

Sensory Integration Therapy and Occupational Performance in Children with Autism

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Abstract

Purpose: This review addressed the effectiveness of sensory integration therapy for increasing occupational performance in children aged 6–12 years diagnosed with autism spectrum disorder (ASD). **Methods:** Most studies included in this review involved a cross-sectional design. Studies were retrieved in a two-stage screening procedure using the online software program Covidence, with duplicates removed before screening. The articles were first screened by title and abstract to determine whether they were relevant. When a study met eligibility criteria, the full text was downloaded and independently reviewed to confirm eligibility. **Results:** Nine studies were included in the review, and most found sensory integration therapy improved occupational performance in children with sensory processing disorder (SPD). Several studies reported improved occupational performance in areas such as social engagement, sleep and gastrointestinal problems, visual and auditory processing, executive functioning, and challenging behaviors. One study did not support sensory interventions for feeding problems in children with ASD, one noted minimal or no change in behavior, and one showed some parents found sensory-based interventions helpful, unhelpful, or were unsure of their effectiveness. **Conclusions:** Sensory interventions can have a positive effect on children with ASD and are shown to improve occupational performance. However, more research and studies need to be conducted on the usefulness of sensory interventions for children with SPD.

Introduction

Background: SPD is a condition that affects how the brain processes sensory information or external stimuli. Having the ability to detect sensory information allows the brain to process touch, taste, smell, visual, and auditory information to provide guidance about the world. SPD affects individuals with ASD at a higher rate than those who do not have autism. Sensory integration therapy was created to improve sensory processing skills in individuals with ASD. Occupational therapists use sensory integration therapy, which involves utilizing specific activities that cater to each sensory input (auditory, visual, olfactory, gustatory, tactile) and determines whether an individual's response is appropriate. Ayres Sensory Integration is one of most common intervention strategies used for young children with autism (Schoen et al., 201p).

Methods

The online search included the following electronic databases: PubMed, PsychINFO, EmBase, Scopus, and the Cumulative Index to Nursing and Allied Health Literature (CINAHL).

Inclusion criteria:

- participants were children aged 6-12 years
- integration therapy was used as an intervention
- published between June 2017 and April 4, 2022

Exclusion criteria:

- article was a systematic review or meta-analysis
- study participants were 13 years or older
- sensory integration therapy, autism spectrum disorder, or a pediatric population were not included in the title and/or abstract
- article not published in English

Boolean terms and phrases:

Condition: <autism spectrum disorder> OR <developmental disorders>

Intervention: <sensory integration therapy> OR <sensory interventions> OR <Ayres sensory integration>

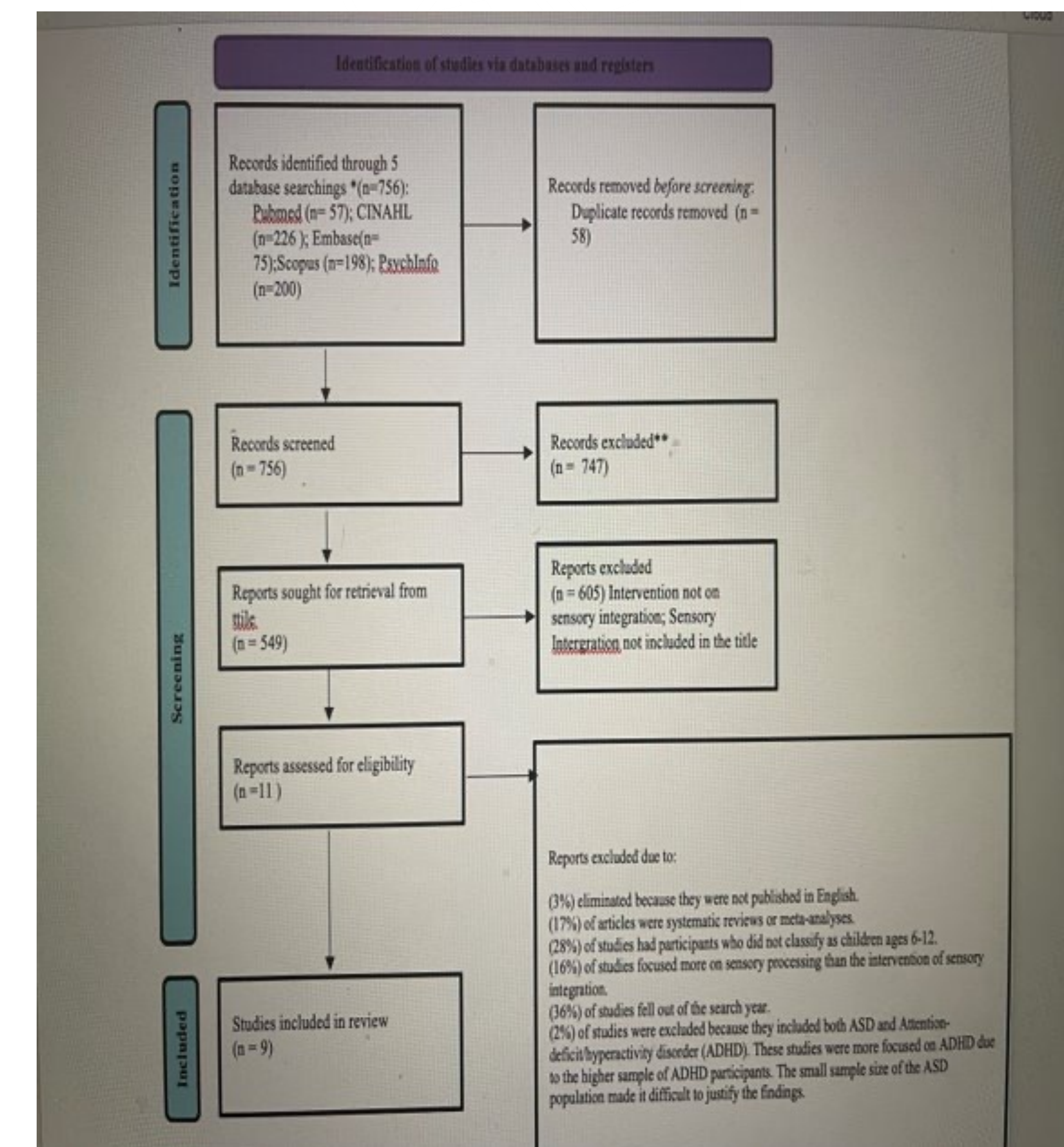
Results

Nine articles were included in the current review, which found:

- Scores on the short child occupational profile (SCOPE) and all domains of the sensory profile (SP) were significantly greater in students who received the sensory activity schedule (SAS) intervention compared to individuals who did not receive the sensory integration therapy.
- Some studies used sensory-based interventions questionnaires to address challenging behaviors.
- Greater improvement in behavior challenges was seen in the children who experienced taste, smell, tactile hypersensitivity, and anxiety.
- Some interventions involved small sample sizes.

Conclusions

- Sensory interventions can have a positive effect on children with autism spectrum disorder and are shown to improve occupational performance.
- More research and studies need to be conducted on the usefulness of sensory interventions for children with sensory processing disorder.
- More research needs to be conducted on more diverse populations.



Characteristics
Table 1 presents the characteristics for which data were extracted (e.g., study size, PICOS, follow-up periods), including citations.

Author	Study Size	PICOS	Follow-up
Caheleloushe, B., Kaobhan, H., & Huri, M. (2017).	N = 31	P: Children w/ autism I: Sensory integration therapy (SIT) C: Control group received routine school OT O: Occupational performance	N/A
Hills, C., Chapparo, C., & Azzali, J. (2021)	N = 53	P: Children w/ autism I: Classroom-based sensory activity schedule C: Usual classroom teaching O: Increase in cognitive strategies for effective performance of classroom tasks	N/A
Kasasibaboo, et al. (2017)	N = 64	P: Children w/ ASD I: Structured yoga intervention C: Continued with school curriculum O: Decrease in sleep, gastrointestinal, and behavior problems	N/A
Jadvaanabba, et al. (2018)	N = 185	P: Children w/ ASD I: Home-based sensory interventions and standard therapy C: Speech therapy and applied behavior analysis O: Reduction in sensory abnormalities	The study subjects were followed up during the intervention period at 2, 4, 8 and 12 weeks.
aha, et al. (2021)	N = 152	P: Parents of children w/ ASD I: Online Survey C: N/A O: Usable function/participation	N/A
aiya, G. (2021)	N = 50	P: Children with sensory processing disorders (SPD) I: Moderate pressure touch C: Bedtime story O: Improve sleep participation and sensory processing behaviors	All clients were followed up until the intervention was no longer effective or no longer necessary
iesozluna, et al. (2018)	N = 2	P: Two children w/ ASD and severe food selectivity I: Behavioral feeding intervention w/ pre-meal SIT C: Behavioral feeding intervention without pre-meal SIT O: Expand diet variety and enhance the effectiveness of the behavioral feeding intervention	Follow-up data were collected for one participant for two months following intervention and showed maintenance of treatment gains over time. In regards to the other participant, his mother verbally reported that he continued to consume the variety of foods that were introduced during the intervention upon discharge.
Gu, et al. (2019)	N = 108	P: Children w/ autism I: SIT therapy and exercise intervention C: Routine treatment O: Improved behaviors and quality of life	N/A
Zimmerman, et al. (2018)	N = 1	P: Kindergartener with autism I: Weighted blanket and structured work boxes C: N/A O: Improve engagement during math circle time	N/A

Reference: Schoen, S. A., Lane, S. J., Mailloux, Z., May-Benson, T., Parham, L. D., Smith Roley, S., & Schaff, R. C. (2019). A systematic review of Ayres sensory integration intervention for children with autism. *Autism Research*, 12(1), 6–19.