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32

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Title :
Effects of Attentional Loadings on Turning Kinematics in Stroke Survivors

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The purpose of this study was (1) to compare temporal-spatial gait parameters and axial segmental coordination across attentional loading conditions during Timed Up and Go test (TUG), and (2) to determine the correlation between gait parameters across attentional loading conditions during TUG and, level of sensorimotor impairment, and functional balance in stroke survivors. Thirty stroke survivors participated in this study. Temporal-spatial gait parameters (gait speed, stride time, stride length, turn time and number of steps) and axial segmental coordination across single, dual-motor and dual-cognitive task were measured during the Timed Up and Go (TUG) test. Researcher further divided the TUG test into turning and straight walking phases to gain information about whether attentional loading had a differential effect on each phase. A repeated measure ANOVA and the Spearmen's rank correlation coefficient were used to analyse the data. The temporal-spatial gait parameters taken during TUG test was increased significantly from single- to dual-task conditions (dual-motor and dual- cognitive). Attentional loading had a differential effect on gait speed measured during the straight walking phase of the TUG for both groups (p = 0.001). Dual-motor and dual-cognitive task conditions led to a slower gait speed compared with the single task condition in stroke survivors (Both, p = 0.02). However, in healthy controls, only the dual-cognitive condition led to a significantly reduced gait speed compared with single task condition (p = 0.001) and dual-motor condition (p = 0.01). Furthermore, dual-cognitive task condition led to a significant increase in the time taken to complete the 180° turn in both groups. In addition, attentional loading had a significant effect on axial segment reorientation onset time (p = 0.03), and the effect was similar between stroke survivors and healthy controls (p = 0.54). However, only dual-cognitive task led to an earlier axial segment reorientation onset time than single task condition (p = 0.006) in both groups. Stroke survivors showed