliability mentioned is on Page 6 Line 45 (by the way, the manuscript should have a page number for each page) "The LLI reliability study showed intra-rater 0.08 cm and inter-rater error 0.1 cm respectively". We normally use ICC, instead of error to show reliability. This should be checked.

6. In the Methods section, it was mentioned that a tape of 0.1 cm increments was used to take some measurement. However, such results have not been reported. Similarly, OTR seems measured using scoliometer as shown in Image 1, but no report. It is suggested to correlate these manual measurements with some related parameters provided by the topographic scanning. Otherwise, the two sets of measurement seem completely separated.

7. Page 5 Line 53: "...to produce graphical, clinical and analytical information on the spine". I feel the topography image cannot provide all these in a very straightforward manner, as it is just an imaging device.

8. Suggest following changes:
   - Change Image 1 and Image 2 to Figure 1 and Figure 2, it is a more common use
   - Change 0.08 or 0.1 cm to 0.08 and 0.1 cm, and many similar descriptions, to make it consistent
   - Avoid using a paragraph only with single sentence (page 7, line 31)
   - Page 7 line 44, "... with previous other studies ..." reference should be given
   - Figure 1 (Image 1) should have sub figure indication, like a), b) and c). I am not very sure it is deemed necessary to show the breast and nipple for this female subject, are the information shown in this figure related to the study results [as far as I know, this topographic system only measure the back]. If not, suggest deleting it.
- Suggest adding a Figure showing the meaning of the main parameters, in relation to the imaging or spine model provided by the system

- The normal way to present value is to use min, max, mean and SD, suggest adding SD, and the Table 1 can be improved in a more common format.

- Also, in Table 1, we see different digits after decimal for the similar parameters, from none to 3 digits (with more digits, meaning higher precision of the measurement system, here not the case), thus suggesting using one digit after decimal, as 0.1 cm and 0.1 degree is reasonable precision.

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

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

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

Acceptable

Declaration of competing interests
Please complete a declaration of competing interests, considering the following questions:

1. Have you in the past five years received reimbursements, fees, funding, or salary from an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

2. Do you hold any stocks or shares in an organisation that may in any way gain or lose financially from the publication of this manuscript, either now or in the future?

3. Do you hold or are you currently applying for any patents relating to the content of the manuscript?

4. Have you received reimbursements, fees, funding, or salary from an organization that holds or has applied for patents relating to the content of the manuscript?

5. Do you have any other financial competing interests?

6. Do you have any non-financial competing interests in relation to this paper?
If you can answer no to all of the above, write 'I declare that I have no competing interests' below. If your reply is yes to any, please give details below.

no

I agree to the open peer review policy of the journal. I understand that my name will be included on my report to the authors and, if the manuscript is accepted for publication, my named report including any attachments I upload will be posted on the website along with the authors' responses. I agree for my report to be made available under an Open Access Creative Commons CC-BY license (http://creativecommons.org/licenses/by/4.0/). I understand that any comments which I do not wish to be included in my named report can be included as confidential comments to the editors, which will not be published.

I agree to the open peer review policy of the journal