

# POSITIVE OUTCOME IN OVERWEIGHT PATIENTS WITH ADOLESCENT IDIOPATHIC SCOLIOSIS TREATED BY THE SPINECOR BRACE

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## INTRODUCTION

The SpineCor brace was designed to meet specific functional requirements for the optimal treatment of idiopathic scoliosis. These requirements have been defined based on many years of research into the etiopathogenesis of idiopathic scoliosis. Instead of using 3-point pressure biomechanical principles the SpineCor brace uses curve specific "corrective movements". These "corrective movements" produce global postural changes that correct the postural abnormalities associated with a specific curve classification and in turn progressively reduce the Cobb angle. Repetition of the "corrective movements" through wearing the brace 20 hours per day can prevent progression or correct the scoliotic deformity (Coillard et al, 2003).

Effectiveness of conservative treatment depends on patient maturity, curve properties and gender. More recently, body habitus has been found to be a predictive factor (O'Neill et al, 2005) in the orthotic treatment of AIS. Overweight patients will have greater curve progression and less successful results following rigid braces treatment than those who are not obese. This finding is alarming, as more and more children are becoming overweight in developed countries (Dehghan et al, 2005).

Since the SpineCor brace uses different treatment approach, we believe that body habitus will not interfere with the success of the brace. The purpose of this study was to compare outcomes of SpineCor brace treatment in AIS patients who were overweight with the outcome in patients who were not obese.

## METHOD

From Dec. 1994 to May 2006, 503 patients were treated using the SpineCor brace. 190 patients were still actively being treated and 133 patients did not fit the research inclusion criteria proposed by the Scoliosis Research Society (Richard et al, 2005). To date 180 patients have a definitive outcome. The cohort of patients was divided into two groups according to body habitus. Obese patients were defined as those with a body mass index in the 85<sup>th</sup> percentile or greater.

Assessment of brace effectiveness included: 1) number of patients who have 5° or less curve progression, 2) number of patients who have 6° or more progression, 3) number of patients with curves exceeding 45° at the end of treatment and 4) number of patients who have been recommended/who have undergone surgery before skeletal maturity.

## RESULTS

	NOT OBESE (N = 167)	OBESE (N = 13)
Initial Cobb (deg)	32,4 ± 6,1	33,8 ± 6,6
≤ 5° progression (n)	110	8
>5° progression (n)	57	5
>45° at maturity (n)	2	1
Surgery before maturity (n)	38	3

Table 1. Comparison of patients who were overweight with those who were not overweight.

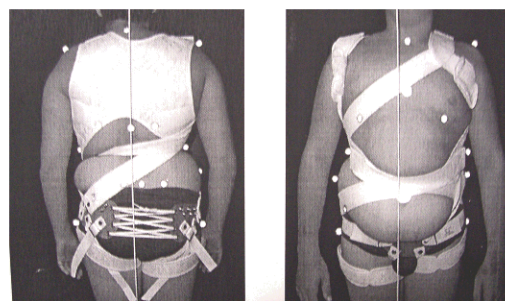


Figure 1. The SpineCor brace fitted on an obese patient with idiopathic scoliosis.

## DISCUSSION/CONCLUSION

The results of the present study demonstrate that overweight and not overweight AIS patients treated by the SpineCor brace have a positive outcome (62% and 66% of success respectively). This level of success has not been demonstrated for obese AIS patients using conventional 3-point pressure braces. We believe that SpineCor bracing is more successful in obese AIS patients because the application of dynamic corrective movements through the shoulders, thorax and pelvis is not adversely affected by excess subcutaneous tissue. Rigid 3-point pressure braces in contrast cannot effectively apply forces to the spine of an obese patient.

## REFERENCES

- Coillard, C., Leroux, M.A., Zabjek, K.F. and Rivard, C.H. Eur Spine J. 12, 141-148, 2003.
- O'Neill, P.J., Karol, L.A., Shindle, M.K., Elerson, E.E., BrintzenhofeSzoc, K.M., Katz, D.E., Farmer, K.W. and Sponseller, P.D. J Bone Joint Surg Am. 87, 1069-1074, 2005
- Dehghan, M., Akhtar-Danesh, N. and Merchant, A.T. Nutrition Journal. 4, 24-32, 2005.
- Richards, B. S., Bernstein, R. M. D'Amato, C. R. and Thompson, G. H. Spine. 30, 2068-2075, 2005.