

POSTER SESSION I

Tuesday, March 14, 2023 • 6:00 pm – 8:00 pm • Gold Ballroom

P.1 Validating a modified version of the Early Social Communication Scale for assessment of joint attention in infants with visual impairment

Holly Bradley¹, Riley Elmer², Melinda Chang^{1,2}, Angela Buffenn^{1,2}, Beth Smith^{1,2}

¹Children's Hospital Los Angeles, Los Angeles, USA. ²University of Southern California, Los Angeles, USA

P.2 The Relationship Between Spatial Neglect and Balance in Adults Post-Stroke

Emerson Hart, Alyssa Chesnutt, Camden Jacobs, Jesse Dean

MUSC, Charleston, USA

P.3 Characterization of ipsilateral motor evoked potentials across the chronic stroke impairment spectrum

Akhil Mohan¹, David Cunningham^{2,3}, Xin Li¹, Jayme Knutson^{2,3}, Morgan Widina¹, Jia Liu¹, Kyle O'Laughlin¹, Xiaofeng Wang¹, Ela Plow¹

¹Cleveland Clinic Lerner Research Institute, Cleveland, USA. ²MetroHealth System, Cleveland, USA. ³Case Western Reserve University, Cleveland, USA

P.4 Overcoming Rehabilitation Barriers During COVID-19: A Completely Virtual Tele-Exercise Intervention Study for Adults with Chronic Neurological Impairments

Devina Kumar¹, Amy Bialek¹, Ayushi Divecha¹, Lydia Currie¹, Rachel Garn^{1,2}, Talita Campos^{1,3}, Kathleen Friel^{1,4}

¹Burke Neurological Institute, White Plains, USA. ²SUNY Upstate Medical University, Syracuse, USA. ³Columbia University Irving Medical Center, New York, USA. ⁴Weill Cornell Medicine, New York, USA

P.5 Noninvasive vagus nerve stimulation (taVNS) increases feeding volumes and white matter micro structure in infants slated for G-tube

Kelly McGlooin¹, Dorothea Jenkins¹, Lauren Adams¹, Hunter Moss¹, Patricia Coker-Bolt¹, Turki Aljuhani², Jens Jensen¹, Mark George¹, Bashar Badran¹

¹Medical University of South Carolina, Charleston, USA. ²King Saud bin Abdulaziz University for Health Sciences, KSA, Jeddah, Saudi Arabia

P.6 Upper Extremity Movement Smoothness Maps onto Motor Function and Injury after Acute Stroke

Sarah Cavanagh^{1,2,3}, Taya Hamilton³, Aliceson Dusang^{4,2,3}, Perman Goehyeyv³, Rashida Nayeem^{5,3}, Dagmar Sternad⁵, Leigh Hochberg^{4,2,3}, Conor Walsh¹, David Lin^{2,3,1}

¹Harvard University, Cambridge, USA. ²VVA Medical Center, Providence, USA. ³Massachusetts General Hospital, Boston, USA. ⁴Brown University, Providence, USA. ⁵Northeastern University, Boston, USA

P.7 Effects of repeated exposure to novel gait perturbations on post-stroke walking balance

Keith Howard¹, Alyssa Chesnutt¹, Aaron Embry^{1,2}, Camden Jacobs¹, Jesse Dean^{1,2}

¹Medical University of South Carolina, Charleston, USA. ²Ralph H. Johnson VAMC, Charleston, USA

P.8 Combined electrical stimulation & treadmill training intervention on gait performance in post-stroke individuals

Alice Yen¹, Deja Scott^{1,3}, Yi-Chen² Li, Li-Wei Chou², Vincent Chen^{1,3}

¹Neuroscience Program, Loyola University Chicago, Chicago, USA. ²Department of Physical Therapy and Assistive Technology, National Yang Ming Chiao Tung University, Taipei, Taiwan. ³Department of Engineering, Loyola University Chicago, Chicago, USA

P.9 Combined activity-based therapy and cervical spinal cord stimulation for the restoration of upper limb function after cervical spinal cord injury

Urvashy Gopaul¹, Mark Bayley^{1,2}, Sukhvinder Kalsi-Ryan^{1,2}

¹Toronto Rehabilitation Institute, Toronto, Canada. ²University of Toronto, Toronto, Canada

P.10 Interactions between spatial navigation ability and cognitive function in the aging brain

Yasmine Bassil¹, Anisha Kanukolanu², Michael Borich^{1,2}

¹Emory University, Atlanta, USA. ²Georgia Institute of Technology, Atlanta, USA

P.11 Left/right hand choices are driven by a combination of motor and non-motor difficulty

Taewon Kim, Ruiwen Zhou, Samah Gassass, Setsu Uzume, Lei Liu, Benjamin Philip

Washington University School of Medicine, Saint Louis, USA

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P.12 Splitting the Difference: Split-Belt Treadmill Training Improves Spatial and Temporal Gait Symmetry in People with Multiple Sclerosis

Andrew Hagen, Jordan Acosta, Brett Fling
Colorado State University, Fort Collins, USA

P.13 Potential Mechanisms of Stiff-Knee Gait in Individuals Post-stroke: A Narrative Review

Kellen Krajewski^{1,2}, Sebastian Correa^{1,2}, David Cunningham^{1,2}, James Sulzer^{1,2}
¹Department of Physical Medicine and Rehabilitation, Case Western Reserve University, Cleveland, USA.
²MetroHealth Center for Rehabilitation Research, MetroHealth Hospital, Cleveland, USA

P.14 Personalized whole-brain activity patterns predict corticospinal tract activation in real-time

Uttara Khatri, Sara Hussain
University of Texas at Austin, Austin, USA

P.15 Short-latency spinal reciprocal inhibition in individuals with post-stroke hemiparesis.

Jing Nong Liang¹, Aiko K. Thompson²
¹University of Nevada, Las Vegas, Las Vegas, USA. ²Medical University of South Carolina, Charleston, USA

P.16 The use of a gamified upper extremity rehabilitation system for in-clinic and at-home therapy facilitation

Emmanuel Adehunoluwa^{1,2}, Joseph Epperson^{1,3}, Joel Wright¹, Kaitlyn Malley^{1,2}, Rachael Hudson^{1,2}, Chad Swank⁴, Christie Stevens⁴, Jaime Gillespie⁴, Danae Arnold⁴, Jane Wigginton¹, Michael Foreman⁴, Rita Hamilton⁴, Amy Porter¹, Robert Rennaker^{1,2}, Seth Hays^{1,3}, Michael Kilgard^{1,2}
¹Texas Biomedical Device Center, University of Texas at Dallas, Richardson, USA. ²School of Behavioral and Brain Sciences, University of Texas at Dallas, Richardson, USA. ³Erik Jonsson School of Engineering and Computer Science, University of Texas at Dallas, Richardson, USA. ⁴Baylor Scott & White Institute for Rehabilitation, Dallas

P.17 The Use of Automatic Closed-loop Vagus Nerve Stimulation During Rehabilitation For Stroke or Spinal Cord Injury

Joseph Epperson^{1,2}, Eric Meyers¹, David Pruitt¹, Joel Wright¹, Emmanuel Adehunoluwa^{1,3}, Y-Nhy Duong¹, Rachael Hudson^{1,3}, Chad Swank⁴, Christi Stephens⁴, Jaime Gillespie⁴, Danae Arnold⁴, Jane Wigginton¹, Robert Rennaker^{1,2,3}, Michael Kilgard^{1,3}, Seth Hays^{1,2}
¹Texas Biomedical Device Center, Richardson, USA. ²Erik Jonsson School of Engineering and Computer Science, Richardson, USA. ³School of Behavioral and Brain Sciences, University of Texas at Dallas, Richardson, USA. ⁴Baylor Scott and White Institute for Rehabilitation, Dallas, USA

P.18 Automated Somatosensory Therapy with optional Vagus Nerve Simulation following Nerve Injury

Rachael Affenit Hudson¹, Joseph Epperson¹, Emmanuel Adehunoluwa¹, Joel Wright¹, David Pruitt^{1,2}, Seth Hays¹, Michael Kilgard¹
¹University of Texas at Dallas, Richardson, USA. ²Vulintus, Lafayette, USA

P.19 Body-Machine Interface: A Novel Virtual Robotic Platform for Controlling Assistive Devices

Thomas Augenstein^{1,2}, Deepak Nagalla¹, Alexander Mohacecy¹, Qi Cui^{3,4}, Shekoofe Saadat², Mei-Hua Lee⁵, Rajiv Ranganathan^{5,6}, Chandramouli Krishnan^{2,1,7,8}
¹Robotics Department, University of Michigan, Ann Arbor, USA. ²Physical Medicine and Rehabilitation, Michigan Medicine, Ann Arbor, USA. ³Department of Computer Science, University of Michigan, Ann Arbor, USA. ⁴Department of Mathematics, University of Michigan, Ann Arbor, USA. ⁵Department of Kinesiology, Michigan State University, Lansing, USA. ⁶Department of Mechanical Engineering, Michigan State University, Lansing, USA. ⁷Department of Biomedical Engineering, University of Michigan, Ann Arbor, USA. ⁸Department of Kinesiology, University of Michigan, Ann Arbor, USA

P.20 Investigating the Relationship Between Altered Functional Connectivity and Sensorimotor Control in Chronic Stroke

Adam Baker¹, Jenna Blaschke¹, Christian Schranz¹, Na Jin Seo^{1,2}
¹Medical University of South Carolina, Charleston, USA. ²Ralph H. Johnson VA Health Care System, Charleston

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P.21 Influence of motor network connectivity on walking ability in individuals post-stroke.

[Shraddha Srivastava](#)^{1,2}, Bryant Seamon^{1,3}, Janina Wilmskoetter², Leonardo Bonilha⁴, Richard Neptune⁵, Steven Kautz^{1,2,3}

¹Ralph H. Johnson Veteran's Affairs Medical Center, Charleston, USA. ²Department of Health Sciences and Research, College of Health Professions, Medical University of South Carolina, Charleston, USA. ³Division of Physical Therapy, College of Health Professions, Medical University of South Carolina, Charleston, USA. ⁴Department of Neurology, Emory University, Atlanta, USA. ⁵Walker Department of Mechanical Engineering, The University of Texas at Austin, Austin, USA

P.22 Genetic variation in the dopamine system impacts learning response to positive social comparative feedback

[Allison Lewis](#), Bohnenkamp Rachel, Jill Stewart

University of South Carolina, Columbia, USA

P.23 Concurrent anodal HD-tDCs to the left, but not the right, posterior-parietal cortex enhances learning and interlimb transfer of a skill task.

[Jisung Yuk](#)¹, Robert L. Sainburg^{1,2}

¹Penn State University, University Park, USA. ²Penn State Milton S. College of Medicine, Hershey, USA

P.24 The value of dynamic grip force modulation as a potential biomarker for hand function recovery following stroke

Femke Kiekens, Patricia Finetto, Valerie Salisbury, Christian Finetto, [Kirstin-Friederike Heise](#)

Department of Health Sciences and Research, College of Health Professions, Medical University of South Carolina, Charleston

P.25 Are we doing enough: Neurorehabilitation outcomes pertaining to stroke population in an acute inpatient rehabilitation unit

[Viswanath Aluru](#)

Ochsner Clinic Foundation, New Orleans, USA

P.26 Intraspinal microstimulation simultaneously rebalances motor and nociceptive transmission in chronic spinal cord injury

[Maria Bandres](#), Jefferson Gomes, Jacob McPherson

Washington University in St. Louis, St. Louis, USA

P.27 Effects of anodal tDCS stratified by corticospinal organization on motor excitability in children with hemiparetic cerebral palsy

[Sam Nemanich](#)¹, Daniel Lench², Ellen Sutter³, Sunday Francis⁴, Gregg Meekins⁵, Timothy Feyma⁶, Linda Krach⁶, Bernadette Gillick³

¹Marquette University, Milwaukee, USA. ²Medical University of South Carolina, Charleston, USA. ³University of Wisconsin-Madison, Madison, USA. ⁴National Institute of Mental Health, Bethesda, USA. ⁵University of Minnesota, Minneapolis, USA. ⁶Gillette Children's, St. Paul, USA

P.28 Short latency crossed spinal inhibition during standing in people with chronic stroke

[Jodi Brangaccio](#)¹, Alan Phipps², Blair Dellenbach², Markus Melvin², James Norton¹, Jonathan Wolpaw¹, Aiko Thompson²

¹National Center for Adaptive Neurotechnologies/Stratton VAMC, Albany, USA. ²College of Health Professions, Medical University of South Carolina, Charleston, USA

P.29 HD-tDCS combined with MusicGlove Gaming Exercises can improve Hand Dexterity in Individuals with Traumatic Brain Injury

[Vikram Shenoy Handiru](#)^{1,2}, Shannon Schierenbeck¹, Soha Saleh^{1,2}, Didier Allexandre³, Guang Yue^{1,2}

¹Kessler Foundation, West Orange, USA. ²Rutgers New Jersey Medical School, Newark, USA. ³Biofourmis, Boston

P.30 Brain functional network segregation is differentially associated with walking function in younger and older adults

[Sumire D. Sato](#), Valay A. Shah, Grant D. Tays, Kristina G. Hall, Erta Cenko, David J. Clark, Daniel P. Ferris, Chris J. Hass, Rachael D. Seidler

University of Florida, Gainesville, USA

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P.31 Minimal Clinically Important Difference in Six-Minute Walk Test Distance based on Distribution Methods and Perception of a Meaningful Change in the Ease of Walking in People with Chronic Stroke

Elizabeth D. Thompson¹, Kiersten McCartney^{1,2}, Tamara Wright¹, Henry Wright¹, Darcy S. Reisman^{1,2}
¹Physical Therapy Department, University of Delaware, Newark, DE, USA. ²Biomechanics and Movement Science (BIOMS) Program, University of Delaware, Newark, DE, USA

P.32 Spatial-Motor Training Approaches to Improve Post-Stroke Spatial Neglect

Fisayo Aloba, DPT¹, AM Barrett, MD², Dr. Trisha Kesar, PT Ph.D³
¹Emory University, Neuroscience Graduate program, Atlanta, USA. ²Department of Neurology, Atlanta, USA.
³Emory University School of Medicine, Department of Physical Therapy, Atlanta, USA

P.33 Effect of the upper extremity sensorimotor pathway on motor recovery and neuroplasticity with post-stroke rehabilitation

Jenna Blaschke¹, Gabrielle Scronce^{1,2}, Christian Schranz¹, Adam Baker¹, Viswanathan Ramakrishnan^{2,3}, Na Jin Seo^{1,4,2}
¹Department of Health Sciences and Research, College of Health Professions, Medical University of South Carolina, Charleston, USA. ²Ralph H. Johnson VA Healthcare System, Charleston, USA. ³Department of Public Health Sciences, College of Medicine, MUSC, Charleston, USA. ⁴Department of Rehabilitation Sciences, College of Health Professions, Medical University of South Carolina, Charleston, USA

P.34 Effects of contralesional motor cortex LF-rTMS on learning a skilled hand task in the subacute phase post stroke.

Cathrin Buetefisch¹, Kate Revill¹, Deborah Barany^{1,2,3}, Scott Shaeffer¹, Fadi Nahab¹, Samir Belagaje¹
¹Emory University, Atlanta, USA. ²University of Georgia, Athens, USA. ³Augusta University, Augusta, USA

P.35 A Case Study on the efficacy of beta-blocker eye drops for patients experiencing PCS and TBI symptoms

Lynne Becker¹, Krishna Krithivas²
¹Power of Patients, Boston, USA. ²Harbor View Eye Clinic, Portland, USA

P.36 Effect of single session of repetitive transcranial magnetic stimulation applied to different brain regions on balance performance after stroke

Vyoma Parikh, Ann Medley, Jodi Thomas, Hui-Ting Goh
Texas Woman's University, Dallas, USA

P.37 Clinical Application of Vagus Nerve Stimulation Paired with Task Practice for Individuals with Chronic Stroke: Dosage Optimization, Participant Selection, and Training Task Preference

Shiyu Lin¹, Chelsea Rodriguez¹, Melissa Hamby², Steven Wolf¹
¹Emory University School of Medicine, Atlanta, USA. ²Emory University School of Medic, Atlanta, USA

P.38 The impact of socioeconomic and environmental factors on motor skill acquisition among a nationwide cohort across the lifespan

Andrew Hooyman¹, Kevin Duff², Sydney Schaefer¹
¹Arizona State University, Tempe, USA. ²Oregon Health and Science University, Portland, USA

P.39 Cortical Map Representation of the Motor Evoked Potential and Silent Period for the Ankle Dorsiflexor Tibialis Anterior in People With and Without Chronic Incomplete Spinal Cord Injury

Roland Cote, Rachel Cote, Alan Phipps, Aiko Thompson
Medical University of South Carolina, Charleston, USA

P.40 Does Stimulus Intensity Affect the Ability to Condition Brain Responses and the Associated Short-term Neural Adaptations in Individuals with Anterior Cruciate Ligament Reconstruction?

Kazandra Rodriguez¹, Junsung Moon¹, Chandramouli Krishnan^{2,3,4}, Riann Palmieri-Smith^{1,5}
¹School of Kinesiology, University of Michigan, Ann Arbor, USA. ²Department of Physical Medicine and Rehabilitation, Michigan Medicine, Ann Arbor, USA. ³Biomedical Engineering, University of Michigan, Ann Arbor, USA. ⁴Michigan Robotics Institute, University of Michigan, Ann Arbor, USA. ⁵Department of Orthopaedic Surgery, Michigan Medicine, Ann Arbor, USA

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P.41 Understanding the mechanisms of action observation as a rehabilitation intervention for stroke

Layla Abdullatif1, Maria Lindsey1, Veronica Rowe2, Lewis Wheaton1
1Georgia Institute of Technology, Atlanta, USA. 2Georgia State University, Atlanta, USA

P.42 Plasma MicroRNA Prediction of Upper Limb Recovery Following Human Stroke

Matthew Edwardson1,2,3, Narayan Shivapurkar1, Xin Li1, Muhib Khan4, Jamal Smith2,3, Margot Giannetti2, Ruzong Fan1, Alexander Dromerick1,2
1Georgetown University, Washington, USA. 2MedStar National Rehabilitation Hospital, Washington, USA. 3Spectrum Health, Grand Rapids, USA

P.43 Relationship between Activity-based Corticocortical Connectivity and Upper Limb Motor Function in Stroke Survivors

Christian Schranz1, MiLana Wiltshire2, Adam Baker1, Jenna Blaschke1, Na Jin Seo1,3
1Medical University of South Carolina, Charleston, USA. 2Claflin University, Orangeburg, USA. 3Ralph H. Johnson VA Healthcare System, Charleston, USA

P.44 Forearm Postural Diversity and Complexity: Targets for Wearable Feedback after Stroke?

Shusuke Okita, David Reinkensmeyer
University of California, Irvine, Irvine, California, USA

P.45 Effects of priming tDCS expectations on motor learning

Nicole Haikalis, Andrew Hooyma, Keston Kajitani, Hitesh Gurram, Sydney Schaefer
Arizona State University, Tempe, USA

P.46 Treatment Patterns and Healthcare Costs Among Patients With Stroke and Spasticity

Michael Hull1, Vamshi Ruthwik Anupindi1, Jing He2, Mitch DeKoven1, Jumaah Goldberg3, Jonathan Bouchard3
1IQVIA, Falls Church, USA. 2Formerly of IQVIA, Falls Church, USA. 3psen, Cambridge, USA

P.47 Advantages of a single motor imagery session, compared to two weeks of motor imagery training, after upper extremity peripheral nerve injury

Samah Gassass1, Karen Steger-May1, Taewon Kim1, Susan Mackinnon1, Jana Dangler2, Benjamin Philip1
1Washington University School of Medicine, St.Louis, USA. 2Sunnybrook Hospital, University of Toronto, Toronto, Canada

P.48 Sensitrac: Automated Assessment of Forelimb Sensation in Rodents

Derrick Yoo1, Aditya Ramamurthy1, Justin Lee1, Andrew Sloan2, Jason Carmel1
1Columbia University, New York City, USA. 2Vulintus Inc., Lafayette, USA

P.49 Non-Primary Motor Area Involvement in Reaching Behavior After Stroke

Jennifer Mak1, Amy Boos1, Xiaoqi Fang1, Fang Liu1, George Wittenberg1,2
1University of Pittsburgh, Pittsburgh, USA. 2VA Pittsburgh Healthcare System, Pittsburgh, USA

P.50 Better Late than Never: Acute Occupational Therapy rehabilitation for Spinal Cord Injury in Low-and-Middle-Income Countries – A case report

Stuti Chakraborty1,2, Jerome Dany Praveen Raj2
1University of Southern California, Los Angeles, USA. 2Christian Medical College, Vellore, India

P.51 Motor Cortical Map Excitability in Persons with Chronic Traumatic Cervical Spinal Cord Injury: Relation to Maximal Volitional Activation and Upper Limb Motor Function

Jia Liu1, Tarun Arora2, Kyle O'Laughlin1, Gregory Nemunaitis1, Gail Forrest3, Svetlana Pundik4, Kevin Kilgore5, David Cunningham5, Anne Bryden5, Steven Kirshblum3, Ela Plow1
1Cleveland Clinic, Cleveland, USA. 2Oslo University Hospital, Oslo, Norway. 3Kessler Foundation, West Orange, USA. 4Louis Stokes Cleveland VA Medical Center, Cleveland, USA. 5MetroHealth System, Cleveland, USA

P. 52 Mindset, environment, and participation: factors chronic stroke survivors identify as influencing movement behavior and recovery

Amelia Cain1, Marika Demers2, Carolee Winstein1
1University of Southern California, Los Angeles, USA. 2University of Montreal, Montreal, Canada

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P.53 Addressing experimental design challenges to investigate stroke-related deficits in the preparation of shoulder movement

Christina Thomas, Faith Carlson, Brianna Johnson, [Rosalind Heckman](#)
Creighton University, Omaha, USA

P.54 The evolving paradigm of Constraint-Induced Movement Therapy: New findings and conceptual challenges about constraint and neuroplasticity

[Stephanie DeLuca](#)¹, Sharon Ramey¹, Mark Conaway², Rich Stevenson², Warren Lo³, Amy Darragh³, Jill Heathcock³, Andrew Gordon⁴
¹Virginia Tech, Roanoke, USA. ²University of Virginia, Charlottesville, USA. ³Ohio State University, Columbus, USA. ⁴Columbia, New York, USA

P.55 Neurophysiological Effects of Trigger Point Deep Dry Needling of Latent Trigger Points

Seif Gretchen¹, Alan Phipps¹, Blair Dellenbach¹, Joseph Donnelly², Cesar Fernández-de-Las-Peñas³, [Aiko Thompson](#)¹
¹The Medical University of South Carolina, Charleston, USA. ²University of St. Augustine, Miami, USA. ³Universidad Rey Juan Carlos Facultad de Ciencias de la Salud, Madrid, Spain

P.56 StartReact Increases Activation of Muscles not Primarily Involved in the Task

[Ermynrude Adjei](#)^{1,2}, Kelsey Wright^{1,3}, Julius Dewald^{1,2,3,4}, Jun Yao^{1,2,3}
¹Department of Physical Therapy and Human Movement Sciences, Northwestern University, Chicago, USA. ²Department of Biomedical Engineering, Northwestern University, Evanston, USA. ³Interdepartmental Neuroscience, Northwestern University, Evanston, USA. ⁴Department of Physical Medicine and Rehabilitation, Northwestern University, Chicago, USA

P.57 Individuals with Hemiparetic Stroke Abnormally Perceive their Elbow Torques when Abducting their Paretic Shoulder

[Ninghe Cai](#)¹, Julius Dewald¹, Netta Gurari^{1,2}
¹Northwestern University, Chicago, USA. ²Virginia Polytechnic Institute and State University, Blacksburg, USA

P.58 Reduced cortical sensory processing during whole-body motion perception after stroke

[Jasmine Mirdamadi](#)¹, Clara Beth LaFollette², Hannah Odum³, Scott Boebinger^{2,3}, Kennedy Kerr², Lena Ting^{2,3}, Michael Borich¹
¹Emory University School of Medicine, Atlanta, USA. ²Emory University, Atlanta, USA. ³Georgia Institute of Technology, Atlanta, USA

P.59 Restoration of Mobility and Balance in People with Secondary Progressive Multiple Sclerosis: A Case Series

[Ehsan Sinaei](#), Prudence Plummer
MGH Institute of Health Professions, Boston, USA

P.60 Multi-Joint Assessment of Arm Proprioception Impairments Post Stroke

Dali Xu¹, Raziye Baghi¹, Kyung Koh², [Giovanni Oppizzi](#)², Sanjana Rao¹, Glenn Kehs³, Robynne Braun³, Li-Qun Zhang^{4,5,2}
¹Department of Physical Therapy & Rehabilitation Science, University of Maryland, Baltimore, USA. ²Department of Bioengineering, University of Maryland, College Park, USA. ³University of Maryland Rehabilitation and Orthopaedic Institute, Baltimore, USA. ⁴Department of Physical Therapy & Rehabilitation Science, University of Maryland, Baltimore, USA. ⁵Department of Orthopaedic Surgery, University of Maryland, Baltimore, USA

P.61 Sensory circuits for hand function in pediatric hemiplegia: a bedside to bench study

[Michelle Corkrum](#), Tong Wen, Jason Carmel
Columbia University, New York, USA

P.62 Optimization of a Protocol for Temporary Deafferentation and Proof-of-Concept of Effectiveness for Upper Limb Rehabilitation

[Mónica Lozano García](#), Chelsea Erazo Macias, Daniel Salinas, Ashley Tijerina, Kelsey Baker, Victoria Cuello
University of Texas Rio Grande Valley, Edinburg, USA

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P.63 Control of interaction torques during single- joint arm movements in stroke survivors

Yannick Darmon¹, Gerald E. Loeb², Victor R. Barradas Patino³, Zhong Zheng⁴, Sook-Lei Liew⁵, Carolee J. Winstein¹, Emily Rosario⁴, [Nicolas Schweighofer](#)¹

¹University of Southern California, Biokinesiology and Physical Therapy, Los angeles, USA. ²University of Southern California, Biomedical Engineering, Los angeles, USA. ³Tokyo institute of technology, Tokyo, Japan. ⁴Casa Colina Hospital and Centers for Healthcare, Pomona, USA. ⁵University of Southern California, Occupational Science and Occupational Therapy, Los angeles, USA

P.64 Protocol of a pilot clinical study evaluating a novel brain stimulation approach to promote bimanual motor function and control in chronic stroke

[Xin Li](#)¹, Jayme Knutson^{2,3}, David Cunningham^{2,3}, Mark Lowe⁴, Elliot Barden⁵, Teale Bennett¹, Kyle O'Laughlin¹, Morgan Widina¹, Ela Plow^{1,5}

¹Cleveland Clinic Lerner Research Institute, Cleveland, USA. ²MetroHealth Center for Rehabilitation Research, Cleveland, USA. ³Case Western Reserve University, Cleveland, USA. ⁴Cleveland Clinic Imaging Institute, Cleveland, USA. ⁵Cleveland Clinic Neurological Institute, Cleveland, USA

P.65 Motor-sensory network correlates for lower extremity impairment and gait speed in chronic stroke

Sarah Carr¹, Margaret Skelly², Trenley Anderson³, Jessica McCabe², Ahlam Salameh^{2,3}, Kelsey Duncan⁴, Lisa Leonhardt², [Svetlana Pundik](#)^{2,3}

¹King's College London, London, United Kingdom. ²VA Northeast Ohio Health System, Cleveland, USA. ³Case Western Reserve University School of Medicine, Cleveland, USA. ⁴University Hospitals of Cleveland, Cleveland, USA

P.66 The contributions of executive function to automaticity and attention allocation during dual tasking in individuals with Parkinson's disease.

[Annie Fordonski](#)¹, Lauren Schwarz¹, Yi-Fang Chiu¹, Jason Longhurst¹
Saint Louis University, Saint Louis, USA

P.67 Alterations in Corticospinal Excitability after Stroke: A Systematic Review and Meta-Analysis

[Edward Washabaugh](#)¹, Emily Czopek¹, Chandramouli Krishnan²
¹Wayne State University, Detroit, USA. ²Michigan Medicine, Ann Arbor, USA

P.68 Relationship of changes in circulating BDNF and motor impairment following a stroke rehabilitation intervention

[Ewan Williams](#)¹, Ryan Ross¹, Emerson Hart¹, Chris Gregory¹, Michelle Woodbury¹
Medical University of South Carolina, Charleston, USA

P.69 Task difficulty influences paretic arm choice during goal-directed planar reaching actions after Right Hemispheric Stroke

Joshua Jacob¹, Cory Potts¹, Laurel Buxbaum¹, [Shailesh Kantak](#)^{1,2}
¹Moss Rehabilitation Research Institute, Thomas Jefferson University, Elkins Park, USA. ²Department of Physical Therapy, Arcadia University, Glenside, USA

P.70 The consideration of self-efficacy in early-stroke rehabilitation

[Rachel Vaughn](#)¹, Rachana Gangwani¹, Jasper Mark¹, Kelly Fletcher², John Baratta^{1,2}, Jessica Cassidy¹
¹University of North Carolina at Chapel Hill, Chapel Hill, USA. ²UNC Health, Chapel Hill, USA

P.71 Spasticity can be potentially treated using myoelectrically controlled arm orthosis in chronic stroke.

[Ahlam Salameh](#)^{1,2}, Jessica McCabe¹, Margaret Skelly¹, Stefania Fatone³, Svetlana Pundik^{1,2}
¹Cleveland Functional Electrical Stimulation Center, Cleveland, USA. ²Case Western Reserve University, Cleveland, USA. ³University of Washington School of Medicine, Seattle, USA

P.72 The Transcallosal Highway: The ipsilateral silent period as a neural biomarker for impaired corpus callosum communication in persons with multiple sclerosis

[Jordan Acosta](#)¹, Andrew Hagen¹, Brett Fling¹
Colorado State University, Fort Collins, USA

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P.73 A Review of Disparities in Racial and Ethnic Inclusion in Stroke Rehabilitation Clinical Trials.

Adeline Beeler¹, Mikayla McNally¹, Keith Lohse², Sydney Schaefer¹

¹Arizona State University, Tempe, AZ, USA. ²Washington University School of Medicine, St. Louis, MO, USA

P.74 Evidence-based infant assessment for cerebral palsy: relationship to early diagnosis and intervention access

Ellen Sutter^{1,2}, Kellie Collins², Melissa Villegas², Janet Legare², Jens Eickhoff², Bernadette Gillick²

¹University of Minnesota Twin Cities, Minneapolis, USA. ²University of Wisconsin-Madison, Madison, USA

P.75 Estimating compensatory truncal movements in healthy controls and patients with weakness due to recent stroke using gyroscope data from wearable sensors

Catherine Dang¹, Ciara Lee², Edwin Dang¹, Noah Balestra³, Paige Hepple⁴, Linda Riek⁵, Ania Busza⁴

¹University of Rochester, Rochester, USA. ²University of Rochester, Rochester, USA. ³Washington University School of Medicine, St. Louis, USA. ⁴Department of Neurology, University of Rochester, Rochester, USA.

⁵Department of Physical Therapy, Nazareth College, Rochester, USA

P.76 Method for Training Assessors and Maintaining Reliability for Upper Extremity Clinical Assessments

Kristen Coupland, MS, OTR/L^{1,2}, Amanda A. Vatinno, PhD, OTR/L¹, Viswanathan Ramakrishnan, PhD³, Michelle L.

Woodbury, PhD, OTR/L^{1,4}, Jenna Blaschke, OTD, OTR/L¹, Gabrielle Scronce, PT, DPT, PhD^{1,2}, Na Jin Seo, PhD^{1,2,4}

¹Department of Health Sciences and Research, College of Health Professions, Medical University of South Carolina, Charleston, SC, USA. ²Ralph H. Johnson VA Healthcare System, Charleston, SC, USA. ³Department of Public Health Sciences, College of Medicine, Medical University of South Carolina, Charleston, SC, USA. ⁴Department of Rehabilitation Sciences, College of Health Professions, Medical University of South Carolina, Charleston, SC, USA

P.77 Development of a Biomechanical-based Classification System for Informing Precision Treatment of Post-Stroke Walking Impairment

Bryant Seamon^{1,2}, Shraddha Srivastava^{1,2}, Richard Neptune³, Mark Bowden⁴, Steven Kautz^{1,2}

¹Ralph H. Johnson VA Health Care System, Charleston, USA. ²Medical University of South Carolina, Charleston, USA. ³University of Texas, Austin, USA. ⁴Brooks Rehabilitation, Jacksonville, USA

P.78 Tele-tDCS for ALS: A case series examining safety, feasibility and preliminary effectiveness.

Sangeetha Madhavan¹, Mark Cummings², Shravni Deshmukh², Aditi Doshi²

¹University of Illinois at Chicago, Chicago, USA. ²

P.79 Is the Reticulospinal Tract a Promising Site for Intervention to Improve Mobility Impairments in People with Multiple Sclerosis?

Chris Patrick, Brett Fling

Colorado State University, Fort Collins, USA

P.80 The Promise of Telerehabilitation to Increase Upper Limb Therapy Dose and Improve Continuity of Care During Early Post Stroke Recovery

Dylan Edwards¹, Sapna Kumar¹, Tiffany Nguyen², Alberto Esquenazi^{3,4}, Lorie Brinkman^{2,5}, Isabel Ferreira^{2,5},

Michael Su^{2,5}, Stephanie Stein³, Jaun May³, Allison Hendrix³, Casey Finley³, Emily Howard³, Steven Cramer^{2,5}

¹Moss Rehabilitation Research Institute, Elkins Park, USA. ²UCLA, Los Angeles, USA. ³Moss Rehab, Elkins Park, USA. ⁴Jefferson Health, Philadelphia, USA. ⁵California Rehabilitation Institute, Los Angeles, USA

P.81 Guided intraoperative dorsal root entry zone stimulation facilitates cortical motor evoked potentials in humans

James R. McIntosh^{1,2}, Jacob L. Goldberg², Phoebe Greenwald¹, Lynda M. Murray^{3,4}, Anil Mendiratta¹, Steven C.

Karceski², Nisha Patel⁵, Kelley McGowan⁶, Earl Thuet⁶, Oleg Modik⁵, Evgeny Shelkov⁵, Meghana Vulapalli²,

Andrew K. Chan¹, Joseph M. Lombardi¹, Zeeshan M. Sardar¹, Ronald A. Lehman¹, K. Daniel Riew^{2,1}, Christopher

Mandigo¹, Noam Y. Harel^{4,3}, Michael S. Virk², Jason B. Carmel^{1,2}

¹Columbia University, New York, USA. ²Weill Cornell Medicine, New York, USA. ³Icahn School of Medicine at Mount

Sinai, New York, USA. ⁴James J. Peters VA Medical Center, Bronx, USA. ⁵Weill Cornell Medicine - New York

Presbyterian, New York, USA. ⁶New York Presbyterian, The Och Spine Hospital, New York, USA

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P.82 Cortical transcranial direct current stimulation influences lower limb cutaneous reflexes in individuals with stroke

Brice Cleland, Sangeetha Madhavan
University of Illinois Chicago, Chicago, USA

P.83 Score Card for Reporting Individual Performance Post Stroke

Alyssa Chesnutt¹, Aaron Embry^{1,2}, Jesse Dean^{2,1}
¹MUSC, Charleston, USA. ²Ralph H. Johnson VA Medical Center, Charleston, USA

P.84 Optimizing Music-Based Interventions for Stroke Rehabilitation

Anna Palumbo¹, Eva Luna Muñoz Vidal^{1,2}, Karleigh Groves¹, Pablo Ripollés¹
¹New York University, New York City, USA. ²University of Vienna, Vienna, Austria

P.85 Full-day leg movement kinematics in infants at risk of poor neurodevelopmental outcomes in rural Guatemala

Jinseok Oh¹, Beth Smith^{1,2}, Peter Rohloff^{3,4}
¹Children's Hospital Los Angeles, Los Angeles, USA. ²University of Southern California, Los Angeles, USA. ³Wuqu' Kawoq | Maya Health Alliance, Santiago Sacatepéquez, Guatemala. ⁴Brigham and Women's Hospital, Boston, USA

P.86 Contralateral fMRI activation for line bisection judgments after right-hemisphere stroke

Anna Seydell-Greenwald
Georgetown University Medical Center, Washington, DC, USA

P.87 Movement-related cortical stimulation for enhancing corticospinal excitability below the level of incomplete spinal cord injury: A proof-of-concept case study

David Cunningham^{1,2}, P. Hunter Peckham^{1,2}, Kevin Kilgore^{1,2}
¹Case Western Reserve University, Cleveland, USA. ²MetroHealth Center for Rehabilitation Research, Cleveland

P.90 Usability of collaborative robots for rehabilitation of the upper and lower limbs after stroke and spinal cord injury: a scoping review

Urvashy Gopaul¹, Aisha Raji^{2,1}, Jessica Babineau³, Cesar Marquez- Chin^{1,2}, Mark Bayley^{1,2}, Milos Popovic^{1,2}
¹Toronto Rehabilitation Institute, Toronto, Canada. ²University of Toronto, Toronto, Canada. ³University Health Network, Toronto, Canada

P.91 The Effectiveness of Temporary Deafferentation for Upper Limb Rehabilitation in a Patient with Spinal Cord Injury: A Case Study

Daniel Salinas, Ashley Tijerina, Monica Lozano-Garcia, Kelsey Potter-Baker
The University of Texas Rio Grande Valley, Edinburg, USA

P.92 Switching Adults With Spasticity From OnabotulinumtoxinA to AbobotulinumtoxinA: Real-World Data Across Three US-Based Centers

Nate Way¹, Edward Dabrowski², Mitchell Paulin³, Martin Taylor⁴, John Madden⁵, Amandeep Mann⁵, Jonathan Bouchard⁵
¹Real World Evidence, Cerner Enviza, Malvern, USA. ²Beaumont Health, Royal Oak, USA. ³The Center for Tone Management of the Main Line, Paoli, USA. ⁴OrthoNeuro, New Albany, USA. ⁵Spens, Cambridge, USA

P.93 The tradeoff between kinematic and muscular control of reaching as a potential biomarker of motor performance in stroke

Alexander Brunfeldt¹, Barbara Bregman¹, Peter Lum²
¹Georgetown University, Washington, DC, USA. ²The Catholic University of America, Washington, DC, USA

P.94 Defining Normative Values for the Bionik InMotion Robotic Arm

Marysol Cabello, Diego Rojano, Marylu Cabello, Daniel Salinas, Victoria Cuello, Ramiro Oquita, Kelsey Baker
UTRGV, Edinburg, USA

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P.95 Walking Faster and Carrying More Weight: How Triceps Surae Activity Contributes to Increasing Speed and Bearing Added Weight in Human Locomotion

Bridgette Damewood, Aiko Thompson

College of Health Professions, Medical University of South Carolina, Charleston, USA

P.96 Effects of Hyaluronidase Injections on Neural and Non-Neural Muscle Stiffness Post Stroke

Paria Arfa Fatollahkhani¹, Matthew Bird¹, Nina Suresh², Pablo Celnik¹, Preeti Raghavan¹

¹Johns Hopkins University, Baltimore, USA. ²Northwestern University, Illinois, USA

P.97 Feasibility and preliminary effects of a novel game-based biofeedback interface for stroke gait retraining

Alexandra Slusarenko¹, Joseph Makanjuola¹, Michael Isaza², Minuk Kim¹, Steve Wolf^{1,3}, Trisha Kesar¹

¹Emory University, Atlanta, USA. ²HiRez Studio, Atlanta, USA. ³Center for Visual and Neurocognitive Rehabilitation Atlanta VA, Atlanta, USA

P.98 Input-output property of soleus short latency crossed spinal inhibition in people with chronic incomplete spinal cord injury

Markus Melvin, Aiko Thompson, Alan Phipps

Medical University of South Carolina, Charleston, USA

P.99 Aging-related effects on reference frame utilization during spatial navigation in a novel virtual reality environment

Anisha Kanukolanu¹, Yasmine Bassil², Michael Borich²

¹Georgia Institute of Technology, Atlanta, USA. ²Emory University, Atlanta, USA

P.100 Estimating transfer of motor skill learning post- stroke from a large sample “in the wild” practice data

Dongze Ye¹, Rukshana Poudel², Veronica Swanson³, Dan Zondervan⁴, David Reinkensmeyer³, Nicolas

Schweighofer²

¹University of Southern California, Computer Science, Los Angeles, USA. ²University of Southern California, Biokinesiology and Physical Therapy, Los Angeles, USA. ³UC Irvine, Department of Mechanical and Aerospace Engineering, Irvine, USA. ⁴Flint Rehab, Irvine, USA

P.101 Spinal motor neuron characteristics & disease progression in ALS: a lower limb focused descriptive study

Shravni Deshmukh¹, Aditi Doshi¹, Mark Cummings¹, Kourosh Rezanian², Sangeetha Madhavan¹

¹University of Illinois at Chicago, Chicago, USA. ²The University of Chicago Biological Sciences, Chicago, USA

P. 102 Tracking walking recovery in individuals with motor incomplete spinal cord injury with transcranial magnetic stimulation: preliminary findings

Sheba Sajan¹, Hui-Ting Shih², Vyoma Parikh¹, Faith Meza², Alexandria Suhalka², Chad Swank², Hui-Ting Goh¹

¹Texas Woman's University, Dallas, USA. ²Baylor Scott & White Research Institute, Dallas, USA

P.103 The relationship between upper extremity use at home and adherence to a home exercise program among stroke survivors

Gabrielle Scronce^{1,2}, Corinne Gillion¹, Na Jin Seo^{1,2}

¹Medical University of South Carolina, Charleston, USA. ²Ralph H. Johnson VA Health Care System, Charleston,

P.104 Application of Corticomuscular Coherence in Early Stroke Rehabilitation

Rachana Gangwani, Jasper Mark, Jessica Cassidy

University of North Carolina at Chapel Hill, Chapel Hill, USA

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P.105 Linking post-stroke neurophysiology to neuroanatomy: Novel method to extend voxel-lesion mapping to multi-dimensional EEG data

Richard Hardstone¹, Lauren M. Ostrowski¹, Alison N. Dusing^{2,3}, Sydney S. Cash^{1,4}, Steven C. Cramer^{5,6}, Ander Ramos- Murguialday^{7,8}, Leigh R. Hochberg^{1,2,3,4}, David J. Lin^{1,2,4}

¹Center for Neurotechnology and Neurorecovery, Department of Neurology, Massachusetts General Hospital, Boston, USA. ²VA RR&D Center for Neurorestoration and Neurotechnology, Department of Veterans Affairs Medical Center, Providence, USA. ³Carney Institute for Brain Science and School of Engineering, Brown University, Providence, USA. ⁴Harvard Medical School, Boston, USA. ⁵Department of Neurology, University of California, Los Angeles, USA. ⁶California Rehabilitation Institute, Los Angeles, USA. ⁷Institute of Medical Psychology and Behavioral Neurobiology, University of Tübingen, Tübingen, Germany. ⁸TECNALIA, Basque Research and Technology Alliance (BRTA), Neurotechnology Laboratory, San Sebastián, Spain

P.106 Multi-site generalization of clusters of walking impairment in individuals with chronic stroke

Natalia Sanchez¹, Nicolas Schweighofer², Ryan Roemmich³, Trisha Kesar⁴, Gesly Torres-Oviedo⁵, Beth Fisher², James Finley², Carolee Winstein²

¹Chapman University, Irvine, USA. ²University of Southern California, Los Angeles, USA. ³Kennedy Krieger Institute and Johns Hopkins, Baltimore, USA. ⁴Emory University, Atlanta, USA. ⁵University of Pittsburgh, Pittsburgh, USA

P.107 Ischemic conditioning to improve motor and neurophysiological outcomes post-stroke: a scoping review

Mark Cummings, Sangeetha Madhavan
University of Illinois Chicago, Chicago, USA

P.108 A Cross-Device Investigation of the Strength of Placebo Effects of Transcranial Direct Current Stimulation (tDCS) on Motor Training: Comparing HD and Traditional tDCS

Hitesh Gurram, Nicole Kallima Haikalis, Jessica Trevino, Andrew Hooyman, Sydney Schaefer
Arizona State University, Tempe, USA

P.109 More than Meets the Eye: Calibrating Computer Vision for Post-Stroke Upper Limb Movement

Justin Huber, Stacey Slone, Jihye Bae
University of Kentucky, Lexington, USA

P.110 Investigating the relationship between anatomical and physiologic measures of the corticospinal tract and upper extremity motor function after acute stroke

Isha Vora¹, Sydney McKiernan^{2,3,4}, Baothy Huynh¹, Leigh Hochberg^{2,3,4}, Teresa Kimberley¹, David Lin^{2,3,4}
¹IMGH Institute of Health Professions, Boston, USA. ²MGH Center for Neurotechnology and Neurorecovery, Massachusetts General Hospital, Boston, USA. ³Massachusetts General Hospital, Department of Neurology, Boston, USA. ⁴VA RR&D Center for Neurorestoration and Neurotechnology, Providence VA Medical Center, Providence, USA

P.111 Pairing Transcutaneous auricular vagus nerve stimulation (taVNS) and Constraint Induced Movement Therapy (CIMT) to improve motor function in infants

Kelly McGlooin¹, Patricia Coker-Bolt¹, Elizabeth Humanitzki¹, Julia Schroeder Brennan¹, Annie Cribb¹, Aly Brennan¹, Summers Philipps¹, Bashar Badran¹, Mark George¹, Dorothea Jenkins²

¹Medical University of South Carolina, Charleston, USA. ²Medical University of South Carolina

P.112 A Preliminary Study of Motor Control Abnormalities in the First 3 Months After Stroke

Adarsh Mavathaveedu¹, Paige Hepple², Ania Busza²
¹University of Rochester, Rochester, USA. ²Department of Neurology, University of Rochester, Rochester, USA

P.113 Effects of Gait Training With and Without Electrical Stimulation on Neural, Biomechanical, and Clinical Outcomes Post-Stroke

Jacob Spencer^{1,2}, Taylor Leone², Alejandro Lopez², Alexandra Slusarenko², Anzika Tuliva², Trisha Kesar²
¹Georgia Institute of Technology, Atlanta, USA. ²Emory University, Atlanta, USA

P.114 Subthalamic Connectivity in Participants with Parkinson's Disease and Freezing of Gait

Daniel Lench, Jade Doolittle, Gonzalo Revuelta
Medical University of South Carolina, Charleston, USA

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P.115 Visuospatial cognition predicts performance on a complex obstacle walking task in older adults

Steven Winesett^{1,2}, Sudeshna Chatterjee^{1,2,3}, Brianne Borgia^{1,2}, Brigette Cox¹, Kelly Hawkins², Jon Miles¹, Clayton Swanson^{1,2}, Julia Choi², Rachael Seidler², Emily Fox², David Clark^{1,2}
1Malcom Randall VA Medical Center, Gainesville, USA. 2University of Florida, Gainesville, USA. 3Drexel University, Philadelphia, USA

P.117 Characterization of changes to inter-joint active and passive couplings in the arm and hand following stroke

Giovanni Oppizzi^{1,2}, Kyung Koh¹, Dali Xu², Raziye Baghi², Sanjana Rao², Glenn Kehs³, Li-Qun Zhang^{1,2,4}
1Department of Bioengineering, University of Maryland, College Park, USA. 2Department of Physical Therapy & Rehabilitation Science, University of Maryland, Baltimore, USA. 3University of Maryland Rehabilitation and Orthopaedic Institute, Baltimore, USA. 4Department of Orthopaedic Surgery, Baltimore, USA

P.118 Operant Conditioning of the Soleus Cutaneous Reflex in a Person with Chronic Incomplete Spinal Cord Injury: Implications on Pain Perception

Alan Phipps, Aiko Thompson
Medical University of South Carolina, Charleston, USA

P.119 The impact of the COVID-19 pandemic on rehabilitation delivery and outcomes in the province of Quebec.

Palak Vakil^{1,2,3}, Perrine Ferré^{1,4}, Johanne Higgins^{2,5,6}, Louis-David Beaulieu⁷, Claude Vincent^{8,9}, Kimberley Singerman³, Diana Zidarov^{2,5,6}, Marie-Hélène Milot^{10,11}, Marie-Hélène Boudrias^{1,2,3}
1McGill University, Montreal, Canada. 2Centre for Interdisciplinary Research in Rehabilitation of Greater Montreal (CRIR), Montreal, Canada. 3Jewish Rehabilitation Hospital, CISSS-Laval, Laval, Canada. 4Villa Medica Rehabilitation Hospital, Montreal, Canada. 5University of Montreal, Montreal, Canada. 6Institut de réadaptation Gingras-Lindsay-de-Montréal, CIUSSS-CSMTL, Montreal, Canada. 7University of Quebec at Chicoutimi, Saguenay, Canada. 8Laval University, Quebec, Canada. 9Center for Interdisciplinary Research in Rehabilitation and Social Integration (CIRIS), Quebec, Canada. 10University of Sherbrooke, Sherbrooke, Canada. 11Centre de recherche sur le vieillissement, CIUSSS de l'Estrie-CHUS, Sherbrooke, Canada

P.120 Cortical and functional changes in Hand Function after 3-weeks of Training Using a Novel Passive Device

Jed Meltzer¹, John de Grosbois¹, Mikayla Marshall², Eric Dumais², Sabira Alibhai-Najjarali¹, Grace Wang¹, Madeline Heleno¹, Siyuan Pan¹, Aarzo Arya¹, Jennifer Shao¹, Aimee Nelson³, Vineet B K Johnson^{2,4}, Jocelyn Harris⁵
1Rotman Research Institute, Baycrest Hospital, Toronto, Canada. 2Regained Inc, Sudbury, Canada. 3Department of Kinesiology, McMaster University, Hamilton, Canada. 4School of Kinesiology, Lakehead University, Thunder Bay, Canada. 5School of Rehabilitation Science, McMaster University, Hamilton, Canada

P.121 A multidimensional Phase I trial of an upper limb motor intervention in the acute stroke setting: a novel protocol to investigate dose.

Emily Dalton^{1,2,3}, Leonid Churilov¹, Bruce Campbell^{1,3}, Natasha Lannin^{4,5}, Vincent Thijs^{2,6}, Kate Hayward^{1,6}
1University of Melbourne, Melbourne, Australia. 2Austin Health, Melbourne, Australia. 3Royal Melbourne Hospital, Melbourne, Australia. 4Monash University, Melbourne, Australia. 5Alfred Health, Melbourne, Australia. 6Florey Institute of Neurosciences and Mental Health, Melbourne, Australia

P.122 You don't have to be at risk of falling to be afraid of falling: Examining the relationship between fear of falling and balance impairment at inpatient discharge in ambulatory stroke survivors

Lina Jallad, Megan Schliep, Ehsan Sinaei, Ioanna Gouzos, Prudence Plummer
MGH Institute of Health Professions, Boston, USA

P.123 Ideomotor Apraxia modulates the relationship between functional independence and upper extremity impairment (contralesional and ipsilesional) in chronic stroke survivors with severe paresis

Candice Maenza^{1,2}, Carolee Winstein³, Nick Kitchen¹, Robert Sainburg^{2,1}
1Penn State College of Medicine, Hershey, USA. 2Pennsylvania State University, University Park, USA. 3University of Southern California, Los Angeles, USA

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P.124 Improving distal arm motor function in a chronic stroke survivor with intensive chopstick operation skill training in conjunction with tPBM: A Case Report

Bokkyu Kim, Vincynthia Reeder
SUNY Upstate Medical University, Syracuse, USA

P.125 The role of proprioception in online movement control: Insights from reaching arm movements in a patient with Large Fiber Sensory Neuropathy

Shanie Jayasinghe¹, Robert Sainburg^{2,3}, Fabrice Sarlegna⁴
¹University of Minnesota, Minneapolis, USA. ²Pennsylvania State University, State College, USA. ³Pennsylvania State University College of Medicine, Hershey, USA. ⁴Aix Marseille Université, CNRS, ISM, Marseille, France

P.126 Speed-based high intensity interval treadmill training as a measure of intensity post stroke

Aditi Doshi, Sangeetha Madhavan
University of Illinois at Chicago, Chicago, USA

P.127 Learning New Gait Patterns after Stroke: Do Stroke Survivors with Mild Motor Impairments Exhibit Deficits in Learning?

Thomas Augenstein^{1,2}, Edward Washabaugh³, Seonga Oh⁴, Trevor Norris², Shekoofe Saadat², Joshua Meckler², Edward Claflin², Rajiv Ranganathan^{5,6}, Chandramouli Krishnan^{2,1,7,8}
¹Robotics Department, University of Michigan, Ann Arbor, USA. ²Physical Medicine and Rehabilitation, Michigan Medicine, Ann Arbor, USA. ³Department of Biomedical Engineering, Wayne State University, Detroit, USA. ⁴Department of Chemistry, University of Michigan, Ann Arbor, USA. ⁵Department of Kinesiology, Michigan State University, Lansing, USA. ⁶Department of Mechanical Engineering, Michigan State University, Lansing, USA. ⁷Department of Biomedical Engineering, University of Michigan, Ann Arbor, USA. ⁸Department of Kinesiology, University of Michigan, Ann Arbor, USA

P.128 Potential of High-Definition Transcranial Direct Current Stimulation to Reduce Sensorimotor Impairments Post Hemiparetic Stroke: A Pilot Trial

Jordan Williamson¹, Shirley James², Justin Brixey¹, Blair Apple², Jason Sharps², Aaron Monrose², Dorothy He², Sheng Li³, Julius Dewald⁴, Daniel Corcos⁴, Thubi Kolobe², Evgeny Sidorov², Yuan Yang^{1,2,4}
¹University of Oklahoma, Norman, USA. ²University of Oklahoma Health Sciences Center, Oklahoma City, USA. ³UT Health Huston, Houston, USA. ⁴Northwestern University, Chicago, USA

P.129 Feasibility of Interleaved Computerized Cognitive Training and Accelerated, High-Dose Repetitive Transcranial Magnetic Stimulation in Amnesic Mild Cognitive Impairment

Stephanie Fountain-Zaragoza, Laura Campbell, Andreana Benitez
Medical University of South Carolina, Charleston, USA

P.130 Associations Between Posterior Parietal & Motor Cortical Thickness & Obstacle Negotiation in Older Adults

Clayton Swanson^{1,2}, Brianna Borgia^{1,2}, Steven Winesett^{1,2}, Anthony Gruber², Adam Woods², Dorian Rose^{1,2}, Rachael Seidler², David Clark^{1,2}
¹Malcom Randall VA Medical Center, Gainesville, USA. ²University of Florida, Gainesville, USA

P.131 Beyond conjunction: Establishing spatial dissociation and association in lesion-symptom mapping

Andrew DeMarco¹, Josh McCall¹, Peter Turkeltaub^{1,2}
¹Georgetown University, Washington, DC, USA. ²MedStar NRH, Washington, DC, USA

P.132 Actual versus predicted values of step length and peak anterior ground reaction force in people post-stroke walking at different gait speeds

Maryana Bonilla Yanez¹, Jan Stenum², Ryan T. Roemmich², Kristan A. Leech¹
¹University of Southern California, Los Angeles, USA. ²Johns Hopkins University, Baltimore, USA

P.133 Remote Ischemic Conditioning Improves Muscle Strength & Gait Kinematics in Children with Cerebral Palsy

Swati Surkar¹, John Willson¹, Shailesh Gardas¹, Kristie Bjornson²
¹East Carolina University, Greenville, USA. ²Seattle Childrens Hospital, Seattle, USA

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P.134 Motor and cognitive deficits reduce the ability to modulate spatiotemporal aspects of gait in individuals with mild cognitive impairment

Michael Rosenberg¹, Alexandra Slusarenko¹, Ke Cao¹, J. Lucas McKay¹, Laura Emmery¹, Trisha Kesar¹, Madeleine Hackney^{1,2,3}

¹Emory University, Atlanta, USA. ²Atlanta VA Center for Visual & Neurocognitive Rehabilitation, Atlanta, USA.

³Birmingham/Atlanta VA Geriatric Research Education and Clinical Center, Atlanta, USA

P.135 Using sensory stimulation to enhance neuroplasticity in the sensorimotor cortex in stroke survivors to promote upper limb motor recovery

Arianna Alston¹, Christian Schranz¹, Ja'Quann Gallant¹, Na Jin Seo^{1,2}

¹Medical University of South Carolina, Charleston, USA. ²Ralph H. Johnson VA Healthcare System, Charleston, USA

P.136 Test-retest reliability and measurement error of spatial-temporal measures of movement variability in finger coordination task

Daniele Piscitelli¹, Adrien Buttram², Stephanie Gibson², Joel Hager², Karlie Abernathy², Jose Canelon², Benjamin Thomas², Damon Knighten², Stanislaw Solnik²

¹Department of Kinesiology, Doctor of Physical Therapy Program, Storrs, USA. ²Department of Physical Therapy, University of North Georgia, Dahlonega, USA

P.137 Proprioceptive Thresholds as a Potential Predictor of Sensorimotor Function After Stroke

Joanna E. Hoh¹, Kenna Gilley¹, Jean-Luc Marnet², Stephen H. Scott², Sean P. Dukelow³, Jennifer A. Semrau¹

¹University of Delaware, Newark, DE, USA. ²Queen's University, Kingston, Ontario, Canada. ³University of Calgary, Calgary, Alberta, Canada

P.138 Heteronymous spinal pathways between quadriceps and soleus in stroke survivors. A comparison between nerve and muscle stimulation.

Cristian Cuadra^{1,2}, Steven Wolf^{1,3}, Mark Lyle¹

¹Division of Physical Therapy, Department of Rehabilitation Medicine, Emory University, Atlanta, USA. ²Exercise and Rehabilitation Sciences Laboratory, School of Physical Therapy, Faculty of Rehabilitation Sciences, Universidad Andres Bello, Santiago, Chile. ³Center for Visual and Neurocognitive Rehabilitation, Atlanta VA, Atlanta, USA

P.139 Evaluation the Corticospinal Tract in the Ipsilesional and Contralateral Hemisphere after chronic Stroke

Rama Shaath, Nuvia Cortez, Daniel Salinas, Kelsey Baker

University of Texas Rio Grande Valley, Edinburg, USA

P.140 Home-based Myoelectric Interface for Neurorehabilitation (MINT) conditioning to improve movement in chronic stroke survivors

Abed Khorasani¹, Joel Hulsizer¹, Prashanth Prakash¹, Vivek Paul¹, Na-Teng Hung¹, Yasin Dhafer¹, Marc Slutzky¹

¹Northwestern University, Chicago, USA. ²University of Texas Southwestern, Dallas, USA

P. 141 Neural Mechanisms of Psychomotor Impairment in Adults with Type 1 Diabetes

Bayley Wade, Andrew Hagan, Ariana Crary, Brett Fling

Colorado State University, Fort Collins, USA

P. 142 Standing posture improves upper-limb sensorimotor performance on a robotics-based task with high proprioceptive feedback demands

Nathan Baune¹, Suyoung Yun², Trisha Kesar¹, Michael Borich¹

¹Emory University, Atlanta, USA. ²Georgia Institute of Technology, Atlanta, USA

P. 143 Alterations in intermuscular coordination as a potential stroke rehabilitation target using muscle synergy analysis

Yoon No Hong, Jinsook Roh

University of Houston, Houston, USA