MOTOR & BRAIN DEVELOPMENT LAB

Fall 2022 - Spring 2023 Newsletter

What's Inside:

- Lab Member Updates
- Recent Findings
- Study Opportunities

A Note from Brittany

Happy New Year from the Motor & Brain Development Lab of the Waisman Center! My sincerest hope is that 2022 treated you well and that 2023 holds plentiful joy for you and your family. This last year has personally been one of learning to flexibly pivot (due to family illnesses, etc.), but I consider myself the most fortunate to do this work alongside you all, our amazing participants, and the best team around. In this newsletter, we highlight our latest findings and key milestones we celebrated this year. Also, if you haven't done so already, check out our updated website, as it has details our research vision and opportunities for ongoing research.

I am also excited to announce that my family and I will be temporarily moving to Málaga, Spain for a Fulbright award. We are very excited and grateful for our Waisman team who are allowing us to seamlessly continue this work while I am directing things from across the ocean, and we look forward to coming back to Wisconsin with new perspectives (and new scientific methods) next August.

Thank you for generously supporting our work.
We look forward to sharing our upcoming adventures and hearing about yours!

Sincerely,
Brittany Travers, PhD

Associate Professor Occupational Therapy Program,
Kinesiology Department
Waisman Center

LAB MEMBER UPDATES

Lab member milestones

2 lab members hit important milestones in their careers, and we are very proud and inspired by their work!

- **Emily Skaletski** successfully defended her dissertation proposal, which focuses on how participation in activities might impact the relation between features of autism and ADHD and quality of life in autistic children.

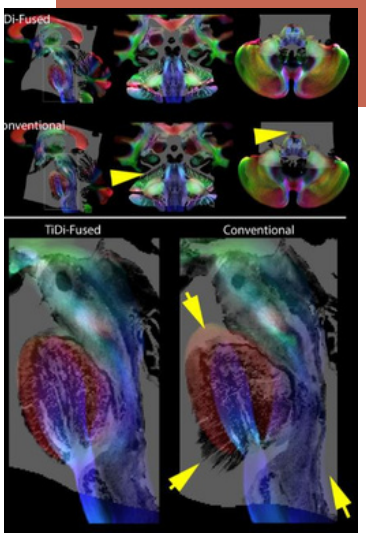
- **Olivia Surgent** successfully defended her dissertation to her committee, earning her PhD! Her dissertation project focused on grip strength and its neural correlates in autistic and non-autistic children.

Welcoming new lab members!

- In Fall 2022, in addition to 7 new undergraduate students, we welcomed 5 new occupational therapy graduate students: **Allison Block, Claire Sheedy, Ella Vanderpool, Emily Sprague, Kailey McIlvaine, and Lauren Hill**!
- **Claire** is actually a familiar face to us! Previously, Claire was an undergraduate student lab member. We're excited to welcome her back to the team!

RECENT FINDINGS

Improved techniques for imaging the brainstem of autistic participants



Our team is always working to improve the quality of our brain imaging data so we can better investigate the relationships between the brain and the body in children. We're specifically interested in investigating this in the brainstem, an area that has been historically challenging to capture with brain imaging. Over the last year, we've made substantial improvements to our imaging technology that allow us to capture the complexities of the brainstem with more accuracy than ever before! This advancement, called T1 weighted-Diffusion Fused (TiDi-Fused) imaging, was led by Drs. Jose Guerrero-Gonzalez and Olivia Surgent and published in a special, brainstem-focused issue of Frontiers in Integrative Neuroscience in March 2022.

Guerrero-Gonzalez, J., Surgent, O., Adluru, N., Kirk, G. R., Dean, D.C. III, Kecskemeti, S., Alexander, A. L., & Travers, B. G. (2022). Improving imaging of the brainstem and cerebellum in autistic children: Transformation-based high-resolution diffusion MRI (TiDi-Fused) in the human brainstem. Frontiers in Integrative Neuroscience, 16, 804743.

Structure in brainstem white matter is associated with sensory features in autistic children

To better understand sensory features, our team recently investigated how over and under behavior responses is related to the brainstem, a complex and previously under investigated part of the brain. Using our optimized brainstem imaging, we found that components of its structure are related to sensory features in both autistic and non-autistic children. However, the ways that these brainstem elements drive sensory features may be very different. Together, this may suggest that the brainstem plays a unique role in regulating the sensory experiences of autistic children.

Surgent, O., Riaz, A., Ausderau, K. K., Adluru, N., Kirk, G. R., Guerrero-Gonzalez, J., Skaletski, E. C., Kecskemeti, S. R., Dean, D. C. III, Weismer, S. E., Alexander, A. L, & Travers, B. G. (accepted). Brainstem white matter microstructure is associated with hyporesponsiveness and overall sensory features in autistic children. Molecular Autism.

STUDY OPPORTUNITIES

Brainy Movement Study for Kids

We continue to recruit for the Brainy Movement Study for Kids, specifically autistic participants/children with an autism diagnosis, ages 6-10.

- The child will complete 2-2.5 hours of behavioral testing.
- Parents will complete questionnaires and parent interview.
- Families will receive $10/hour.
- Interested? Contact us at **brainymovtstudy@waisman.wisc.edu**!

Spanish Speaking Community Advisory Board

Have opinions on how autism research could better serve you? The Waisman Center's Motor & Brain Development Lab is inviting members to join a Spanish-speaking group to give advice on our research with autistic individuals.

- This group will include autistic people, parents or guardians of autistic people, teachers, healthcare providers, and other members of the Latina/o/Hispanic community who will work together to help our team do research that aligns with community goals and values.

- This group will be valued for their unique perspectives and areas of expertise. Members of this group do not need to have research experience.

- Members will be paid $50 for each meeting attended.

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- Each meeting will be held in Spanish (written or spoken), once every 4 months. The goal of each meeting is to get advice.

If you are interested or have follow-up questions, please contact Dr. Brittany Travers at **btravers@wisc.edu**. Thanks!