

## The effect of structured physical activity on behavior, sensory profile, and skill acquisition in autistic children

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In autistic individuals, physical activity is known to improve motor skills and social functioning, and decrease stereotypy, off-task behavior, and sensory issues. Structuring physical activities are those that are organized and directed by someone and provide predictability, creating a lower-stress environment for children to learn necessary skills. This study aimed to identify the effects of structured physical activities on behavior, sensory profile, and skill acquisition among autistic children. This institution-based experimental study was conducted at a center for neurodevelopmental disorders in Jaffna among 20 children diagnosed with autism spectrum disorder. Children were randomly assigned to intervention and age-matched control groups, and engaged in structured and unstructured physical activities, respectively, for 40 minutes a day thrice weekly for 3 months. These children were not undergoing Early Intensive Behavioral Intervention therapy during the study period. The structured activities targeted coordination, balance, muscle strength, and joint strength. The unstructured physical activities are sometimes called ‘self-selected free play’ which the children start by themselves. Parameters of interest such as behavior, sensory issues, and skill acquisition were measured before and after intervention using a locally developed behavior checklist, Sensory Profile-2, and Assessment of Basic Language and Learning Skills (ABLBS). Data were analyzed in R statistical computing software using linear multilevel regression. The average age of the children was 4 years ( $\pm 1$ ). Structured physical activity had a significant influence on the behavioral checklist score, with children in the intervention group showing a greater decrease in behavioral issues ( $p=0.013$ ), particularly in mood- and anxiety-related behaviors ( $p=0.025$ ). Although these children also had greater improvement in sensory registration issues, this difference did not reach statistical significance ( $p=0.090$ ). The results of ABLBS showed that children in the intervention group developed significantly more gross motor skills than children in the control group ( $p=0.015$ ). Adding structured physical activity to the repertoire of therapies for autistic children will be beneficial to facilitate motor skill acquisition and alleviate behavioral and possibly sensory issues.

**Keywords:** Autism, Structured physical activity, Behavior, Sensory issues, Gross motor skills.