



THE MOTOR AND BRAIN DEVELOPMENT LAB



Fall 2018 Newsletter



WHAT'S NEW?

RESEARCH UPDATES

IN THE NEWS

STUDENT PRESENTATIONS

LAB SPOTLIGHTS

CURRENT STUDY OPPORTUNITIES

A letter from Dr. Brittany Travers

Happy Fall! This Fall marks the 4th anniversary of our research lab. Thanks to you all, this last year has been our most productive yet! In the last year, we have seen over 100 participants and their families across over 850 research sessions! In this newsletter, we highlight the scientific progress we have made to better understand motor skills, the brain, and autism in general. We also list some of our most recent publications. If you would like copies of these publications or would like to discuss our findings further, my team and I would love to chat with you about them!

While I am proud of the scientific strides we are making, it is not just about productivity; it is about people. And I feel so fortunate to have a job where I get to meet so many amazing people and their families. The fact that you have taken time out of your very busy lives to help with our research is awe inspiring. Thank you.

I am also so grateful for our amazing lab team. The lab is brimming with curious and passionate staff, students, and trainees, some of whom we highlight in this newsletter. I hope you all have the opportunity to interact with them more this coming year, as they are some of the brightest and most caring people with whom I have had the joy of working.

In the next few months we will be wrapping up two of our projects (with your help) and beginning a new study funded by the National Institutes of Health. We are so excited to embark on these new projects, and we hope that we will get to see you all in the process!

Very best,
Brittany

Research Updates

Longitudinal development of thalamic and internal capsule microstructure in autism spectrum disorder

The thalamus is a region in the brain that relays sensory information. This study examined differences in the development of the thalamus for individuals with Autism Spectrum Disorder (ASD.) The results of this study indicated that the structure of the thalamus may develop differently in children with ASD.

Citation: McLaughlin, K., Travers, B. G., Dadalco, O. I., Dean, D.C. 3rd, Tromp, D. P. M., ... Lainhart, J. E. (2018). Longitudinal development of thalamic and internal capsule microstructure in autism spectrum disorder. *Autism Research*, 11(3), 450-462. doi: 10.1002/aur.1909.

Curriculum-based handwriting programs: A systematic review with effect sizes

Many children experience challenges with handwriting. These challenges can then interfere with their performance in school. We looked at the effectiveness of various handwriting interventions. Our results indicated that overall these interventions can lead to improvements in handwriting legibility, but it is unclear which interventions are the best.

Citation: Engel, C., Lillie, K., Zurawski, S., & Travers, B. G. (2018). Curriculum-based handwriting programs: A systematic review with effect sizes. *American Journal of Occupational Therapy*, 72, 7203205010p1-7203205010p8. doi:10.5014/ajot.2018.027110.

Additional Recent Publications

Travers, B. G., Kirkorian, H. L., Jiang, M. J., Choi, K., Rosenberg, K. S., Pavalko, P., & Jobin, P. (Epub ahead of print). Knowing how to fold 'em: Paper folding across early childhood. *Journal of Motor Learning and Development*. doi: <https://doi.org/10.1123/jmld.2016-0044>.

Fisher, A., Engel, C., Geist, R., Lillie, K., Lutman, S., & Travers, B. G. (2018). Brief report: Postural balance and daily living skills in children and adolescents with autism. *Journal of Autism and Developmental Disorders*.

Travers, B. G., Mason, A., Gruben, K. G., Dean, D. C., & McLaughlin, K. M. (2018). Standing balance on unsteady surfaces in children on the autism spectrum: The effects of IQ. *Research in Autism Spectrum Disorder*.

In the News

The Motor and Brain Development Lab has been featured on Wisconsin Public Radio, *UW Communications*, and in *Spectrum News*! Check out the articles below!

WPR NEWS



Brittany Travers, an investigator at the UW-Madison Waisman Center, works with a study participant playing a video game designed to help youth with autism improve their balance. Difficulties with balance are commonly thought to relate to more severe autism spectrum disorder symptoms and impaired activities in daily living. Photo by Andy Manis courtesy UW-Madison

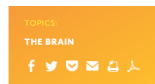
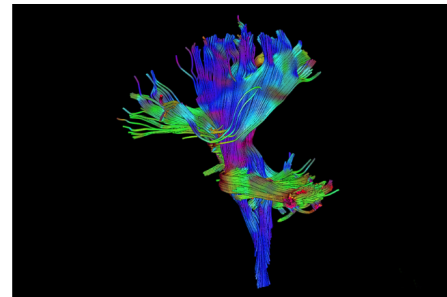
Students With Autism Strike A 'Ninja Pose' To Improve Their Balance

UW-Madison Research Suggests Interactive Games Can Help Those With Autism Spectrum Disorder With Balance Training

Tuesday, November 28, 2017, 4:00pm
By Brady Carlson

Brain imaging reveals brain stem alterations in children with autism

BY HANNAH FURFARO / 12 NOVEMBER 2017

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Fiber frenzy: Structural images of autism brains rarely depict the brain stem.

Simon Fraser / Science Source

“We always aim to make the interventions fun ... so we were delighted to hear that the participants enjoyed the game.”

— Brittany Travers

<https://www.wpr.org/students-autism-strike-ninja-pose-improve-their-balance>

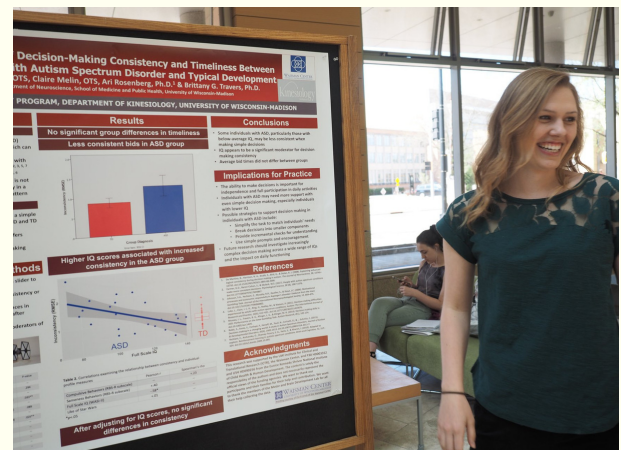
<https://news.wisc.edu/video-game-improves-balance-in-youth-with-autism/>

<https://www.spectrumnews.org/news/brain-imaging-reveals-brain-stem-alterations-children-autism/>



2018 OT Student Presentations

On May 7, 2018 Occupational Therapy (OT) students in the Motor and Brain Development Lab presented research they have been working on for the past two years. Below are quotes from these students that highlight their experience presenting their research, and how their time in the lab will impact their careers as future OT's!



Quotes from former lab members

"It was very rewarding to be a part of all aspects of the research process, from data collection to sharing our study findings. We are very grateful to our participants and their families who made our project possible."-Kailey Sabel, Occupational Therapy fieldwork rotation at Masonic Children's Hospital in Minneapolis, MN

"Being in lab has been a great learning experience by having the opportunity to interact with children and adolescents of varying abilities. It has helped me on my current fieldwork rotation, by allowing me to build rapport with children and caregivers easily, while helping them reach their functional goals in a fun and motivating way." –Claire Melin, Occupational Therapy fieldwork rotation at St. Mary's Hospital in Madison, WI

"The presentations were great because after two years of really digging into the research, you get to show off the fruits of your labor. We came up with some significant results that can be further investigated and will keep informing the profession of OT on best practice." –Josh, Occupational Therapy fieldwork rotation at Shirley Ryan Ability Lab in Chicago, Illinois

Lab Spotlight



About Olivia

Olivia Surgent is currently pursuing her PhD in neuroscience as a member of the University of Wisconsin-Madison Neuroscience Training Program. Olivia received her Bachelor's degree in Neuroscience from Hamilton College in 2017 and since has been working to further understand the neural basis of Autism Spectrum Disorder (ASD). The Motor and Brain Development Lab has given Olivia the opportunity to dive into her passions by working closely with children on the autism spectrum while also learning about and analyzing neuroimaging data. During her first year in the lab, Olivia gained proficiency in performing the Austim Diagnostic Observation Schedule (ADOS) which has allowed her to not only work closely with children who have ASD, but to also learn more about the ASD diagnostic process. As a lab member, she spends the majority of her time overseeing the acquisition of neuroimaging data and analyzing it.

When did you first become interested in research on the brain and motor development?

My interest in ASD first began in the sixth grade when I had the opportunity to teach swim lessons to children on the spectrum. Through observation of these children and first-hand interaction with them, I became fascinated by the complexities of ASD. After spending nearly six years working as an after-school swim instructor for children with ASD, I entered college with a strong interest in not only ASD but also how the brain worked to produce movement. While at Hamilton College, I worked in a variety of neuroscience laboratories, which allowed me to gain experience working with brain tissue to perform electron microscopy, rodents to perform behavioral analyses, and humans to perform neuroimaging.

What is your favorite part about being in the lab?

Aside from having to chance to do what I love every day, my favorite thing about the Motor and Brain Development Lab is the teamwork and camaraderie between lab members. Upon joining the lab, I was taken aback by the genuine dedication to each of our study participants regardless of diagnosis, age, or project.

What is your favorite thing to do in Madison?

During the warm months, I love cooking with ingredients from the Madison farmers market. I also really love attending monthly story-telling events in Madison hosted by my favorite podcast, the Moth, and WPR as well as participating in weekly trivia.

Lab Spotlight

When did you first become interested in research on the brain and motor development?

I first became interested in research regarding motor and brain development through my work with the adapted fitness program on campus. During this experience, I was able to help individuals who have experienced a stroke and my passion for neurorehabilitation, brain development, and motor control increased exponentially after seeing the gains each participant made!



About Matt

Matt Walczak is currently pursuing his Masters of Science in Occupational Therapy. Matt received his Bachelor's degree in Rehabilitation Psychology from the University of Wisconsin-Madison in 2016 and recently obtained his certificate from the Leadership and Education in Neurodevelopmental Disabilities and Other Related Disorders (LEND) program through the Waisman Center in 2018. Through the Motor and Brain Development Lab Matt has been given the opportunity to continue his passion for working with children who have Autism Spectrum Disorder (ASD) while simultaneously investigating his interest of daily living skill interventions for this population.

What is your favorite part about being in the lab?

My favorite part of the lab is being able to foster meaningful relationships with other lab members and the individuals that participate in our studies. Since we get to spend multiple sessions a week together it definitely is a situation where close friendships and bonds develop which makes each study visit that much more exciting to attend.

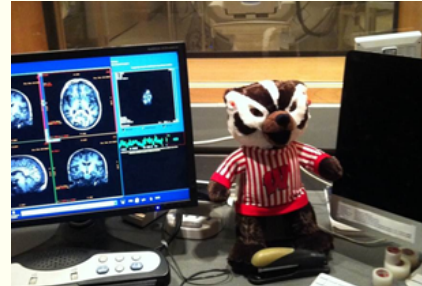
What is your favorite thing to do in Madison?

My favorite thing to do in Madison is to enjoy the copious amount of cheese curds the city has to offer. If you haven't been to Graze I highly recommend it!

Are you and your family interested in being featured in our next newsletter? Please let us know!



Do you or someone you know want to participate in our research?



Children 6-9 years old

We are recruiting children 6-9 years old with autism OR with typical development for a research study that looks at brain regions that control sensory and motor behavior in children with autism and typical development.

- Children will complete 4-5 hours of behavioral tasks and a 1-hour magnetic resonance imaging (MRI) brain scan. The behavioral tasks will include a brief IQ assessment and various sensory and motor assessments (asking your child to do activities like drawing, playing with balls, hopping, touching or grasping objects, sorting objects, doing sit ups, and balancing). These activities can be completed in one visit or across multiple study visits, depending on the preference of the family.
- During the study visit, a parent/caregiver will answer questions about the child in the form of questionnaires and an interview.
- Families will be compensated \$50/ MRI scan and \$10/hour for their participation. Meals during testing will be reimbursed at the UW per diem rate. Sibling childcare is available upon request.
- All sessions will be completed at the Waisman Center. To offset transportation costs to and from the study, participants will receive up to \$250 depending on the amount of travel required.
- For families outside of the Madison and surrounding areas, a one-night stay at a hotel will be offered.
- Interested in helping us with this study to better understand the brainstem and corresponding behaviors in children with autism and typical development? Contact us for more information!

Contact Us!

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(608) 263-8913