

# THE MOTOR DEVELOPMENT LAB IS MAKING MOVES IN 2020

## From Virginia Commonwealth University to University of Southern California

After 14 years at Virginia Commonwealth University I made a difficult decision to join the faculty in the Division of Biokinesiology and Physical Therapy at the University of Southern California as the Director of Pediatric Research. While this transition was official April 1, 2020, I am very grateful for the opportunity to be highly engaged in research in the Motor Development Labs at both VCU and USC. Both administrations have been incredibly supportive of the need to continue the important research and support the ongoing training of researchers in both locations. In fact, the lab teams now meet jointly over zoom increasing learning and research opportunities at VCU and USC.

The incredible researchers, trainees, therapist, and students engaged in research in the VCU and USC MDL should be incredibly proud of their accomplishment during this challenging year. From publications, to presentations, and grants the Motor Development Lab team has been productive, supportive of each other, and answering important questions to improve the lives of infants and children.

-Stacey C. Dusing, PT, PhD, FAPTA Director, Motor Development Lab



Motor Development Lab

### Current Projects

#### Does Timing Matter? Supporting Play and Exploration and Development Intervention

This ongoing multi-site clinical trial will evaluate the efficacy of SPEEDI, a parent delivered intervention program for very preterm infants born at less than 29 weeks gestation. Additionally, this project will address the optimal timing for the start of intervention in preterm infants. This study has been ongoing throughout the Pandemic.

**Funding:** Eunice Kennedy Shriver National Institute of Child Health and Development. NCT03518736

#### SPEEDI Brain Behavior

This extension of SPEEDI aims to address the feasibility of performing an unsedated MRI protocol longitudinally spanning from NICU discharge to 12 months, as well as begin to explore changes in brain development as a result of physical therapy intervention.

**Funding:** VCU Wright Center for Clinical and Translational Research.

#### Sitting Together And Reaching To- Play

START-Play follow up visits are ongoing to address long-term outcomes of the START-Play intervention, as well as address school readiness in children with motor impairments.

**Funding:** Institute of Educational Science. NCT02593825

#### SIT-PT

This newly funded R01 clinical trial is beginning enrollment in 2021 to compare the efficacy of two fully developed physical therapy interventions in 8-24 month olds at high risk for Cerebral Palsy.

**Funding:** Eunice Kennedy Shriver National Institute of Child Health and Development. 1R01HD101900

#### Play and Learning Across a Year

This multi-site study will assess the behaviors of infants and mothers during natural activity in their homes. VCU is one of many sites participating across the USA.

### Achievements

MDL director, Stacey Dusing, was named a Catherine Worthington Fellow from the American Physical Therapy Association. [Read more here.](#)

Dr. Sonia Khurana was awarded a Post-Doctoral grant for a neuroimaging sample of typically developing infants.

Becky Molonini, 3<sup>rd</sup> year PhD student, was awarded an Academy of Pediatric Physical Therapy Mentored Research grant looking at emotional availability and the efficacy of physical therapy intervention.

Ketaki Inamdar, 3<sup>rd</sup> year PhD student, and Dr. Virginia Chu, MDL collaborator and OT faculty member, were awarded a pilot grant to validate wearable sensors for infants.

#### Moving on...

Research Assistant Keya Patel begins her DPT. Research Assistant /OTD student Dani Morio graduates.

## Publications:

- Dusing, S. C., Burnsed, J. C., Brown, S. E., Harper, A. D., Hendricks-Munoz, K. D., Stevenson, R. D., Thacker, L. R., & Molinini, R. M. (2020). Efficacy of Supporting Play Exploration and Early Development Intervention in the First Months of Life for Infants Born Very Preterm: 3-Arm Randomized Clinical Trial Protocol. *Physical therapy*, 100(8), 1343–1352. PMID: 3232977
- An, M., Nord, J., Koziol, N. A., Dusing, S. C., Kane, A. E., Lobo, M. A., McCoy, S. W., & Harbourne, R. T. (2020). Developing a fidelity measure of early intervention programs for children with neuromotor disorders. *Developmental medicine and child neurology*, 10.1111/dmcn.14702. PMID: 33051867
- An, M., Dusing, S. C., Harbourne, R. T., Sheridan, S. M., & START-Play Consortium (2020). What Really Works in Intervention? Using Fidelity Measures to Support Optimal Outcomes. *Physical therapy*, 100(5), 757–765. PMID: 31944249
- Khurana, S., Kane, A. E., Brown, S. E., Tarver, T., & Dusing, S. C. (2020). Effect of neonatal therapy on the motor, cognitive, and behavioral development of infants born preterm: a systematic review. *Developmental medicine and child neurology*, 62(6), 684–692. PMID: 32077096
- Finlayson, F., Olsen, J., Dusing, S. C., Guzzetta, A., Eeles, A., & Spittle, A. (2020). Supporting Play, Exploration, and Early Development Intervention (SPEEDI) for preterm infants: feasibility randomized controlled trial in an Australian context. *Early human development*, 151, 105172. Advance online publication. PMID: 33137579
- Inamdar, K., Molinini, R. M., & Dusing, S. C. (2020). Sitting interventions for children with or at-risk for Cerebral Palsy under five years of age: a systematic review and meta-analysis. *Developmental medicine and child neurology*. In press.

Rehabilitation and Movement Science PhD students, Becky (right) and Ketaki (left), presented their work at the 2020 Combined Section Meeting in Denver.

Many MDL members had the opportunity to present at the virtual AACPD conference

## Presentations:

- Rebecca M. Molinini; Natalie A. Koziol; Tanya Tripathi; Ketaki Inamdar; Regina T. Harbourne; Michele A. Lobo; Sarah Westcott McCoy; James A. Bovaird; Stacey Dusing. Measuring early problem solving skills in young children with motor impairments: A validation study. Oral presentation at AACPD. 2020.
- Ketaki Inamdar; Rebecca Molinini; Audrey E. Kane; Lin-Ya Hsu; Natalie A. Koziol; Regina T. Harbourne; Sarah Westcott McCoy; Michele A. Lobo; James A. Bovaird; Stacey Dusing. Relationship Between Mobility and Problem Solving Skills in Young Children with Heterogeneous Motor Abilities. Oral presentation at AACPD. 2020.
- Ketaki Inamdar; Sonia Khurana; Stacey Dusing. Effectiveness of Associative Learning-Based Interventions on Motor, Cognitive, and Feeding Outcomes in Infant: A Systematic Review. Oral presentation at AACPD 2020.
- Audrey E. Kane; Natalie A. Koziol; Lin-Ya Hsu; Ketaki Inamdar; Rebecca M. Molinini; Regina T. Harbourne; Michele A. Lobo; Sarah Westcott McCoy; James A. Bovaird; Stacey Dusing. Relationship Between Mobility and Parent-provided Cognitive Opportunities in Young Children with Heterogeneous Motor Abilities. Oral presentation at AACPD. 2020
- Sonia Khurana; Bhamini K. Rao; Leslie E. Lewis; Senthil Kumaran; Asha Kamath; Stacey Dusing. Structured Neonatal Physical Therapy (SNP) Program in Moderate to Late Preterm (MLP) Infants: Outcome on Motor, Cognition and Language Development at 3 and 6 months of age. Oral presentation at AACPD. 2020.



**Research in times of COVID-19**

The MDL offers various research visit options to best suite the family's needs, including both virtual and in person lab visits.



**START-Play**  
**SPEED!**

When Virginia Commonwealth University closed down to research in March the MDL quickly began searching for alternate ways of collecting high quality data while keeping the safety of the families and research staff in mind. Both of our ongoing clinical trials, SPEEDI and START Play, were switched over to telemedicine visits via Zoom, where most of the primary outcome measures, such as the Gross Motor Function Measure, Parent child interaction, and Assessment of Problem Solving in Play, could be completed. The staff was able to send the require items to the family and a trained assessor administered the items over Zoom. Intervention visits were quickly converted to telemedicine format while retaining the intervention principles. Families opted for Zoom sessions or phone, combined with the use of web-based resources to ensure access to information for supporting their infant's development.

With IRB approval, we added additional surveys about the virtual visits to get feedback from families. 87% of parents scored the visit as neutral to very easy and 73% of parents felt their child had a neutral to very easy experience during the visit.

Overall about 93% of families indicated that they would consider or agree to subsequent virtual visits until it was safe to resume in person.

We recently received approval from both the IRB VCU Physical Therapy Department to begin in person visits in the MDL under strict guidelines. In person visits have been offered to families who feel comfortable coming in to the lab to collect assessments that are not yet validated to do over Zoom, including our primary outcome measure the Bayley Scale of Infant and Toddler Development. During the 1 hour visit a limited amount of staff is permitted to interact with the family. Throughout the visit all persons over 2 years of age wear a mask and the team follows all CDC recommendations.

Although these adaptations to the research protocol have been challenging, we are grateful to our families for their willingness to be flexible in these difficult times. We look forward to interacting with our families when it is safe to do so.



Press release [here!](#)  
And [here!](#)

**Motor Development Lab**

VCU Physical Therapy, College of Health Professions  
900 East Leigh St. Richmond VA, 23298.

Phone: 804-628-5037 Email: [mdlinpt@vcu.edu](mailto:mdlinpt@vcu.edu)

USC Division of Biokinesiology and Physical Therapy  
1540 E Alcazar St Los Angeles CA, 90033.

Email: [motordevelopmentlab@pt.usc.edu](mailto:motordevelopmentlab@pt.usc.edu)

### **VCU MDL Team**

Audrey Kane, OTR/L, PhD - Site PT START-Play  
Mary Shall, PT, PhD - Site PI SPEEDI  
Sonia Khurana, PhD - Post-Doctoral Fellow  
Becky Molonini, PT, DPT - 3<sup>rd</sup> year PhD student  
Ketaki Inamdar, - 3<sup>rd</sup> year PhD student  
Corri Stuyvenberg, PT, DPT - 2nd year PhD student (remote)  
Shaaron Brown, PT, DPT - Clinical Investigator, 1st year PhD student  
Jennifer Pulisic, DPT - Research interventionist  
Megan Evans - Lab Manger  
Meagan Miller - Clinical Coordinator

For more information see:

<https://pt.chp.vcu.edu/research/research-labs/motor-development-lab/>

### **USC MDL Team**

Kari Kretch, PT, PhD - Post-doctoral Fellow  
Elizabeth Cortez - Clinical Coordinator  
Keegan Taylor - Research Assistants  
Ano Mazmanian - Research Assistants

For more information see:

<https://sites.usc.edu/mdl/>