

Sleep Quality, Dizziness, and Postural Stability Following Early Post-Concussion Physical

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Purpose: Early physical activity (PA) is associated with lower symptom burden and faster concussion recovery. Our purpose was to assess sleep quality, dizziness, and postural stability among adolescents who did and did not report early post-concussion PA compared to uninjured controls. We hypothesized that engaging in early PA would be associated with less dizziness, and better sleep quality and postural stability compared to not engaging in early PA.

Methods: We assessed adolescents ages 13-18 years within 14 days of concussion and a group of uninjured controls. Outcome measures included Pittsburgh Sleep Quality Index, Dizziness Handicap Inventory, and single- and dual-task tandem gait (TG) time. We grouped participants with concussion based on whether they reported early PA or not (no PA) prior to initial assessment. We used separate multiple linear regression models with each outcome as the dependent variable and compared the early and no PA groups to uninjured controls.

Results: We enrolled 34 participants with concussion and 21 uninjured controls. Compared to controls, the no PA group demonstrated significantly worse sleep quality and slower single-task TG time, while the early PA group did not. Compared to controls, both the early PA and no PA groups reported significantly higher dizziness. There were no significant differences for dual-task TG time.

Conclusion: Those who did not engage in early PA reported worse sleep quality and had slower single-task TG time than controls, while those who engaged in early PA did not. PA may promote better sleep quality and postural stability early after concussion. Among our sample, early PA was not associated with improved dizziness or dual-task function compared to no PA.