

Oral presentation

Open Access

## The influence of examiner experience on the reliability of surface topography measurements in patients with AIS

P Knott\*, S Mardjetko, D Lamborne, J Stemer and A Strasburg

Address: Rosalind Franklin University of Medicine and Science 3333 Green Bay Road, North Chicago, IL 60064 USA Illinois Bone and Joint Institute, Morton Grove, IL, USA

Email: P Knott\* - Patrick.Knott@RosalindFranklin.edu

\* Corresponding author

from 6th International Conference on Conservative Management of Spinal Deformities  
Lyon, France. 21-23 May 2009

Published: 14 December 2009

*Scoliosis* 2009, **4**(Suppl 2):O14 doi:10.1186/1748-7161-4-S2-O14

This abstract is available from: <http://www.scoliosisjournal.com/content/4/S2/O14>

© 2009 Knott et al; licensee BioMed Central Ltd.

### Background

The Ortelius 800 is a device for measuring scoliosis curves in AIS using surface topography. Initial experience with this machine was found to be unreliable, but more recent techniques have been shown to greatly enhance the reliability and reproducibility of Cobb angle measurements. If this machine can be used to obtain consistent measurements, then in addition to its use by spinal deformity specialists, it could be employed as a screening device by school personnel or by general pediatricians. But, more widespread distribution of the Ortelius 800 would mean that less experienced examiners would be using the machine.

This study looked at the relationship between the experience of the examiner and the reliability of the Cobb angle measurements. If only very experienced examiners can obtain reliable measurements, then distribution of this tool should be more limited.

### Methods

In this study, volunteer patients were measured by a clinician with more than 20 years experience, and then again by health science students with less than one year of physical examination experience. Measurements were compared to see the influence that experience had on the reliability of this screening tool.

### Results and conclusion

The inexperienced examiners were able to perform measurements of leg length, thigh circumference, angle of trunk rotation and knee flexion with the same level of reliability as the experienced examiner. There were no statistically significant differences between the measurements performed by these groups.

When using the Ortelius 800 to measure scoliosis curves, the inexperienced examiners obtained measurements that were very similar to those of the experienced examiner, and both groups had standard deviations of these measurements that were between 1.2 and 3.8 degrees. Measurement of kyphosis yielded the same results, with both groups obtaining similar angular measurements for kyphosis, and having standard deviations that were between 1.2 and 4.4 degrees.

Our conclusion was that measurements from a group of inexperienced examiners did not differ significantly from those of an experienced examiner when using the Ortelius 800 device to measure scoliosis [1-4].

### References

1. Hoffman DA, et al : **Breast Cancer in Women with Scoliosis Exposed to multiple diagnostic X-Rays.** *J National Cancer Inst* 1989, **81**(17):1307-1312.
2. Dickman Dalia, Caspi Oren: **Assessment of Scoliosis with Ortelius 800: Preliminary Results.** *Clinical Application Notes* 2009, **4**:13.

3. Knott Patrick, et al> : **The Effect of Patient Positioning on the Reliability of Spinal Measurements in the Evaluation of Scoliosis and Kyphosis Using the Orthoscan.** .
4. Knott Patrick, et al> : **Electromagnetic topographical technique of curve evaluation for adolescent idiopathic scoliosis.** *Spine* 2006, **31(24):E911-E915.**

Publish with **BioMed Central** and every scientist can read your work free of charge

*"BioMed Central will be the most significant development for disseminating the results of biomedical research in our lifetime."*

Sir Paul Nurse, Cancer Research UK

Your research papers will be:

- available free of charge to the entire biomedical community
- peer reviewed and published immediately upon acceptance
- cited in PubMed and archived on PubMed Central
- yours — you keep the copyright

Submit your manuscript here:  
[http://www.biomedcentral.com/info/publishing\\_adv.asp](http://www.biomedcentral.com/info/publishing_adv.asp)

