Pediatric Rehabilitation Medicine

Research

The UAB Division of Pediatric Rehabilitation Medicine at Children's of Alabama conducts grant-funded therapeutic exercise research, which investigates enjoyable telehealth approaches to provide sustainable programs in and outside of the clinic for children with disabilities. The division is supported by grant funding from the National Institutes of Health (NIH), the NIH Center for Clinical Translational Science (CCTS) at the University of Alabama at Birmingham, the Center for Engagement in Disability Health and Rehabilitation Science (CEDHARS) and the Extra Life program of Children's Miracle Network Hospitals.

Clinical Trials:

- Telehealth Virtual Reality Gaming on Cardiometabolic Health Among Youth with Cerebral Palsy (NCT05336227)
- Group-Based Online Virtual Reality Gaming to Improve Mental Health Among Children with Physical Disabilities (NCT05259462)

Innovating Telerehabilitation Assessment Methodology:

- Testing the Feasibility, Validity, and Reliability of a Replicable Tele-Monitored Physical Fitness Battery that is Inclusive of Early Adults with and without Physical Disabilities

Services:

- Adaptive exergaming sessions for children with physical disabilities
- Remote Adapted Physical Education Counseling and Support

Collaborations:

- Extra Life – Children's of Alabama
- Lakeshore Foundation
- National Center for Health Physical Activity and Disability (NCHPAD)
- Cerebral Palsy Foundation (CPF)
- Cerebral Palsy Research Network (CPRN)

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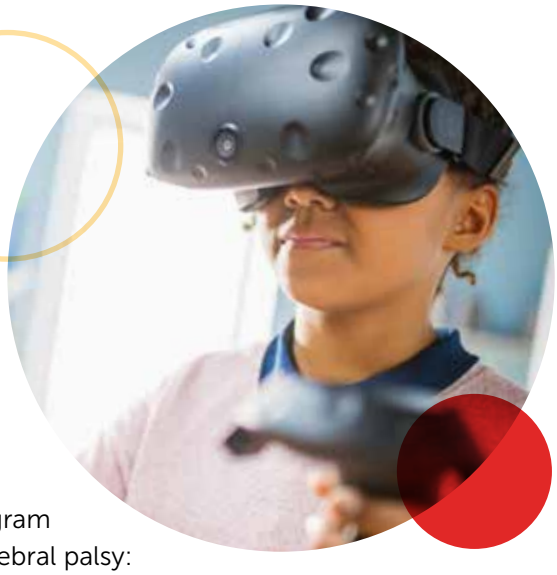
Byron Lai, PhD

Byron Lai is an assistant professor in the Department of Pediatrics at the University of Alabama at Birmingham (UAB), within the Division of Pediatric Rehabilitation Medicine. He has been conducting exercise research for people with disabilities for eight years at UAB and Lakeshore Foundation. He completed his doctoral training and a postdoctoral fellowship at UAB, within the Department of Physical Therapy in the School of Health Professions. He further completed a postdoctoral fellowship in the Department of Pediatrics, School of Medicine. He has over a decade of experience in clinical exercise training and testing among various groups of people with physical and cognitive disabilities. Dr. Lai has served on committees that have developed exercise guidelines for both children and adults with disabilities. Dr. Lai's research interests focus on incorporating technology to provide enjoyable and accessible, evidence-based exercise programs for people with disabilities. Areas of interest include active video gaming, tele-assessment methodology, and therapeutic exercise with music.



Featured Publications:

- Lai B, Davis D, Young R, Kimani-Swanson E, Wozow C, Wen H, Kim Y, Wilroy J, Rimmer J. The effects of virtual reality tele-exergaming on cardiometabolic indicators of health among youth with cerebral palsy: protocol for a pilot randomized controlled trial. JMIR Res Protoc. 2022. 17;11(8):e40708.
- Lai B, Vogtle L, Young R, Craig M, Kim Y, Gowey M, Kimani-Swanson E, Davis D, Rimmer J. A home-based telehealth Movement-to-Music program can increase physical activity participation among adolescents with cerebral palsy: pilot randomized controlled trial. JMIR Form Res. 2022.
- Lai B, Powell M, Clement AG, Davis D, Swanson-Kimani E, Hayes L. Examining the feasibility of early mobilization with virtual reality gaming using head-mounted display and adaptive software with adolescents in the pediatric intensive care unit: case report. JMIR Rehabil Assist Technol. 2021.27;8(2):e28210. doi: 10.2196/28210.
- Martin Ginis KA, van der Ploeg HP, Foster C, Lai B, McBride CB, Ng K, Pratt M, Shirazipour CH, Smith B, Vásquez PM, Heath GW. Participation of people living with disabilities in physical activity: a global perspective. Lancet. 2021. 31;398(10298):443-455.

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