Individual Differences in Training Gains and Transfer Measures: An Investigation of Training Curves in Children with Attention-Deficit/Hyperactivity Disorder

Marthe L.A. van der Donk, Sietske van Viersen, Anne-Claire Hiemstra-Beernink, Ariane C. Tjeenk-Kalff, Aryan van der Leij, Ramón J.L. Lindauer

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Summary

Currently, evidence for the beneficial effects of working memory (WM) training on transfer measures in children with attention-deficit/hyperactivity disorder (ADHD) is inconsistent. Although there is accumulating evidence for the role of individual differences in training and transfer gains of cognitive training, this area has been left unexplored for children with ADHD. In the current study, an advanced latent growth curve model analysis was used to investigate the individual differences in learning curves (training gains) of WM training tasks within a new cognitive intervention ‘Paying Attention in Class’. It was investigated whether certain baseline variables (age, intelligence quotient, externalizing behavior problems and presence of learning disability) predicted the learning curves and how these individual learning curves influenced near-transfer and far-transfer measures. A total of 164 children diagnosed with ADHD, between the age of 8 and 12 years old, followed this new Paying Attention in Class intervention. WM (near-transfer) and academic performance (far-transfer) measures were assessed before treatment and directly after treatment. Results showed that individual differences at the start of training were predicted by age and intelligence quotient, but the individual differences in learning curves were not predicted by any of the baseline variables. Both for the verbal and the visuospatial WM training, children with larger training gains (i.e. steeper training curves) showed larger benefits on the near untrained transfer measures. These effects were absent for the far-transfer measures. The current study shows that training WM is quite complex and has its limitations for children with ADHD. Nonetheless, it highlights that training and transfer gains are affected by many different factors and warrants the need for a more in-depth investigation of individual differences in future studies.