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RELATIONSHIP BETWEEN CENTER OF PRESSURE AND MEDIO-LATERAL DIRECTIONS IN THE FUNCTIONAL REACH TEST: CLINICAL PROJECTION IN SPINAL CORD INJURY

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Introduction

Interpreting the results of postural balance assessment can be difficult to manage in clinical environments, particularly within Spinal Cord Injury (SCI) rehabilitation programs due to the large data set that can be extracted from the center of pressure (COP). A simple method that allows for straightforward interpretation is needed for quantifying seated postural balance in clinical populations. Modified Functional Reach Test (mFRT) was designed to assess sitting balance in individuals with SCI .

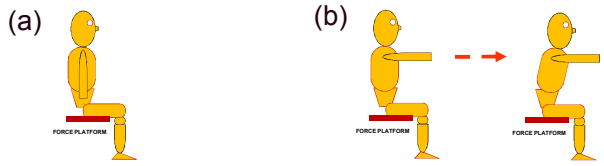
Objetive

To evaluate the relationship between seated balance function parameters based on COP and the mFRT in individuals with SCI complete.

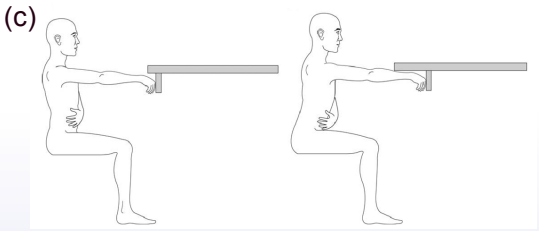
Methods

Cross-sectional study. Twelve individuals with SCI, ASIA grade A (11 males/1female; range 20-42 years; 2 tetraplegia, 4 high paraplegia and 6 low paraplegia). Individuals were tested using a force platform (AMTI OR67) during the quiet sitting position and the mFRT with/without force plate in the anterior, right lateral and left lateral directions. The sway parameters measured: area COP sway (COP_{Sway}), the average velocity of COP displacements along the anterior–posterior (COP_{VAP}), and medial-lateral (COP_{VML}) directions and standard deviation in both directions (SD_{AP} and SD_{ML}). COP units and mFRT were expressed in centimeters, respectively. Pearson correlation test was used, ($p \leq 0.05$)

(a) Quiet sitting position and (b) mFRT with force plate



(c) Modified Functional Reach Test (mFRT)



Results

The statistical analysis revealed moderate and large correlations between COP and mFRT in the medial-lateral directions ($p<0.01$). COP_{Sway} ($r=0.64$), SD_{AP} ($r=0.60$), SDML ($r=0.64$) and COP_{VML} ($r=0.69$) with mFRT right lateral direction. COP_{Sway} ($r=0.82$), SD_{AP} ($r=0.58$), SD_{ML} ($r=0.74$) and COP_{VML} ($r=0.71$) with mFRT left lateral direction.

Conclusion

mFRT medial-lateral direction can be used as a clinical assessment instrument of the seated postural balance in people with SCI complete.

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