Reviewer’s report

Title: Inter- and intraobserver reliability assessment of the axial trunk rotation: manual versus smartphone-aided measurement tools

Version: 2 Date: 22 March 2014

Reviewer: Silvana De Giorgi

Reviewer’s report:

Dear Authors,

I reviewed your article “Inter- and intraobserver reliability assessment of the axial trunk rotation: manual versus smartphone-aided measurement tools” and I declare that I have no competing interests.

This is an interesting article whose findings are important to those with closely related research interests, but it needs Major Compulsory Revisions (which the author must respond to before a decision on publication can be reached).

These are my comments:

1. The question is well defined by the authors.
2. The methods are appropriate but the results are confused.
3. The data description in the results section is confusing compared to the tables and to the last sentence of the Discussion Section
4. The reported data are not clearly explained
5. The discussion and conclusions are not well balanced and adequately supported by the data.
6. Weaknesses and strengths of the study are not explained.
7. I would suggest to improve the references by adding the Perdriolle method in the evaluation of the ATR, which is more accurate than the Cobb Angle in measuring the Axial Trunk Rotation.
8. The Results are in contrast with the last sentence of the Discussion Section.
9. The writing is acceptable but has to be improved for a better comprehension of some statements.

Quality of written English: quite acceptable

Statistical review: I do not feel adequately qualified to assess the statistics.

I would suggest to improve references adding more articles about scoliosis and Perdriolle method to measure the vertebral rotation. As a matter of fact, you should have measured also the Perdriolle Angle of the vertebra at the apex of the curve, which is more related to the Axial Trunk Rotation than the Cobb Angle.
A photo of the position of the smartphone on the back of the patient could be very helpful in understanding the good use of the tool.

Section Discussion. Line 14: ……………………………………A reliability analysis have been performed to evaluate the consistency and measurement error of this smartphone-aided Cobb angle measurement method and compare its reliable characteristics with those of the manual method. The study proved that this state of art techniques showed excellent reliability and efficiency12. Please rewrite the last sentence to explain better.

At the end of the Discussion Section you state that “the intra- and interrater reliability was better in the group with large Cobb angle for both scoliometer and scoliogauge”, while in the abstract you state in the conclusion that “The intraobserver and interobserver reliability was better in mild curve (< 20 degrees) group” and also in the last sentence of the Results Section you state that “the intraobserver and interobserver reliability was better in mild curve (< 20 degrees) group”. This is very confusing! What do you mean by Large Cobb Angle Curve? Do you mean a Cobb Angle >40 degrees?

**Level of interest:** An article whose findings are important to those with closely related research interests

**Quality of written English:** Needs some language corrections before being published

**Statistical review:** Yes, but I do not feel adequately qualified to assess the statistics.

**Declaration of competing interests:**

I declare that I have no competing interests.