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A Systematic Review of Sensory Processing Patterns of Children with Autism Spectrum Disorders

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Abstract : Background: Sensory processing is a fundamental skill needed for the successful performance of daily living activities. These skills are impaired as parts of the neurodevelopmental process issues among children with autism spectrum disorder (ASD). This systematic review aimed to summarize the evidence on the differences in sensory processing and motor characteristic between children with ASD and children with TD. Method: This systematic review followed the guidelines of the preferred reporting items for systematic reviews and meta-analysis. The search terms included sensory, motor, condition, and child-related terms or phrases. The electronic search utilized Academic Search Ultimate, CINAHL Plus with Full Text, ERIC, MEDLINE, MEDLINE Complete, Psychology, and Behavioral Sciences Collection, and SocINDEX with full-text databases. The hand search included looking for potential studies in the references of related studies. The inclusion criteria included studies published in English between years 2009-2020 that included children aged 3-18 years with a confirmed ASD diagnosis, according to the DSM-V criteria, included a control group of typical children, included outcome measures related to the sensory processing and/or motor functions, and studies available in full-text. The review of included studies followed the Oxford Centre for Evidence-Based Medicine guidelines, and the Guidelines for Critical Review Form of Quantitative Studies, and the guidelines for conducting systematic reviews by the American Occupational Therapy Association. Results: Eighty-eight full-text studies related to the differences between children with ASD and children with TD in terms of sensory processing and motor characteristics were reviewed, of which eighteen articles were included in the quantitative synthesis. The results reveal that children with ASD had more extreme sensory processing patterns than children with TD, like hyper-responsiveness and hypo-responsiveness to sensory stimuli. Also, children with ASD had limited gross and fine motor abilities and lower strength, endurance, balance, eye-hand coordination, movement velocity, cadence, dexterity with a higher rate of gait abnormalities than children with TD. Conclusion: This systematic review provided preliminary evidence suggesting that motor functioning should be addressed in the evaluation and intervention for children with ASD, and sensory processing should be supported among children with TD. More future research should investigate whether how the performance and engagement in daily life activities are affected by sensory processing and motor skills.

Keywords : sensory processing, occupational therapy, children, motor skills
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