

Postural Control & Stability in Children Diagnosed With a Sport-Related Concussion When Performing Dual-Task Activities

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PURPOSE: The purpose of this study was to determine the effects of dual-task activities on postural control and stability in children diagnosed with a sport-related concussion.

DESIGN: The study utilized a cross-sectional design. The participants were recruited using a convenience sampling method by putting flyers up around the community and contacting local schools. The study recruited 16 participants who were divided into two groups for data collection: a control group and a concussion group.

METHOD: The participants in the control (N=10) and concussion group (N=6) ranged from 8-17 years old. All participants completed subjective assessments including; GAD-7, PHQ-9, ABC Scale, and PCSS, in addition to the objective assessments including; MoCA, Computerized Posturography Assessment, BESS. Independent t-tests were used to analyze data. The primary outcome variable is the difference in the number of errors from single to dual-task activities, which represents either the motor-motor or motor-cognitive change score.

RESULTS: This study revealed statistically significant differences between the concussion group and control group for the motor-motor change score ($p = .046$). The results from the MoCA were significantly different between the two groups ($p = .001$). The results from the PANESS were significantly different as well ($p = .011$).

DISCUSSION: Dual-motor activities reveal more underlying postural control deficits compared to that of single-task activities for the concussion group. Therefore, dual-motor activities should be used as the primary assessment to detect impairments rather than single-task activities due to the increased sensitivity. Occupational therapists have a pivotal role in understanding and assessing these deficits in order to promote better outcomes in patients' health and well-being. Further research on dual tasking activities is required to identify underlying postural impairments within children with concussion.

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