**Title**: Sensory Integration Therapy in Autism: A Systematic Review and Meta-Analysis

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**Introduction**: Sensory differences are a key feature of autism that affect people throughout the lifespan. Therapies addressing sensory differences may help autistic individuals improve their participation in daily life. Sensory integration therapy has received a lot of attention within the occupational therapy literature as putative evidence-based practice for these sensory differences, though critiques have been levied at this approach from within and outside the occupational therapy community. Sensory integration therapy has the potential to broadly impact development, as sensory disruptions early in life have the potential to produce cascading effects onto higher order domains, such as social communication and language. Although we recently conducted a large-scale meta-analysis of all therapies for autistic children aged 0-8 (i.e., Project AIM), we were unable to produce a reliable estimate of summary effects for sensory integration therapy due to the small number of studies in each outcome category. Additionally, though several systematic reviews of this literature have been conducted, no studies to date have meta-analyzed these results. The purpose of this meta-analysis is to address this gap in the literature by synthesizing the effects of sensory integration therapy for autistic children (i.e., birth through 18 years). We aim to evaluate (a) whether sensory integration approaches improve outcomes relative to a comparison condition, (b) whether the extent to which studies adhered to the principles of Ayres Sensory Integration Therapy moderates the effects of sensory integration therapy, and (c) whether studies of sensory integration approaches have sufficient methodological rigor to merit confident conclusions about summary effect estimates.

**Method**: We are currently conducting the systematic review and meta-analysis; all data extraction and analyses will be complete by the Gatlinburg Conference in April 2025. We conducted a new search building off the search terms from Project AIM that yielded 3382 unique results. Studies will be eligible for our review if (a) they compare sensory integration-based approaches to a comparison condition (b) in a controlled group design study (c) with children on the autism spectrum. Studies will be ineligible for our review if published in a language other than English. All eligible studies will be coded using a previously developed and validated coding schema employed in Project AIM (see Sandbank et al., 2020, 2023) and the Ayres Sensory Integration Checklist. Effect sizes will be analyzed using correlated and hierarchical effects meta-analytic models.

**Results**: Preliminary results on the differences between sensory integration therapy and comparison conditions were conducted using the extant Project AIM dataset. Across the six studies (44 effect sizes) that met eligibility criteria for our new meta-analysis, there was a significant effect estimate of sensory integration therapy across all outcome domains, *g* = 0.733, *p* = .024. However, many of the individual effect sizes contributing to this estimate were extracted from studies with substantial risks of bias. Due to the low number of effect sizes and substantial risks of bias, we were unable to evaluate the effect of sensory integration therapy on specific outcome domains (e.g., sensory, motor, language) with a high degree of confidence (i.e., all *df* in this model < 4). Results based on the primary search strategy will be presented at the Gatlinburg Conference.

**Discussion:** This is the first study to meta-analyse effect sizes for sensory integration therapy. The preliminary results presented here should be interpreted with caution: though this approach has the potential to yield moderate-large effects, on average, across a broad range of outcomes for children on the autism spectrum, greater consideration of study and outcome quality are needed prior to generating clinical recommendations. The final results of this systematic review and synthesis, to be presented at the Gatlinburg Conference, are expected to inform treatment recommendations for autistic children of all ages. Future directions, as well as implications for research and practice, will be discussed.

**References:**

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