Author’s response to reviews

Title: Torsion bottle, a very simple, reliable and cheap tool for a basic scoliosis screening

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Author’s response to reviews:

Reviewer reports:

Reviewer #1: Is the advantage of this device a cost and availability issue? THE COST OF THIS INSTRUMENT IS REALLY INEXPENSIVE. INSTEAD THE REAL ADVANTAGE OF THIS TOOL IS THE POSSIBILITY TO USE A SIMPLE INSTRUMENT IN THE PATIENT HOME. ITS USE IS TO ASSIST THE PARENTS IN PREVENTION AND TO CONSULT WITH A PHYSICIAN IF NEED BE.

"Scoliometer®" is a registered name and trademark. It should be designated as such. ABSOLUTELY RIGHT. THANKS FOR THE CORRECT SUGGESTION. DONE

Describing the lumbar and thoracic prominence as a "hump" has passed out of usage in the US. Some believe it is impolite to tell a sensitive young girl that she has a hump. That may vary with different cultures, but we should be ahead of the curve in terminology. THANK YOU VERY MUCH FOR THE INFORMATION. I WILL USE THE TERM “PROMINENCE”

I believe this is an innovative device that would be readily available and inexpensive. In addition to utilization instructions, the variable is in constructing the device. Emphasis should be given for the need to build it according to precise instructions. Checking it against a standard would also be important.

I PREPARED A VIDEO TO EXPLAIN HOW TO PREPARE AND USE THE DEVICE. I EXPECT A VIDEO TUTORIAL FOR THE EXPLANATION. I PREPARED A FIRST VERSION OF IT.

I WILL ATTACH A LINK IN THE ARTICLE TO OPEN THE PAGE IN THE WEB. TO SEE THE TUTORIAL FOR ITS PREPARATION. (LINES 113-114 of the manuscript)

Reviewer #2: This is an interesting concept which has some value. Whilst I am not questioning the due diligence and the originality of thought in which this work is conducted, I am struggling to understand the rigour and the application/impact.
This manuscript will form a good "blog" post to influence the thoughts of patients but will it add to the approaches needed to further the understanding of the disease? the answer might be "no". A SIMPLE TOOL FOR A DOMESTIC SCREENING DOES NOT INCREASE THE UNDERSTANDING OF THE DISEASE. THE PURPOSE IS TO SUGGEST THE USE OF AN OBJECTIVE TOOL WHICH COULD HELP PARENTS IN MONITORING THE PROGRESSION OF THEIR CHILD’S CURVE AND TAKE NECESSARY ACTION IF NEED BE. INDICATES PARENTS TO MAKE A MEDICAL DEEPPENING.

In terms of the manuscript itself, I am sorry but it is very weak in all aspects. If this work needs to be considered for a publication in a scientific/ clinical journal - the authors need to provide a clear critique of existing screening methods and how your new method will contribute to extending the knowledge in this area. DONE. I HOPE

In terms of methodology, how about the shape of the bottle? how about the amount of water? how accurate should these markers be? AS DESCRIBED IN THE CONCLUSION, THE BEST BOTTLE SHAPE WOULD BE WITH A HOLLOW IN THE MIDDLE. THIS IS IMPORTANT SO IT DOES NOT INTERFERE WITH THE SPINOUS PROCESSES.

THE AMOUNT OF THE WATER IS NOT A FUNDAMENTAL ELEMENT. THE SUGGESTION IS TO EMPTY ALMOST HALF BOTTLE.

ONCE THE BOTTLE IS CLOSED, IT SHOULD BE MARKED WITH THE FOUR REFERENCE POINTS.

NOW THE AMOUNT OF THE WATER IN THE BOTTLE CORRELATES WITH THE POSITION OF THE LANDMARKS.

Results and Discussion - based on the comments above - this section should be thoroughly rewritten.

THANK YOU FOR THE SUGESTION.

Reviewer #3: Thanks to the authors for their initiative in favor of scoliosis screening.

The term "Torsion"of Torsion bottle seems inappropriate. The torsion can be applied to the spine, but with more difficulty to the trunk as the rib hump is not the rotation of the trunk. Perhaps "trunk rotation bottle"


I 22 "part" is written twice

DONE
The reference to the Adam's test is missing

DONE

To note the point of contact may introduce a bias, because the bottle is a cylinder and the scoliometer a plan. The choice of the point of contact may be different. Did the authors check without noting the point of contact? OBVIOUSLY THE SCOLIOMETER IS A PLAN AND THE BOTTLE IS A CYLINDER. THE USE OF BOTTLE IS LESS FRIENDLY THAN THE SCOLIOMETER.

IT IS POSSIBLE TO SLIDE THE BOTTLE ON THE BACK LIKE THE SCOLIOMETER (WITHOUT ROLLING) AND FIND THE MAJOR PROMINANCE.

THIS OPERATION IS LESS SIMPLE IN RESPECT OF THE SCOLIOMETER BECAUSE THE SURFACE OF THE WATER IS NOT AS STABLE AS THE LITTLE METALLIC SPHERE INCLUDED IN THE SCOLIOMETER.

CONSIDERING THAT THESE MEASUREMENTS SHOULD BE CARRIED OUT IN AT HOME, TIME IS NOT AN IMPORTANT ISSUE.

It should be mentioned smartphone applications less than 10 €. SMARTPHONE APPLICATIONS ARE VERY EASY AND RELIABLE. FOR AN APPLICATION OF A SMARTPHONE ACCOMPANIED BY THE ATTACHMENT (APPLE) WOULD MAKE THE MEASUREMENTS VERY POSSIBLE. THE TORSION BOTTLE IS NOT TO REPLACE THE SCIENTIFIC TOOL USED IN CLINIC SUCH AS THE SCOLIOMETER, BUT IS TO BE USED AS AN AFFORDABLE TOOL TO HELP PARENTS MONITOR THE PROGRESSION OF THEIR CHILD’S SCOLIOSIS.

Discussion

It should be noted that the bottle does not quantify the degree of the rib hump, unlike the scoliometer.

DONE

Reviewer #4: I enjoyed reading the manuscript.

My concerns are:

1. Intra-operator (observer) repeatability means "repeatability when observers repeated the same experiment or trial". In this manuscript results of the torsion bottle and scoliometer were compared. This was not intra-operator repeatability THANK YOU I AM SORRY FOR THE MISTAKE. THE intra-operator ASSESSMENT was based OF THE reliability of the tools.
2 The amount of the water in the bottle should be within the adequate range. If the water amount is too much or too little, excessive rotation is necessary to locate the surface of the water coincides with the position of landmark 1, which may result the inaccurate judgement.

LANDMARCHS 1 AND 2 ARE SIGNED ONLY AFTER THE BOTTLE IS filled in with water and well closed with cap. The quantity of water is not critical because the landmarks are correlated to the quantity of water in this specific bottle. Please see the video. LINES 113-114 of the manuscript