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Quantifying the intensity of balance exercises

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Background & Aim: Balance training has been found to be useful for all age groups in improving mobility and functionality. Customized balance exercises and vestibular rehabilitation therapy have elicited beneficial results in improving balance in older adults and people with vestibular disorders, lessening the symptoms of vestibular disorders and reducing falls. However, the evidence for determining the appropriate intensity and progression of balance exercises is very limited. One of the methods used to measure exercise intensity was quantitative posturography that measures body sway. Usually the reliability of balance exercises performance is assessed in small set of exercises. In order to develop the field of measuring the intensity of balance exercises, the reliability testing must be performed using a large number of exercises. The purpose of this study was to investigate the test-retest reliability of postural sway produced during performance of 24 different balance exercises.

Methods: 62 healthy subjects between the ages of 18 and 85 years of age (50% females, mean age 55±20 years) participated. Subjects were tested during two visits one week apart and performed two sets of the 24 randomized standing exercises per visit. The exercises consisted of combinations of the following factors: Surface (firm and foam), vision (eyes open and eyes closed), stance (feet apart and semi-tandem) and head movement (no movement, yaw, and pitch). Postural sway was recorded via an inertial measurement unit for each exercise.

Results: Angular velocity sway measures in the pitch and roll directions demonstrated moderate and higher test-retest reliability scores (0.67-0.93).

Conclusion: Postural sway measures can be used as a reliable measure in determining intensity of balance exercises and guiding exercise progression.

Biography

Saud Alsubaie currently works at the Department of Physical Therapy and Health Rehabilitation, Prince Sattam bin Abdulaziz University. Saud does research in Rehabilitation Medicine, Neurology and Allied Health Science. Their most recent publication is Evaluating pulmonary function, aerobic capacity, and pediatric quality of life following a 10-week aerobic exercise training in school-aged asthmatics: a randomized controlled trial.

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