
Baseline neurocognitive scores in athletes with attention deficit–spectrum disorders and/or learning disability **Clinical article**

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Journal of Neurosurgery: Pediatrics
published online June 21, 2013; DOI: 10.3171/2013.5.PEDS12524.

OBJECT

Up to 16% of children in the US between the ages of 3 and 17 years have either attention deficit–spectrum disorder or a learning disability (LD). Sports-related concussions among youth athletes represent a significant public health concern, and neurocognitive testing is a method to evaluate the severity of cognitive impairment and recovery after a sports-related concussion. The goal of this study was to assess baseline neurocognitive differences between athletes with attention deficit hyperactivity disorder (ADHD) and/or LD versus those with neither disorder and to establish normative data for these special populations.

METHODS

Between August 2007 and March 2012, 6636 young athletes underwent baseline neurocognitive testing performed using the Immediate Post-Concussion Assessment and Cognitive Testing (ImPACT) battery. Of these participants, 90 had self-reported LD only, 262 had self-reported ADHD only, and 55 reported both. Those with ADHD and/or LD were matched with 407 participants with no history of ADHD or LD by age, sex, and number of prior concussions. The mean scores and SDs were calculated for each group to obtain normative values. A pairwise comparison between each diagnostic group was done to assess whether LD and/or ADHD diagnostic status predicted participants' baseline neurocognitive scores.

RESULTS

Participants with ADHD had significantly lower verbal memory, visual memory, and visual motor processing speed scores, along with significantly higher reaction time, impulse control, and symptom scores compared with those without LD or ADHD. Participants with LD had similar results, with significantly lower verbal memory, visual memory, and visual motor processing speed scores, higher reaction time and symptom score, but did not differ in their impulse control score

compared with those without LD or ADHD. Participants with both LD and ADHD had a significantly lower visual motor speed score and a significantly higher reaction time and symptom score than those without LD or ADHD, but did not differ with regard to the other composite scores.

CONCLUSIONS

Athletes with ADHD and/or LD have lower baseline ImPACT neurocognitive scores compared with athletes without ADHD and LD. Preliminary normative neurocognitive data for these special populations are provided.