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Title
The effect of elderly specific spinal orthoses on balance control and walking characteristics in elderly subjects

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Summary
this review evaluated the elderly specific spinal orthoses literature that involved balance control and walking characteristics evaluation in elderly hyperkyphotic subjects.

Introduction/ basics
As human ages, the vertebrae undergo continued deformities causing significant postural changes along the thoracic spine and this may create a shift in the trunk mass, an increased flexion deformity and excessive compression due to upcoming shearing forces to the spinal segments. A posterior pelvic tilt may occur to provide a posterior adjustment to the vertebral position. The resulted tilt may subsequently cause either an unbalanced compensatory posture or a compensated incongruent posture of the spine. This would change the sagittal plane alignment among the elderly and increase mechanical loading, Balance changes due to the shift in the center of gravity within the base of support that can increase the risk of falls and related injury. In addition, it interferes with walking abilities and in elderly hyperkyphotic subjects walking speed reduces.

Material method; implementation/ process
According to the population intervention comparison outcome measure methods and based on selected keywords, 12 studies met the inclusion criteria.

Results
The results of the analysis demonstrated that after use of spinal orthosis (such as Spinomed orthosis and PTS) walking parameters improves in the elderly with thoracic hyperkyphosis conventional clinical balance tests and instrumental balance assessments show that elderly

specific spinal orthosis, had a positive and significant effect on balance control and walking parameters.

Discussion/ conclusion; conclusion for the practice

According to result of this review spinal orthoses may be considered for improving the balance control and walking style in elderly hyper kyphosis subjects. This positive effects of specific orthoses can be explained from two aspects: The first is postural control via keeping the body center of mass within the base of support in the dynamic and static tasks and the second is the increase proprioceptive input and enhance the patient's ability to sense the position of the spine. An enhancement in the somatosensory feedback induced by the orthoses facilitates balance control and elderly subject will be more stable during walking.

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