Cognitive Profile on the WISC-IV of Children With Developmental Coordination Disorder (DCD) and/or Developmental Dyslexia (DD)

Introduction: A lot of studies available in the literature have underlined the high frequency of co-morbid associations in specific learning disorders (eg. Kaplan et al. 1998; Nicolson & Fawcett, 2007). About 40 to 60% of DD or DCD subjects exhibit the double association. However few studies give details on the cognitive functions (especially with the WISC-IV) of DCD or DD children. Even fewer are interested in the neuropsychological profiles of children with DCD and DD. The main purpose of this contribution is to compare intellectual characteristics of the three populations and in particular cognitive profiles of children with co-morbidity (DD-DCD). Moreover the influence of attention level (as a confounding variable (Chaix et al. 2007)) and the impact of psychological/behavioral skills are investigated too.

Methods: A group of 65 children (21-44) were recruited: 20 DD (8-12), 22 DCD (6-16) and 23 DD+DCD (7-16). Inclusion criteria were: 8 to 12 years old, with DCD or DD or DCD and DD, no known psychiatric or neurological disorder and an IQ score greater than 70. Diagnosis DD and DCD were in accordance with the DSM-IV-TR criteria with M-ABC test for motor skills and L’Alouette and ODEDYS-2 test for reading skills. Children with Specific Language Impairment and/or Attention Deficit/Hyperactivity Disorder according to the DSM-IV-TR criteria were excluded. Participants were submitted to the same neuropsychological evaluation including an assessment of intellectual abilities (WISC-IV) and attention (CPT-II). Children’s behavior checklist was completed by parents (CBCL). Results: The three groups are homogenous in terms of age. There are no significant differences for the attention test (CPT) and for behavioral characteristics (CBCL). A significant difference between groups was observed only for the Processing Speed Index (PSI) score (F(2, 64) =4.096; p=.021) and the two subsets “block design” (F(2, 64) =4.728; p=.012) and “symbols search” (F(2, 64) =4.631; p=.013). The post-hoc assessments showed that DD were better than DCD children and the results of the co-morbid group (DD-DCD) were at an intermediate position between these groups. In addition, block design, symbols search, Processing Speed Index (PSI) and Perceptual Reasoning Index (PRI) were significantly correlated with M-ABC total score.