

ORAL PRESENTATION

Open Access

The usefulness of the sum of rotation parameter in scoliosis screening

J Chowańska^{1,2*}, T Kotwicki²

From 8th International Conference on Conservative Management of Spinal Deformities and SOSORT 2011 Annual Meeting

Barcelona, Spain. 19-21 May 2011

Purpose of the study

It was to assess the usefulness of the Sum of Rotation parameter in scoliosis screening.

Background

The Sum of Rotation parameter (SR) represents the sum of absolute values of angles of trunk rotation (ATRs) measured with a scoliometer on three spinal levels: proximal thoracic, main thoracic and thoracolumbar/lumbar. This parameter is useful in following-up the patient during conservative scoliosis management, because it documents the global rotational trunk deformity [1-4].

Materials and methods

In a cohort of 996 school girls, aged 11.0 ± 1.0 years, range 9 to 13, the average, standard deviation, minimum and maximum values of SR were calculated separately for three distinct subgroups: (a) ATR: $0^\circ - 3^\circ$, (b) ATR 4° to 6° and (c) ATR $\geq 7^\circ$.

Results

The SR value was: (a) 0.9 ± 1.2 , range 0.0° to 6.0° , N=870, (b) 5.5 ± 1.9 , range 4.0° to 17° , N= 94, (c) 10.2 ± 3.3 , range 7.0° to 20.0° , N= 32. Normal children with important SR values were identified ($SR = 2^\circ + 2^\circ + 2^\circ = 6^\circ$).

Conclusions

The use of SR parameter seems not reveal additional information in scoliosis screening comparing to simple ATR measurement. Moreover, a risk of bias is present if the cut-off criterion of 7° is applied.

Author details

¹Rehasport Clinic, Poznań, Poland; Spine Disorders Unit, Department of Pediatric Orthopedics and Traumatology, University of Medical Sciences, ul. Poznan, Poland. ²Spine Disorders Unit, Department of Pediatric Orthopedics and Traumatology, University of Medical Sciences, Poznan, Poland.

Published: 27 January 2012

References

1. Bunnell WP: Outcome of spinal screening. *Spine* 1993, **18**:1572-1580.
2. Goldberg CJ, Kaliszer M, Moore DP, Fogarty EE, Dowling FE: Surface topography, Cobb angles and cosmetic change in scoliosis. *Spine (Phila Pa 1976)* 2001, **26**:E55-E63.
3. Kotwicki T, Kinel E, Chowańska J, Bodnar-Nanuś A: POTSi, Hump Sum and Sum of Rotation - new surface topography parameters for evaluation of scoliosis deformity of the trunk. *Fizjoterapia Polska* 2008, **8**:231-240.
4. Suzuki N, Inami K, Ono T, Kohno K, Asher MA: Analysis of posterior trunk symmetry index (POTSi) in Scoliosis. Part 1. In *Research into Spinal Deformities 2*. Amsterdam, IOS Press/Stokes, I.A.F 1999:81-84.

doi:10.1186/1748-7161-7-S1-O59

Cite this article as: Chowańska and Kotwicki: The usefulness of the sum of rotation parameter in scoliosis screening. *Scoliosis* 2012 **7**(Suppl 1): O59.

Submit your next manuscript to BioMed Central and take full advantage of:

- Convenient online submission
- Thorough peer review
- No space constraints or color figure charges
- Immediate publication on acceptance
- Inclusion in PubMed, CAS, Scopus and Google Scholar
- Research which is freely available for redistribution

Submit your manuscript at
www.biomedcentral.com/submit



¹Rehasport Clinic, Poznań, Poland; Spine Disorders Unit, Department of Pediatric Orthopedics and Traumatology, University of Medical Sciences, ul. Poznan, Poland

Full list of author information is available at the end of the article