The influence of distraction on discrimination and visuomotor tracking in sensory processing deficient & autistic children

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Experimental Overview

- Children with autism (ASD) and sensory processing disorders (SPD) are anecdotally reported to show difficulties involving visuomotor abilities and suppressing irrelevant sensory information. We looked to evidence this claim by studying difficulties involving visuomotor abilities and attentional difficulties in children with disabilities.

- The following assessments battery was given:
  - Surveys:
    - Child symptom inventory (CSI: a parent report)
    - Sensory Profile Survey
  - Direct Cognitive Measures:
    - standard cognitive assessments using the BrainBaseline app
    - visuomotor tracking abilities
    - an assessment of handwriting abilities (Dexteria)
  - Videogame-based Behavioral Assessments:
    - NeuroRacer
    - EVO

Summary of Findings

- The observed relationships between parent reports, direct and videogame assessments point toward the idea that the clinical categorization may be obscuring important individual differences better seen through correlational analyses.

- The following assessments battery was given:
  - Visuomotor Tracking Task Variance
  - Distracted Driving
  - NeuroRacer
  - Handwriting tasks
  - Flanker task
  - Visual Search
  - Sustained Attention

- The following assessments battery was given:
  - Motor and attentional domains.
  - Correlational analyses of visuomotor abilities
  - Correlational analyses of attention abilities

Conclusions:

This study quantifies the presence of visuomotor and attention deficits in children with autism and SPD relative to controls using parent report and direct assessment measures. The correlational analysis supports a spectrum of deficits and suggests that a new framework involving the use of scientifically-designed videogames for children with disabilities can be warranted.

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