



# RESEARCH CENTER NEWSLETTER

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## Welcome!

The Children's Specialized Hospital (CSH) Research Center Newsletter provides an overview of research conducted at CSH. We regularly share information about CSH studies, lectures, and resources. Each issue features a CSH researcher, CSH research news, and upcoming events and activities. Please reach out with any suggestions or questions.

## About the Research Center at CSH

Children's Specialized Hospital has five research areas:

[Autism Spectrum Disorder](#)

[Brain Injury](#)

[Chronic Health Conditions](#)

[Cognition](#)

[Mobility](#)

## Join Our Studies

Several research studies are actively recruiting participants. To see which studies you may be eligible to join, and to learn more about how to participate, see [autism](#), [brain injury](#), [chronic health conditions](#), [cognition](#), and [mobility](#) studies.

## Researcher Highlight

### Meet Dr. Alice Chu

Dr. Chu is Associate Professor of Orthopaedic Surgery and Chief of the Division of Pediatric Orthopaedics at Rutgers-New Jersey Medical School in Newark, New Jersey. She is dual fellowship trained in pediatric orthopaedics and hand surgery as well as board certified by the American Board of Orthopaedic Surgery. She works as a pediatric orthopaedist at Children's Specialized Hospital.

Her specialty interests include pediatric upper extremity disorders and more specifically, conditions such as arthrogryposis, brachial plexus injury and cerebral palsy. She was also Director of the Ponseti Clubfoot Center at NYU, and continues to have a special interest in difficult pediatric foot issues.

[View](#) Dr. Chu's publications

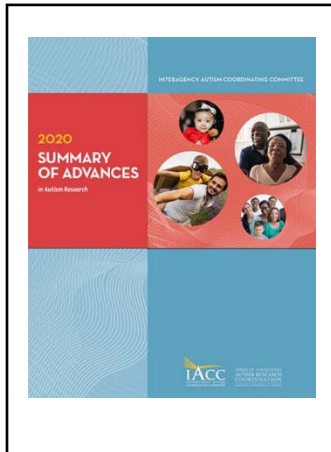
Dr. Chu recently conducted research on an upper extremity exoskeleton:

A functional dynamic 3-D printed upper extremity (UE) orthosis was designed, fabricated and used by children with cerebral palsy (CP) with severe unilateral involvement. The Airy Arm 1.0 open source design was used as a starting point, and the components were manufactured in a Makerspace. The three main 3-D printed components of the device included: the upper arm, the forearm, and the fingers. The materials used were polylactic acid (PLA) and polyurethane (TPU). Additionally, an occupational therapist fabricated a separate static, custom forearm thumb opponens orthosis from thermoplastic material. Five patients, ages 13-17 years, were enrolled. The dynamic upper extremity orthosis was used during 8 one-hour occupational therapy sessions targeting bimanual UE training. Overall, higher post-treatment outcome scores were found for the majority of participants. Improvements were seen in the body functions and structures as well as activity domains of the International Classification of Functioning, Disability and Health (ICF). Gains in overall activity were not clinically significant, while mixed results were found in participation. This feasibility study showed that this design of a 3-D printed, dynamic upper extremity orthosis, in conjunction with goal-directed therapy, was associated with positive changes for a small sample of children with CP who have moderate to severe unilateral hand impairment.

Watch this [video](#) to see the exoskeleton in action.



*Dr. Alice Chu*



## Research Recognition

The Interagency Autism Coordinating Committee's (IACC) list of 2020's most significant ASD research articles recognized an article by our very own Dr. Jill Harris, AVP of the Research Center and Coordinator of the Autism Program!

The article, *Validation of the Developmental Check-In Tool for Low-Literacy Screening*, discusses the validity of a new picture-based autism screening tool, which can help identify autism in children of parents with low literacy levels.

Read more [here](#).



## Distinguished Lecture Series

Dr. Patricia L. Scheets presented on "Making a Movement Diagnosis: Can It Add Value to Our Care?" on April 28. If you are interested in viewing the slides from the presentation, please contact Claire Marchetta ([cmarchetta@childrens-specialized.org](mailto:cmarchetta@childrens-specialized.org)).

Please stay tuned for our next lecture coming in early fall.

## We're Hiring!

Join our team! The CSH Research Center is hiring for the following positions:

### Research Engagement Coordinator

Advances the Children's Specialized Hospital Research Center's strategic plan and initiatives through engagement and education. View the job posting [here](#).

### Research Lead Physiatry

Serves as scientific lead on new research projects within the Physiatry (Physical Medicine & Rehabilitation) (PMR) section. View the job posting [here](#).

### Autism Research Assistant

Assists Investigators of Autism Research grants to recruit, consent, and collect data from participants, and enter data into database if applicable. Bilingual Spanish/English. View the job posting [here](#).

## Deeper Dive: Decreased Duration of Opioid Weaning for Infants with Neonatal Abstinence Syndrome Following Early Admission to Children's Specialized Hospital

*Early admission of infants with NAS reduced the length of time to wean infants from opiates*

This month's focus is on a collaborative study between clinical members of the CSH Infant/Toddler program and scientists at Kessler Foundation. The goal of the project was to determine the effect of early admission for treatment of neonatal abstinence syndrome (NAS) on rehabilitation length of stay (LOS). Infants with NAS may experience acute withdrawal symptoms within the first weeks of life. CSH has a unique NAS program dedicated to providing pharmacologic intervention for medical weaning from opioids, while providing therapy to support feeding, developmental progression and internal state regulation. Best practice suggests that beginning medical weaning for an infant with NAS in a therapeutic environment between day 7-14 of life is optimal to support growth and neural maturation. The team sought to understand the relationship between weaning duration and LOS for infants with NAS by reviewing the data points of age at admission and medications used. The team found that infants admitted for rehabilitation to a specialized NAS program within two weeks of birth spent significantly less time in acute rehabilitation compared to infants admitted after day 14 of life. Furthermore, early admission of infants with NAS reduced the length of time required to wean infants from opiates. The team is next tracking longitudinal outcomes, such as overall wellness, school readiness, language learning, and motor skills.

## CSH Recent Publications

*Clinical interventions for retraining deviated gait patterns may need to be modified for different age groups*

Dr. Peter Barrance (Clinical Research Scientist, CSH; Senior Research Scientist, Center for Mobility and Rehabilitation Engineering Research, Kessler Foundation) partnered with Dr. Nuno Oliveira from the University of Southern Mississippi to conduct a research study titled "Differences between adults and adolescents in responding to hip and knee pattern feedback during gait," which was recently published in *Human Movement Science*. Adults and adolescents without disabilities participated in a visual kinematic feedback task, which included modified and unmodified walking patterns. The study found that adults and adolescents did respond differently to visual feedback on walking patterns. Specifically, adults performed better than adolescents in maintaining unmodified patterns. These results have important clinical implications, indicating that interventions for retraining deviated gait patterns might need to be specialized for different age groups. Read the study [here](#). See the full list of CSH research publications [here](#).

## Upcoming Events and Conferences

[American Psychological Association \(APA 2022\)](#)

August 4-6, 2022. Minneapolis (hybrid)

[Flux: Society for Developmental Cognitive Neuroscience Congress](#)

September 7-9, 2022. Paris, France (hybrid)

[Joint Conference on Brain Injury 2022](#)

September 21-24, 2022. New York City

[Society for Developmental and Behavioral Pediatrics](#)

October 21-24, 2022. Denver, CO

[2022 State-of-the-Science on Disability Statistics](#)

October 6-7, 2022. Washington, DC (hybrid)

[American Congress of Rehabilitation Medicine \(ACRM 2022\)](#)

November 8-11, 2022. Chicago

[Society for Neuroscience \(Neuroscience 2022\)](#)

November 12-16, 2022. San Diego (hybrid)

## Meet the CSH Research Center Team



**Michael Dribbon, Ph.D.**

Vice President of Business Development and Chief Innovation & Research Officer

Research Focus: Intervention outcomes, Social Determinants of Health

Michael likes music, travel, and time with family.

**Jill Harris, Ph.D.**

Associate Vice President, The Research Center, Coordinator of The Autism Program, Spark Site Coordinator

Research Focus: ASD screening for under-resourced young children, transition to adulthood for youth with disabilities.

Jill likes going for walks, listening to books on tape, and vacationing in Maine.



**Claire Marchetta, MPH**

Research Liaison & Education Director

Research Focus: Epidemiological factors for developmental disabilities and birth defects.

Claire enjoys outdoor recreation in all forms – especially hiking, camping, skiing and running.



**Joman Y. Natsheh, M.D., Ph.D.**

Research Lead, Developmental and Behavioral Pediatrics

Research Focus: Neural and behavioral correlates of action-control in children with neurodevelopmental disorders.

Joman enjoys reading; especially Arabic literature. She loves to travel and explore, and she can spend hours immersed in graphic design.

**Amira Herstic, MS**

Research Coordinator, Developmental and Behavioral Pediatrics

Research Focus: Neuroscience of language and motor development in children with ASD and ADHD

Amira enjoys reading, crocheting, traveling, and playing with her baby.



**Uriel Richman, MA**

Research Assistant, Developmental and Behavioral Pediatrics

Research Focus: Cognition and child development

Uriel enjoys hiking, camping, visual arts and playing tabletop games.

## Contact Us

To learn more about our research, if you are interested in discussing potential collaborations, or if you have questions or comments, please contact us at:

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