

## 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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