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Night-time bracing improves back pain in patients with painful scoliosis: six months results of a retrospective controlled study

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	Peak				Custom made			
	Baseline	6 Months			Baseline	6 Months		
	Mean/median (SD/95%CI)	Mean/median (SD/95%CI)	P value intragroup	P value Intergroup pre treatment	Mean/median (SD/95%CI)	Mean/median (SD/95%CI)	P value Intragroup	P value Intergroup post treatment
Worst pain (back or leg)	7.15±2.03	5.6±2.13	0.011*	0.55	6.15±2.47	4.38±2.60	0.035*	0.66
Back Pain	6.55±2.37	5.25±2.69	0.049*	0.23	6.15±2.47	4.04±1.87	0.004*	0.23
Leg Pain	5.65±3.03	4.35±2.66	0,003*	0.48	4.66±2.94	2.83±3.76	0.11	0.27
COMI	5.67 (5.11–6.79)	4.18 (3.34-5.02)	0.002*	0.12	4.00 (2.00-5.99)	3.25 (2.09-4.41)	0.33	0.32
ODI	33.00 (25.26–38.43)	33.05 (26.30-39.79)	0.96	0.50	27.75 (14.85-40.65)	23.50 (12.86-34.14)	0.20	0.11

Introduction: Adult scoliosis is sometimes associated to back pain and severe curves can progress over time. The main approach for these patients is the surgical one, however surgery is not appropriate for all patients, and some do not accept surgery. Despite scoliosis has been estimated to affect up to 68% of the population over 60, there is scant literature about conservative treatment for adult scoliosis. Bracing is a quite common approach in such patients, but only a few papers are available to assess their efficacy. Bracing is usually applied during the day to improve pain and function, but some evidence showed a role for night-time bracing to prevent progression in most severe curves. Since some years we started using this approach in our patients, but so far, no information is available about the role of night-time bracing to improve pain and function.
The aim of the present study was to test the effectiveness of a custom-made brace in reducing pain and improving function in adult scoliosis patients at six months with respect to a prefabricated brace worn 2-4 hours during the day.
Methods: Design: retrospective controlled study.
Population: study group: 9 adults (age 57.0±5.0, curve 56.1±18.1° Cobb) who were treated with a custom-made brace for scoliosis at night.
Control group: 20 adults (age 67.8±10.5, curve 61.9±12.6° Cobb) coming from a previous study from our group.
Inclusion criteria: Adults affected by Idiopathic scoliosis of 30° Cobb or more and chronic low back pain (cLBP). Exclusion criteria: secondary scoliosis.
Sample size: no calculation was made; we included all the patients fulfilling inclusion criteria treated with a night-brace.
Outcome measures: GRS, Oswestry Disability Index (ODI), COMI.
Statistical analysis: paired t-test and non-parametric tests.
Protocol: patients were evaluated at baseline immediately and 6 months after they started wearing their brace. The dosage was night-time for the study group and 2-4 hours daytime for the control group.
Results: All patients from both groups reported a good compliance with bracing.
At six months, worst pain and back pain were significantly improved in both groups, while leg pain and COMI reached a statistically significant improvement only in the control group. For ODI, no relevant changes were noted.
Discussion: Night-time bracing with a custom-made brace showed being as effective as using prefabricated for 2-4 hours during daytime on worst pain and back pain. Results were not significant for leg pain and disability in the study group, and this could depend on the sample included, eventually too small to detect such a change. Achieving a good pain control with night-time bracing could be very important in order to help patients without impacting their ability to actively support their trunk.
We consider these as preliminary data that will justify further research to better understand the role of night-time bracing in adults with scoliosis and low back pain.

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