

Oral presentation

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Comparison of three non-invasive devices to assess the sagittal spinal configuration in an heterogeneous population of scoliotic and non scoliotic subjects

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from 4th International Conference on Conservative Management of Spinal Deformities
Boston, MA, USA. 13–16 May 2007

Published: 12 October 2007

Scoliosis 2007, **2**(Suppl 1):S35 doi:10.1186/1748-7161-2-S1-S35

This abstract is available from: <http://www.scoliosisjournal.com/content/2/S1/S35>

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Objective

To compare three non-invasive devices (SpineScan®, Myrin® inclinometer, Saunders® goniometer) to assess the sagittal postural curvatures of the spine (thoracic kyphosis, lumbar lordosis and pelvis inclination) in an heterogeneous population formed by scoliotic and non-scoliotic subjects. The Formetric® system has provided the reference angles.

Study design

Prospective observational. Fifty three consecutive subjects (nineteen males, thirty-four females, age 16.3 years, thirteen healthy controls/forty scoliosis patients) were measured with the Formetric and the three compared devices in a same session. All measurements by the same observer.

Results

Mean kyphotic angles measured with the SpineScan (43.8 degrees), the Myrin (34.9 degrees) and Saunders (35.8 degrees) were significantly lower compared with the Formetric (50 degrees). Mean lordotic angles measured with Myrin (32.5 degrees) and Saunders (32.8) were significantly lower compared with Formetric (39.4 degrees). Myrin pelvis inclination (19.4 degrees) was not different compared to the Formetric (20.3 degrees) but both were lower than Saunders (29.8 degrees). Myrin angles were similar to those already published. Both Myrin and Saunders showed a strong correlation with Formetric but not the SpineScan.

Conclusion

Myrin and Saunders devices can be used in substitution of the Formetric to partially assess the sagittal profile in scoliotic and non-scoliotic subjects with less cost. SpineScan needs further verifications and possibly requires a longer training time.