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# A Pilot Study of the Effect of an Acute Vestibular Therapy on Postural Stability and Gaze Patterns of Children with Autism Spectrum Disorder

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# Effect of an Acute Vestibular Therapy on Postural Stability of Children with Autism Spectrum Disorder and Typically Developing Children



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## Study Background

- Increasing prevalence of autism spectrum disorder (ASD) [1]
- Sensory integration (SI) therapy used to:
  - Improve social behaviors and sustained attention
  - Reduce repetitive mannerisms and hypersensitivity
  - However: difficult to measure efficacy [2,3]
- Solution: quantitatively assess changes in sensory processing caused by SI
  - Measure physiological systems that require sensory interaction
- Postural stability requires complex sensory processing
  - Children with ASD have atypical balance [4]

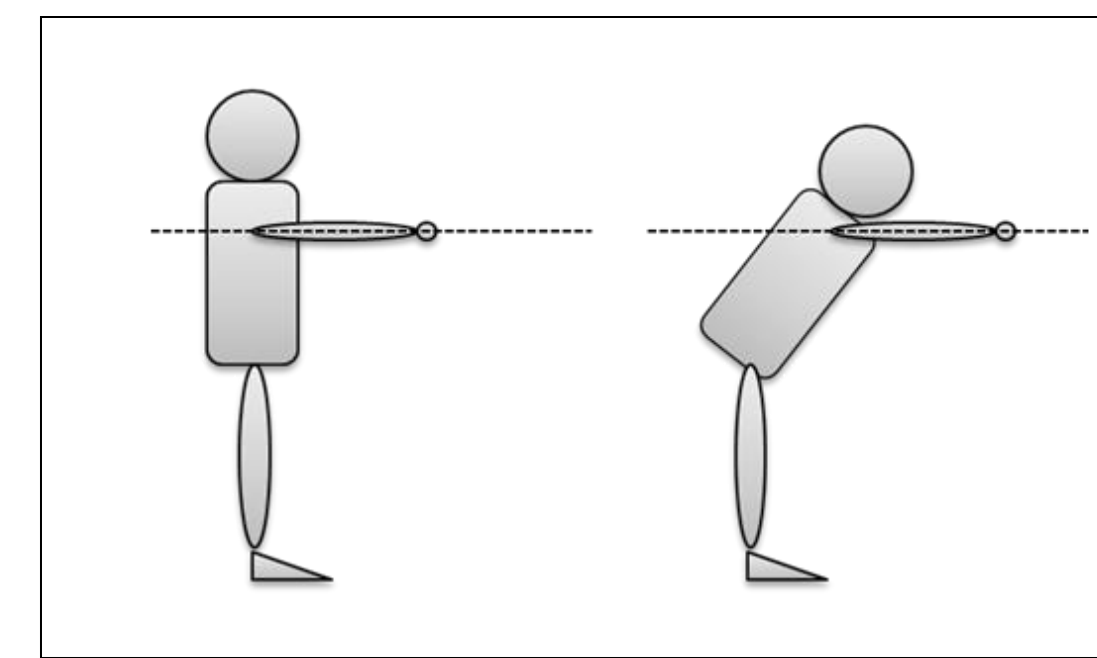
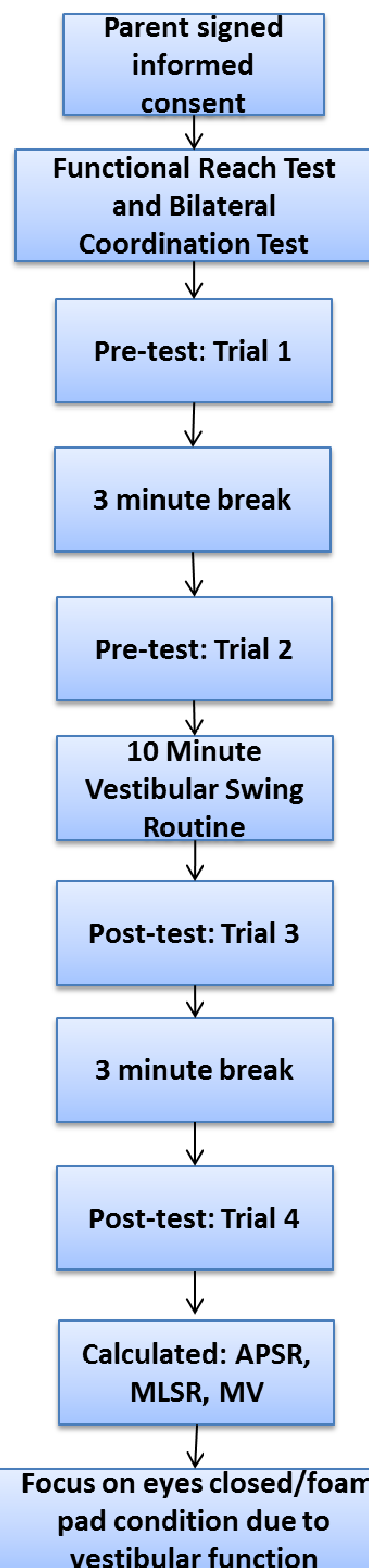


## Research Question and Hypothesis

**Objective:** Evaluate postural changes in children after a vestibular swing therapy and determine data trends, experimental feasibility, and data collection procedures

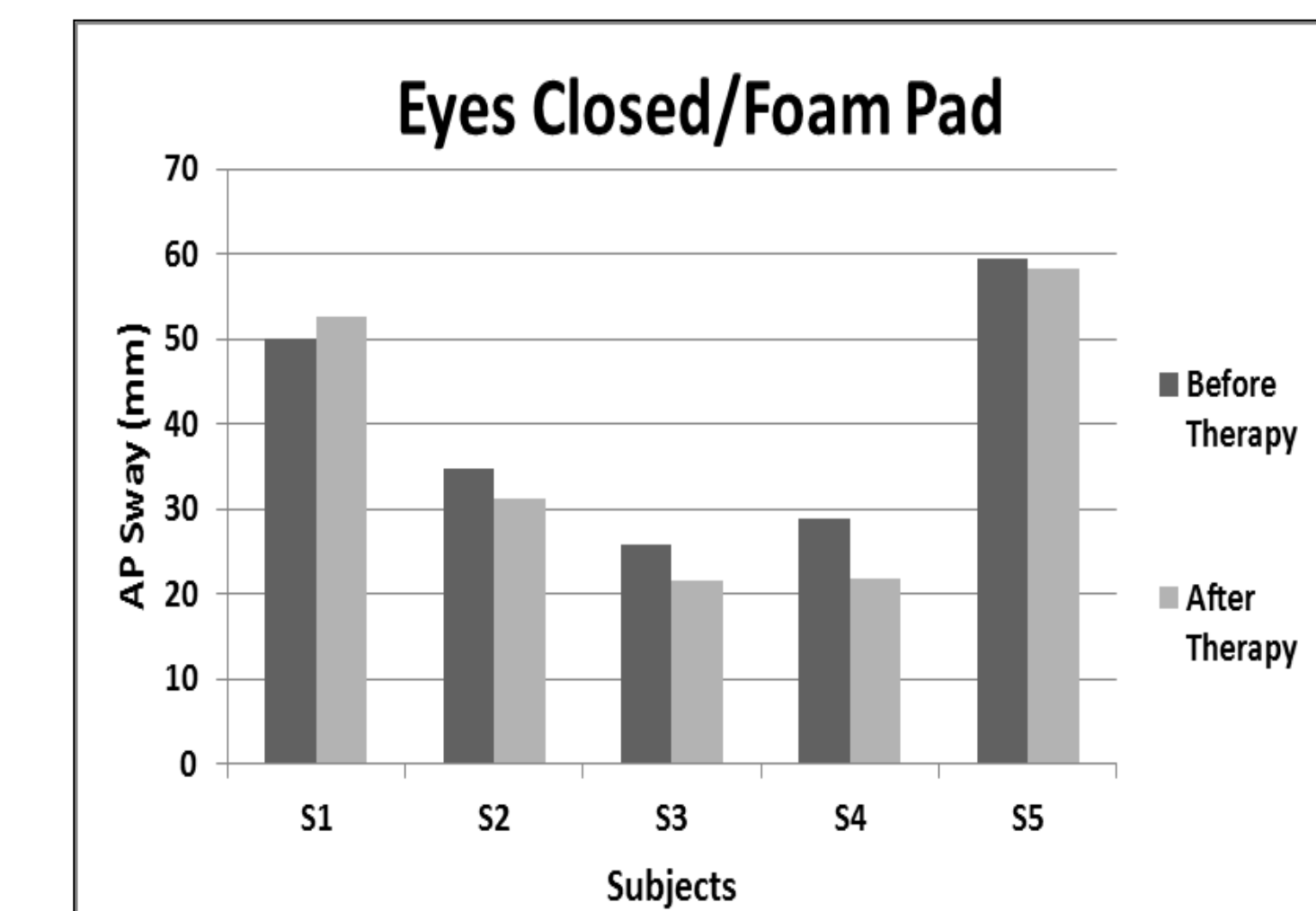
**Hypothesis:** Subjects will demonstrate increased postural stability after a SI swing therapy protocol.

## Methodology



## Results and Discussion

- Subjects with ASD had to repeat  $\approx 25\%$  trials
- For the eyes closed/foam pad condition, 80% of subjects displayed a A/P sway decrease of  $3.95 \pm 2.4\text{mm}$  after therapy



- Data suggests most subjects experienced improvements in balance
  - Small in magnitude but noticeable after just 10 minutes of a single therapy session
- Subjects with ASD exhibited decreased MV while TD children exhibited increased MV
  - Potentially, SI therapy only beneficial to those with sensory processing issues

## Future Work

- Explore alternative means of data collection
- Repeat study with larger sample sizes
- Examine longitudinal therapeutic effects

## References

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2. Reynolds, S., et al. Journal of Neurodev Dis. 2010
3. May-Benson, T. The Amer J of Occu Ther. 2010
4. Molloy, C et al. Postural stability in children with ASD. J Autism Dev Disord. 2003.