

Spino-Pelvic Alignment with SpineCor Brace Use in Adolescent Idiopathic Scoliosis

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Abstract : Background: The effectiveness of bracing on preventing spino-pelvic alignment deterioration in idiopathic scoliosis has been extensively studied especially in the frontal plane. Yet, there is lack of knowledge regarding the effect of soft braces on spino-pelvic alignment in the sagittal plane. Achieving harmonious sagittal plane spino-pelvic balance is critical for the preservation of physiologic posture and spinal health. Purpose: This study examined the kyphotic angle, lordotic angle and pelvic inclination in the sagittal plane and trunk imbalance in the frontal plane before and after a six-month rehabilitation period. Methods: Nineteen patients with idiopathic scoliosis participated in the study. They were divided into two groups; experimental and control. The experimental group (group I) used the SpineCor brace in addition to a rehabilitation exercise program while the control group (group II) had the exercise program only. The mean \pm SD age, weight and height were 16.89 \pm 2.15 vs. 15.3 \pm 2.5 years; 59.78 \pm 6.85 vs. 62.5 \pm 8.33 Kg and 162.78 \pm 5.76 vs. 159 \pm 5.72 cm for group I vs. group II. Data were collected using for metric II system. Results: Mixed design MANOVA showed that there were significant ($p < 0.05$) decreases in all the tested variables after the six-month period compared with "before" in both groups. Moreover, there was a significant decrease in the kyphotic angle in group I compared with group II after the six-month period. Interpretation and conclusion: SpineCor brace is beneficial in reducing spino-pelvic alignment deterioration in both sagittal and frontal planes.

Keywords : adolescent idiopathic scoliosis, SpineCor, spino-pelvic alignment, biomechanics

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