Examining the Cognitive Impact of Neurological Insult in Pediatric Populations: Are There Group Differences in
Attention, Processing Speed, and Working Memory?

Longoria J, Greer R, Maricle D, Miller D

Objective: This study examined rudimentary cognitive abilities in a pediatric sample with acquired neurological injuries. It was hypothesized that disorders characterized by recurring insult would exhibit more cognitive impairment. Method: A non-experimental design investigated cognitive differences between the following disorders: stroke, tumor, cerebral palsy, meningitis and hydrocephalus, epilepsy, traumatic brain injury, Fetal Alcohol Spectrum Disorder, and neurological impairment (non-specified). Selection criteria included history of neurological injury with no additional diagnoses. The mean age was 12 (SD = 3.3) and 55% of participants (N = 87) were female. Three MANOVAs were conducted using the disorder group as the independent variable. Dependent variables included subtests measuring processing speed, working memory, and attention from the following instruments: Wechsler Intelligence Scale for Children, Fourth Edition (Wechsler, 2003), Delis-Kaplan Executive Functioning Scales (Delis, Kaplan, & Kramer, 2001), Wide Range of Assessment of Memory and Learning, Second Edition (Sheslow & Adams, 2003), NEPSY-II (Korkman, Kirk, & Kemp, 2007), and Woodcock-Johnson Tests of Achievement, Third Edition (Woodcock-Johnson, McGrew, & Mather, 2001). Results: There were no statistically significant differences between the disorder groups on measures of attention, Wilks’ Lambda = .56, F(60, 326) = .97, p > .05; processing speed, Wilks’ Lambda = .133, F(48, 240) = 1.26, p > .05; or working memory, Pillai’s Trace = .08, F(48, 271) = 1.34, p > .05. Group means for each disorder ranged from below average to low average across subtests. Conclusion: The results of this study indicate children with various types of neurological impairment display similar performance on rudimentary cognitive tasks. Suppressed attention, working memory, and processing speed on specific subtests was consistent across disorder groups, suggesting it is injury in general, rather than injury type, that contributes to blunted cognitive performance.