Effects of a Trunk Brace with Joints that Provides a Resistive Force to Modify Pelvic Alignment During Level Walking in the Elderly

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**Objective:** The purpose of the present study was to examine the kinetic and kinematic effects of wearing a trunk brace with joints that provides a resistive force to modify pelvic alignment during level walking in the elderly.

**Methods:** Twenty-seven healthy elderly people participated in the study. The study compared kinetic and kinematic variables among three different conditions of level walking: (1) with no orthosis, (2) with a trunk brace with joints, and (3) with a lumbosacral corset. Statistical analysis was performed using repeated measures ANOVA. Variables showing a significant difference were analyzed further with multiple comparisons using the Bonferroni correction. The significance level was set at 0.05.

**Results:** Use of the trunk brace with joints and lumbosacral corset increased the walking speed compared to the no orthosis condition. Furthermore, use of the trunk brace with joints significantly increased the pelvic anterior tilt angle, trunk extension angle, and hip abductor moment in the early stance phase of one gait cycle compared to the other two conditions.

**Conclusions:** Wearing the trunk brace with joints provided a resistive force that effectively modified pelvic alignment in the elderly and increased their walking speed and hip abductor moment during level walking.