Motor Learning in children with ADHD and Normal Children: Comparison of Implicit and Explicit Motor Sequence

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Abstract

Introduction:
Children with Attention Deficit Hyperactivity Disorder (ADHD) face many academic and training problems and also impose some problems on their teachers and classmates. Motor learning can be categorized into two main types: implicit and explicit. The main goal of the present study was to investigate the possible differences between implicit and explicit motor sequence learning in children with ADHD and normal children by using serial reaction time task.

Materials and Methods:
The sample consisted of 24 children with ADHD, who were equally assigned to explicit and implicit learning groups, and 24 normal children, also equally assigned to implicit and explicit learning groups. Each group, therefore, consisted of 12 participants. Repetitive Measure ANOVA was run to compare reaction time and error in different blocks, and squared t-test was used to compare regular and irregular blocks.

Results:
Comparison of implicit and explicit learning for accuracy (the number of reaction errors) and speed (response time) revealed the accuracy to be $P=0.012$ and speed $P=0.012$ in ADHD explicit group, and accuracy $P=0.094$ and speed $P=0.954$, in ADHD implicit group. Normal explicit group indicated accuracy of ($P=0.008$) and speed of ($P=0.05$) and normal implicit group indicated accuracy of ($P=0.011$) and speed of ($P=0.442$).

Conclusion:
The results of the present study indicated that explanation and description of the task was more effective in motor sequence learning in ADHD children. It is, therefore, recommended that pre-exercise training be included in the programs provided to these children.