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# Feasibility of conducting a multicentre prospective study evaluating different physiotherapy methods for the treatment of mild idiopathic scoliosis patients using standardized methods of evaluation: call for a consensus

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From 7th International Conference on Conservative Management of Spinal Deformities  
Montreal, Canada. 20-22 May 2010

## Introduction

The SOSORT physiotherapy consensus (2005) demonstrated that scoliosis specialists were in agreement that several features in the rehabilitation of patients with idiopathic scoliosis can be regarded as standard. The purpose of this study was to call for a preliminary consensus regarding the feasibility of conducting a multicentre prospective study evaluating different physiotherapy methods for the treatment of scoliosis using standardized methods of evaluation.

## Materials and methods

The consensus questions were e-mailed to key members of SOSORT and colleagues specialising in scoliosis. The responses were analyzed quantitatively and qualitatively.

## Results

Of the responses received, 50% were Doctors, 45% physiotherapists and 5% were Osteopaths (n=20). 94.7% of participants agreed that physiotherapy can limit scoliosis progression and 95% agreed that it would be useful to conduct the proposed prospective study. 89.5% agreed that the initial inclusion criteria for the study should be female idiopathic scoliosis patients aged 11 to 13 (94.7%). Risser scale (0-1) had 84.2% responding positively when compared to Tanner pubic hair and Tanner breast (68.4% and 52.6% respectively). The mean minimum and maximum Cobb angles were 13.9° and 26.4° (retained values of 15° and 25°

for the study). Of the respondents, 94.7% found the material to be useful. Many commented on the respiratory function, some feeling the need for high quality objective tests including spirometry, exercise testing and plethysmography, while others stated that mild scoliosis would have no effect on respiratory function. For the measurement of hip rotation asymmetry, pelvic and shoulder tilt the majority of participants agreed that they preferred to measure these in degrees, while for waist asymmetry, TRACE was preferred. 84.2% of respondents unanimously agreed with ATR Bunnel in degrees. 57.9% of respondents agreed with using the terms “rib hump” “frontal balance” (52.6%) and “Sagittal profile” (63.2%) in mm (10% evoked the Rippstein pluri-meter). The majority agreed on a multifactorial analytic and global asymmetric approach in an outpatient/community setting. Muscle strength testing was rigorously debated and evolved around the idea that strength is not an issue in scoliosis. The SRS-22 was preferred however comments included validating and adapting this further, and offers were forthcoming to aid the development of a universal trans-cultural psychological tool.

## Discussion

This preliminary pilot consensus study (first round) clearly demonstrates the importance of conducting a multicentre prospective study and implementing article 22.2 of the SOSORT statutes proposed 4 years ago. This states “A database to collect important information about the results of exercises for the treatment of Scoliosis and other Spinal Deformities shall be created”. This database would significantly help elucidate the

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Item	Yes	No	Different	Missing
Do you think that physiotherapy can limit scoliosis progression?	94.7%	5.3%		
Do you think it is useful to realize this prospective study?	94.7%	5.3%		
Do you agree with these inclusion criteria as for bracing?				
Female	89.5%			10.5%
Idiopathic	89.5%			10.5%
11-13 years	94.7%			5.3%
Tanner P 0-1	68.4%			31.6%
Tanner S 0-1	52.6%			47.4%
Risser 0-1	84.2%			15.8%
How do we define a minor scoliosis at risk of evolution?				
- Minimum (Mean=13.9°, retained 15°)	36.8%	42.1%	15.8%	5.3%
	10 degrees	15 degrees	20 degrees	
- Maximum (Mean 26.4°, retained 25°)	10.5%	52.6%	31.6%	
	20 degrees	25 degrees	30 degrees	5.3%
Are you OK with the material presented in useful links	94.7% yes	5.3% no		
How can we evaluate the respiratory function of scoliosis using simple tools? Do you agree with the measurement of the lower chest perimeter (maximum) ?	26.3 agree	15.8 don't	42.1 % other	15.8%
How do you prefer to measure Rot hip asymmetry?	84.3 % deg			15.8%
How do you prefer to measure waist Asymmetry?	26.3% mm	36.8% Trace	31.6% Both	5.3%
How do you prefer to measure Pelvic tilt?	42.1% Deg	5.3% mm	36.8 both	10.5 % other
How do you prefer to measure Shoulder tilt?	42.1 % deg	5.3 % mm	21.1% trace	
Do you agree with using the following basic terminology?				
Clinical Rib Hump (mm)	57.9% yes	5.3% Potsi		36.8%
ATR Bunnel (°)	84.2% yes			15.8% mis
Frontal Plane (mm)	52.6% yes	5.3% No		42.1%
Sagittal Profile (mm)	63.2% yes	5.3% no	5.3% each x-ray/degree	26.3%
Which approach do you prefer?				
Monofactorial/Multifactorial?	21.1% mono	52.6% multi	10.5 don't know	15.8%
Analytic	10.5% yes	15.8% global	26.3% both	47.4%
Symmetric	5.3%	10.5% asym		84.2%miss
Inpatient Centers (INP) vs outpatient (OP) centers?	13.3 INP	60% OP	6.7% both	20%
Muscle strength & endurance Shirado/Sorenson test?	5.3% Shirado	36.8% Sorenson	5.3 don't know	26.3%
Do you prefer the adaptation of the SRS 22, the BSSQ or the BrQ questionnaire?	63.2% SRS22 (ad)	10.5% BSSQ	10.5% BRQ	5.3%
Do you wish to debate as a delegate	66.7%	33.3%		

**Figure 1** Results of preliminary consensus study.

numerous questions cited in Figure 1 and above regarding the effectiveness of scoliosis specific exercises for the treatment of patients with mild scoliosis.

### Conclusion

The full consensus still needs to go through a second round as well as validation by the board and participants during the next meeting. At this point full consensus should be reached on the proposed inclusion criteria, the management of scoliosis patients, the method as well as the objective and standardised evaluation. Some results could also be used for screening.

Published: 10 September 2010

doi:10.1186/1748-7161-5-S1-O30

**Cite this article as:** Bettany-Saltikov *et al.*: Feasibility of conducting a multicentre prospective study evaluating different physiotherapy methods for the treatment of mild idiopathic scoliosis patients using standardized methods of evaluation: call for a consensus. *Scoliosis* 2010 **5**(Suppl 1):O30.