Processing Speed on the Trail Making Test in
Agenesis of the Corpus Callosum

Kathryn M. Harrell, Elysa Marco, Lynn K. Paul, Elliott Sherr, and Warren S. Brown

Objective: Previous research with the Delis-Kaplan Executive Function System (D-KEFS) demonstrated that individuals with agenesis of the corpus callosum (ACC) had significantly poor performance on the Color-Word Interference task. Post hoc analyses indicated that slowed processing speed was the fundamental contributing factor (Harrell et al, 2008). This research further explored processing speed in executive functioning using the Trail Making subtest of the D-KEFS

Participants and Methods: Individuals with complete or partial ACC (N = 28; age = 26.8 +/- 14.5; FSIQ = 97.6 +/- 13.8) were administered all five conditions of the D-KEFS Trail Making subtest. Age-, gender-, and IQ-matched controls (N = 53; age = 27.0 +/- 16.1; FSIQ = 98.6 +/- 10.9) were selected from the D-KEFS normative dataset. Age corrected scaled scores were used for comparison.

Results: Individuals with ACC scored significantly lower than controls on Visual Scanning ($p < .01$), Number Sequencing ($p < .01$), Letter Sequencing Conditions ($p < .01$) and Number/Letter Switching ($p < .05$). No significant group differences were noted on the Motor Speed Condition. Contrast measure analysis indicated no disproportionate impairment in cognitive flexibility relative to baseline component skills. There were no significant differences between partial and complete ACC group on any demographic or performance measure.

Conclusions: This outcome supports previous findings that individuals with ACC have significant impairment in cognitive processing speed, while executive function (inhibition and cognitive switching) is preserved. This processing speed deficit did not involve motor speed, suggesting that the problem is specific to the speed of cognitive operations.

WORDS = 250