
2023 ASNR
Annual Meeting
Charleston, South Carolina
March 14 – 16, 2023
ASNR
AMERICAN SOCIETY OF NEUROREHABILITATION

WELCOME

TO THE 2023 ASNR ANNUAL MEETING

On behalf of the American Society of Neurorehabilitation (ASNR), we are excited you are joining us for the 2023 Annual Meeting. I love ASNR meetings because of the science & because we can engage as a group about the big questions & challenges that we face as a field. Our meeting facilitates interactions among neurorehabilitation clinicians, basic scientists, industry representatives, & funders in a dynamic environment of presentations & discussion.

This two & a half day meeting is focused on advances in the basic & clinical science of neurorehabilitation. The scientific program includes engaging symposia & educational programming, where all sessions will address methods & concepts applicable across many neurological diseases. This year's symposia topics cover different neural systems & research methods. Tuesday morning brings us together in roundtable discussions that seek to further our development as neurorehabilitation scientists. Wednesday & Thursday morning sessions will educate us about the methods to do high-quality research in our field. There are count-less opportunities for discussion at the poster sessions, opening reception, breaks, & meals.

This year, we have invited people with the neurological impairments our society seeks to address to engage us at the opening reception & poster sessions. Please make sure to join us at the business meeting on Wednesday to find out how to get more involved in ASNR, as well as approach any of ASNR leadership with questions or comments you might have. We will be easy to identify — we will all be wearing red “Ask Me” buttons.

We hope you will join the offsite events at this year's meeting. A ticketed boat tour reception of Charleston on Wednesday Night. Thursday afternoon, join a tour of the Old Slave Mart, an important reminder that while Charleston is charming, it was the major port of entry for enslaved people coming into the U.S. This is one of the several parts of the program that seeks to weave our diversity, equity, & inclusion efforts throughout the conference.

Welcome to Charleston,
Jason Carmel, MD PhD
ASNR Program Chair

MISSION
To improve the lives of people with neurological disorders through advances in basic and clinical research.

VISION - Neurorecovery through discovery

2023 PROGRAM COMMITTEE

Ahmet Arac, MD
Kelsey Potter-Baker, PhD
Laurel Buxbaum, PsyD
Naveed Ejaz, PhD
Kathleen Friel, PhD
Bernadette Gillick, PT, PhD, MSPT
Kate Hayward, PhD
Sangeetha Madhavan, PT, PhD
Natalia Sanchez, PhD
Heidi Schambra, MD
Rick Segal, PT, PhD, FAPTA
Charlotte Stagg, MRCP, DPhill

GENERAL MEETING INFORMATION

ANNUAL MEETING EVALUATION

Please complete the Annual Meeting survey throughout or following the meeting. The meeting evaluation can be found by scanning the QR code on the bottom of this page, or on any meeting signage. Your responses will prove crucial to the future success of ASNR. Thank you!

REGISTRATION HOURS

Tuesday, March 14.....7:00 am – 5:00 pm
Wednesday, March 15.....7:00 am – 5:00 pm
Thursday, March 16.....7:00 am – 1:00 pm

FOOD INCLUDED

Tuesday, March 14 | Breakfast | 7:00 - 8:00am | Colonial Room
Tuesday, March 14 | Lunch | 12:00 - 1:00pm | Colonial Room
Tuesday, March 14 | Appetizers & Drinks | 6:00 - 8:00pm | Prefunction of Goldroom

Wednesday, March 15 | Breakfast | 7:00 - 8:00am | Colonial Room
Wednesday, March 15 | Lunch | 12:00 - 1:00pm | Colonial Room
Wednesday, March 15 | Snack Break | 2:30 - 3:00pm | Prefunction A

Thursday, March 16 | Breakfast | 7:00 - 8:00am | Colonial Room

EXHIBIT HALL HOURS

The exhibit hall will be open to visit throughout the conference. Scheduled exhibit hall hours will be:

Tuesday, March 14.....6:00 – 8:00 pm
Wednesday, March 15.....7:00 – 8:00 am
Wednesday, March 15.....2:30 – 5:00 pm
Thursday, March 16.....7:00 – 8:00 am
Thursday, March 16.....11:00 – 11:30 am

CONNECT WITH ASNR!

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#ASNR2023

2023 ASNR Annual Meeting
Program-At-A-Glance

TUES. MARCH 14

Breakfast
7am-8am

Professional Development Roundtable Session

Topics Include: Setting Boundaries, Establishing Work Life Responsibilities, Navigating Tricky Situations in Academia, Tenure, & DEIA in Rehabilitation

8am-12pm

Lunch Break
12pm-1pm

Out of the Clinic & Into the Home: Remote Assessment & Intervention

1pm-2:30pm

Oral Abstract Session
2:30pm-3:30pm

Break
3:30pm-4pm

The Eyes Have It: Gaze Tracking in Neurorehabilitation

4pm-5:30pm

Diversity Fellowship Award Recognition

5:30pm-6pm

Welcome Reception, Poster Session, & Visit with Exhibitors

6pm-8pm

WED. MARCH 15

Breakfast
7am-8am

Selecting the Optimal Control Group
8am-9:15am

Break
9:15am-9:30am

Aerobic Exercise Effects on Brain Function & Plasticity

9:30am-11am

Foundation Lecture & Awards Ceremony
11am-12pm

Break
12pm-12:15pm

ASNR Business Meeting over Lunch
12:15pm-1pm

The Role of Sleep in Neurorehabilitation

1pm-2:30pm

Break
2:30pm-3pm

Poster Session & Visit with Exhibitors

3pm-5pm

Travel time to Reception

5pm-6pm

Spirit Line Boat Tour & Dinner Reception *offsite

6pm-9pm

THUR. MARCH 16

Breakfast
7am-8am

Research Study Management:
8am-9:15am

Break
9:15am-9:30am

Mobility Adaptations in People with Multiple Sclerosis

9:30am-11am

Break
11am-11:30am

Precision Neurorehabilitation After Stroke

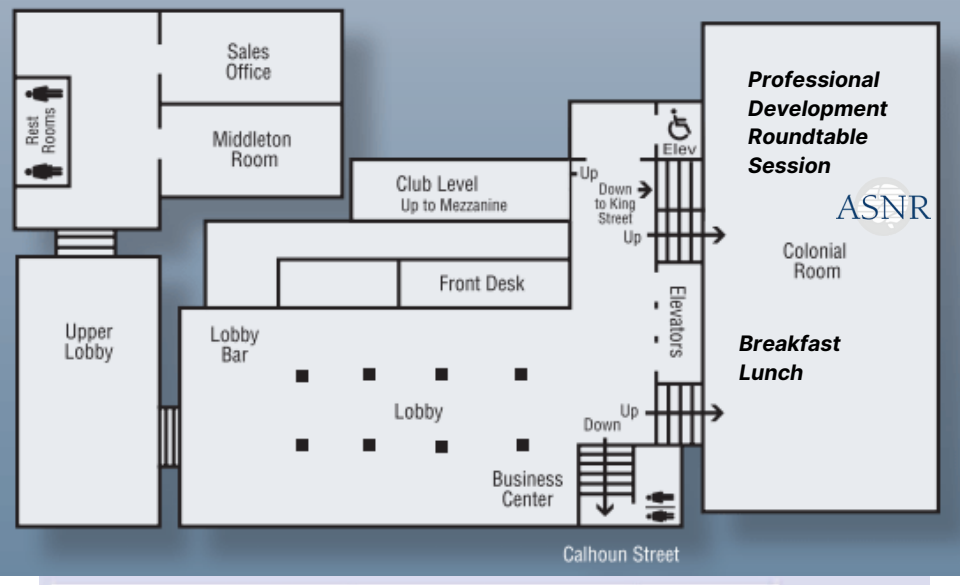
11:30am-1pm

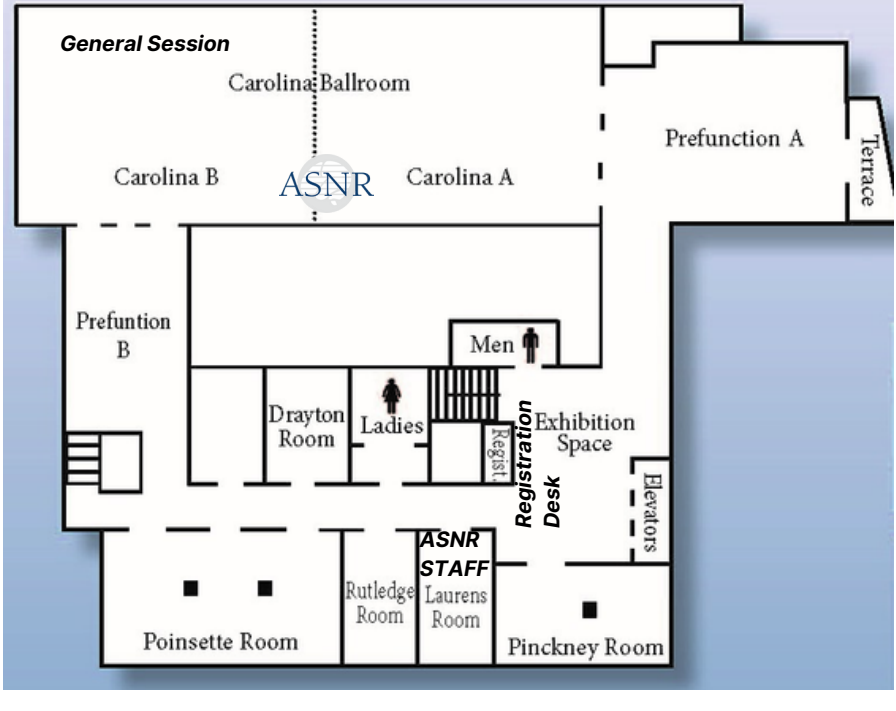
Lunch Break

1pm-2:30pm

Slave Mart Tour(s)

3pm-5pm


Sales Office
Rest Rooms
Middleton Room
Club Level
Up to Mezzanine
Elev
Up
Down to King Street
Up
Professional Development Roundtable Session
ASNR
Colonial Room
Front Desk
Upper Lobby
Lobby Bar
Elevators
Breakfast
Lunch
Lobby
Up
Down
Business Center
Calhoun Street


General Session
Carolina Ballroom
Prefunction A
Terrace
Carolina B
ASNR
Carolina A
Prefuntion B
Men
Drayton Room
Ladies
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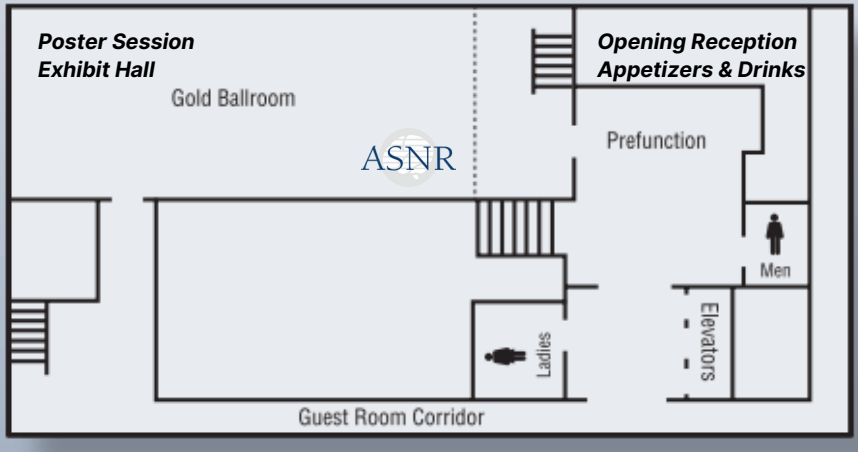
Registration Desk
Exhibition Space
Elevators
ASNR STAFF
Rutledge Room
Laurens Room
Poinsette Room
Pinckney Room



The Gold Ballroom/Second Floor

TUESDAY PROGRAM DETAILS

PROFESSIONAL DEVELOPMENT OPENING SESSION

Tuesday, March 14, 2023 • 8:00 am – 9:00 am • Colonial Room (Behind Lobby Elevators)

Sharon Milgram, PhD

TUESDAY PROGRAM DETAILS

PROFESSIONAL DEVELOPMENT ROUNDTABLES

Tuesday, March 14, 2023 • 9:00 am – 12:00 pm • Colonial Room (Behind Lobby Elevators)

Table A: Setting Boundaries, Establishing Work Life Responsibilities

Nicolas Schweighofer, PhD

Aiko Thompson, PhD

Table B: Setting Boundaries, Establishing Work Life Responsibilities

Allison Miller, PT, DPT, PhD, NCS

Robert Sainburg, PhD

Table C: Navigating Tricky Situations in Academia

Marika Demers, PhD, OT

Sean Dukelow, MD, PhD, FRCPC

Table D: Navigating Tricky Situations in Academia

Jinsook Roh, PhD

Darcy Reisman, PhD, PT

Table E: Diversity, Equity, Inclusion, & Accessibility in Rehabilitation

Catherine Hoyt, PhD, OTD, OTR/L

James Sulzer, PhD

Table F: Diversity, Equity, Inclusion, & Accessibility in Rehabilitation

Ada Tang, PT, PhD

Eric Espinoza-Wade, PhD

Table G: To Tenure and Beyond

Kate Hayward, PT, PhD

Sook-Lei Liew, PhD, OTRL

Table H: To Tenure and Beyond

Michael Borich, PT, DPT, PhD

Tanvi Bhatt, PT, PhD

TUESDAY PROGRAM DETAILS

Out of the Clinic & Into the Home: How Remote Assessment & Intervention Can Enhance Neurorehabilitation & Neuroscience

Tuesday, March 14, 2023 • 1:00 pm – 2:30 pm • Carolina Ballroom
Course Director: Kimberly Waddell, PhD, MSCI

DESCRIPTION:

Will focus on science involving remote assessments and interventions, including behavior change strategies, across three distinct diagnoses: stroke, Alzheimer's disease, and spinal cord injury. The COVID-19 pandemic forced many researchers to embrace a virtual or remote design for a period of time. This abrupt pivot occurred with little guidance or framework for conducting rigorous remote research. To address this gap, the proposed course content will broadly span novel assessments and interventions, including results from a remote intervention that leveraged behavioral economic principles for improving physical activity after stroke; the use of web-based assessments and electronic cohorts for developing motor biomarkers of Alzheimer's disease; and the design and use of a remote assessment of psychosocial factors that then links to an individualized intervention for adults with spinal cord injury. Remote studies in which data are collected outside of a lab setting have the potential to expand involvement to populations that do not live in close proximity to large, urban medical centers or are unable to make multiple trips to a clinic. As such, remote studies could represent a post-COVID paradigm shift that advances equity and inclusion among disadvantaged populations, which will also be a topic for this course. We will conclude with a discussion of how these novel methods can advance the science of neurorehabilitation and improve performance in the real world, an understudied International Classification of Functioning domain.

SPEAKERS:

Kimberly Waddell, PhD, MSCI, OTR/L

Sydney Schaefer, PhD

Andrew Hooyman, PhD

David Tulsky, PhD

SCHEDULE:

1:00 - 1:05pm: ***Introduction*** – Kimberly Waddell, PhD, MSCI

1:05 – 1:20pm: ***Behavioral Science, Physical Activity, & Remote Monitoring After Stroke; Recruiting Rural Populations*** – Kimberly Waddell, PhD, MSCI, OTR/L

1:20 – 1:35pm: ***Remote Gamification to Quantify Biomarkers of Motor Learning at the Population Level*** – Andrew Hooyman, PhD

1:35 - 1:50pm: ***Remote Assessment of Cognitive-Motor Learning Biomarkers in Alzheimer's Disease; Recruitment Equity*** - Sydney Schaefer, PhD

1:50 – 2:05pm: ***Spinal Cord Injury & Individualized, Remote Interventions for Psychosocial Impairment*** – David Tulsky, PhD

2:05 - 2:30pm: ***Discussion*** - ALL

ORAL ABSTRACT PRESENTATIONS

Tuesday, March 14, 2023 • 2:30 pm – 3:30 pm • Carolina Ballroom

TITLE OF ABSTRACTS:

P.26 Intraspinal Microstimulation Simultaneously Rebalances Motor and Nociceptive Transmission in Chronic Spinal Cord Injury
Maria F. 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 Nemanich1, 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.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.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

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

AUTHORS:

Maria F. Bandres, PhD Candidate

Samuel Nemanich, PhD, MSCI

Adeline Beeler, B.S.E., M.S. Candidate

Mikayla McNally, B.S.E., M.S. Candidate

Daniel Lench, PhD

Joanna Eskander Hoh, MS, OTR/L, CPAM

TUESDAY PROGRAM DETAILS

The Eyes Have It: How Gaze Tracking Can Inform Neurorehabilitation
Tuesday, March 14, 2023 • 4:00 pm – 5:30 pm • Carolina Ballroom
Course Director: Rachel Hawe, DPT, PhD

DESCRIPTION:

Vision is an integral part of movement, from gathering information from the environment in order to plan a movement to ensuring accuracy during the movement itself. Visual strategies may be altered in clinical populations, contributing to sensorimotor impairments. Gaze tracking technologies enable researchers to examine where individuals direct their visual attention when performing or observing sensorimotor tasks. This course will discuss the value of studying gaze behavior on understanding sensorimotor impairments and motor learning processes in clinical populations including stroke, cerebral palsy, and amputation. We will first discuss how impairments in visual search interfere with motor performance in adults with stroke performing a Trail Making Test. Next we will present visual strategies in children with hemiparetic cerebral palsy when planning and executing upper limb movements with or without visual feedback of limb position. We will then discuss the role of vision for limb position sense in individuals with chronic stroke. Lastly, we will examine how studying gaze patterns can reveal areas of visual attention and inattention during learning, including amputees learning to use prostheses and in observation-based motor learning in adult stroke. We will also discuss challenges and limitations of research using gaze tracking technologies in clinical populations.

SPEAKERS:

Rachel Hawe, DPT, PhD

Tarkeshwar Singh, PhD

Jennifer Semrau, PhD

Lewis Wheaton, PhD

SCHEDULE:

4:00 - 4:20pm: ***Visual Search & Motor Behavior in Stroke***– Tarkeshwar Singh, PhD

4:20 – 4:40pm: ***Visual Strategies in Motor Planning & Execution in Hemiparetic Cerebral Palsy*** – Rachel Hawe, DPT, PhD

4:40 – 5:00pm: ***Vision & Proprioception in Chronic Stroke*** – Jennifer Semrau, PhD

5:00 - 5:20pm: ***Role of Gaze in Motor Learning in Amputation & Stroke*** - Lewis Wheaton, PhD

5:20 - 5:30pm: ***Discussion*** - ALL

DIVERSITY FELLOWSHIP AWARD RECOGNITION

Tuesday, March 14, 2023 • 5:30 pm – 6:00 pm • Carolina Ballroom

DIVERSITY TRAVEL FELLOWSHIP

The Diversity Fellowship Travel Grant will now support up to three underrepresented individuals and will provide meeting travel support in the amount of $1,000 per year, for three consecutive years. The award will also include complimentary meeting registration for all three award years. During the last year of the fellowship, each Diversity Fellow will be required to serve as a mentor to a first-year awardee. This format is designed to provide a sustained opportunity for our Diversity Fellows to become more fully immersed in the meeting and establish long-term, meaningful relationships within ASNR.

2023 (1st-Year) DIVERSITY TRAVEL FELLOWSHIP RECIPIENTS

Ermyntrude Adjei, PhD Student

Davetrina Seles Gadson, PhD

Michelle Corkrum, MD, PHD

Jasmine Hope, PhD

2022 (2nd-Year) DIVERSITY TRAVEL FELLOWSHIP RECIPIENTS

Nicole Haikalis, PhD Candidate

Ephrem Zewdie, PhD

2021 (3rd-Year) DIVERSITY TRAVEL FELLOWSHIP RECIPIENTS

Maria Bandres, PhD Candidate

Caitlin Banks, MS

**deferred this year, will serve 3rd year in 2024*

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 Chang1,2, Angela Buffenn1,2,Beth Smith1,2
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 Cunningham2,3, Xin Li1, Jayme Knutson2,3, 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 Garn1,2, Talita Campos1,3, Kathleen Friel1,4
1Burke Neurological Institue, 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 McGloon1, 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 Cavanagh1,2,3, Taya Hamilton3, Aliceson Dusang4,2,3, Perman Gochyyev3, Rashida Nayeem5,3, Dagmar Sternad5, Leigh Hochberg4,2,3, Conor Walsh1, David Lin2,3,1
1Harvard University, Cambridge, USA. 2VA 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 Embry1,2, Camden Jacobs1, Jesse Dean1,2
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 Chen1,3
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 Bayley1,2, Sukhvinder Kalsi-Ryan1,2
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 Borich1,2
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

POSTER SESSION I

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

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 Krajewski1,2, Sebastian Correa1,2, David Cunningham1,2, James Sulzer1,2
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 Adehunoluwa1,2, Joseph Epperson1,3, Joel Wright1, Kaitlyn Malley1,2, Rachael Hudson1,2, Chad Swank4, Christie Stevens4, Jaime Gillespie4, Dannae Arnold4, Jane Wigginton1, Michael Foreman4, Rita Hamilton4, Amy Porter1, Robert Rennaker1,2, Seth Hays1,3, Michael Kilgard1,2
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 Epperson1,2, Eric Meyers1, David Pruitt1, Joel Wright1, Emmanuel Adehunoluwa1,3, Y-Nhy Duong1, Rachael Hudson1,3, Chad Swank4, Christi Stephens4, Jaime Gillespie4, Dannae Arnold4, Jane Wigginton1, Robert Rennaker1,2,3, Michael Kilgard1,3, Seth Hays1,2
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 Pruitt1,2, 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 Augenstein1,2, Deepak Nagalla1, Alexander Mohacey1, Qi Cui3,4, Shekoofe Saadat2, Mei-Hua Lee5, Rajiv Ranganathan5,6, Chandramouli Krishnan2,1,7,8
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 Seo1,2
1Medical University of South Carolina, Charleston, USA. 2Ralph H. Johnson VA Health Care System, Charleston

POSTER SESSION I

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

P.21 Influence of motor network connectivity on walking ability in individuals post-stroke.
Shraddha Srivastava1,2, Bryant Seamon1,3, Janina Wilmskoetter2, Leonardo Bonilha4, Richard Neptune5, Steven Kautz1,2,3
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 Yuk1, Robert L. Sainburg1,2
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 Nemanich1, 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 Brangaccio1, 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 Handiru1,2, Shannon Schierenbeck1, Soha Saleh1,2, Didier Allexandre3, Guang Yue1,2
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

POSTER SESSION I

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

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 McCartney1,2, Tamara Wright1, Henry Wright1, Darcy S. Reisman1,2
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 Scronce1,2, Christian Schranz1, Adam Baker1, Viswanathan Ramakrishnan2,3, Na Jin Seo1,4,2
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 Barany1,2,3, 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 Krishnan2,3,4, Riann Palmieri-Smith1,5
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

POSTER SESSION I

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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. 3. 4Spectrum 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 Hooyman, 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. 3Ipsen, 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 Sensitrak: 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

POSTER SESSION I

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

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 DeLuca1, 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 Thompson1
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
Ermyntrude Adjei1,2, Kelsey Wright1,3, Julius Dewald1,2,3,4, Jun Yao1,2,3
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 Cai1, Julius Dewald1, Netta Gurari1,2
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 Mirdamadi1, Clara Beth LaFollette2, Hannah Odom3, Scott Boebinger2,3, Kennedy Kerr2, Lena Ting2,3, 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, Raziyeh Baghi1, Kyung Koh2, Giovanni Oppizzi2, Sanjana Rao1, Glenn Kehs3, Robynne Braun3, Li-Qun Zhang4,5,2
11Department 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

POSTER SESSION I

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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 Schweighofer1
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 Li1, Jayme Knutson2,3, David Cunningham2,3, Mark Lowe4, Elliot Barden5, Teale Bennett1, Kyle O'Laughlin1, Morgan Widina1, Ela Plow1,5
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 Salameh2,3, Kelsey Duncan4, Lisa Leonhardt2, Svetlana Pundik2,3
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, Lauren Schwarz, Yi-Fang Chiu, Jason Longhurst
Saint Louis University, Saint Louis, USA

P.67 Alterations in Corticospinal Excitability after Stroke: A Systematic Review and Meta-Analysis
Edward Washabaugh1, 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, Ryan Ross, Emerson Hart, Chris Gregory, Michelle Woodbury
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 Kantak1,2
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 Vaughn1, Rachana Gangwani1, Jasper Mark1, Kelly Fletcher2, John Baratta1,2, 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 Salameh1,2, Jessica McCabe1, Margaret Skelly1, Stefania Fatone3, Svetlana Pundik1,2
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, Andrew Hagen, Brett Fling
Colorado State University, Fort Collins, USA

WEDNESDAY MORNING PROFESSIONAL DEVELOPMENT SESSION

A Workshop for Designing the Optimal Control Group Across Preclinical & Clinical Research: Recommendations from the Stroke Recovery & Rehabilitation
Wednesday, March 15, 2023 • 8:00 am – 9:15 am • Carolina Ballroom
Course Director(s): Kate Hayward, PT, PhD & Catherine Lang, PT, PhD, FAPTA, FASNR

DESCRIPTION:

Benefit of an experimental intervention is established when the outcome is deemed better than a control intervention. Appropriate control intervention design is therefore critical, but to date has received little attention in neurorehabilitation literature. More careful and systematic selection of control interventions will increase the scientific rigor of neuro-rehabilitation trials. The Stroke Recovery and Rehabilitation Roundtable III has a taskforce dedicated to advancing the science of control intervention design. In this session, we will present the tool developed by the taskforce and facilitate small group work where participants will apply the tool to their trial. While this tool was developed under the SRRR initiative, it is relevant to all domains of neurorehabilitation including preclinical and clinical research questions.

SPEAKERS & FACILITATORS:

Kate Hayward, PT, PhD

Catherine Lang, PT, PhD, FAPTA, FASNR

Sean Dukelow, MD, PhD, FRCPC

Steve Zeiler, MD, PhD

Emily Dalton, MOT BHlthSc

SCHEDULE:

8:00 - 8:15am: ***Introduction to Workshop & Overview of Tool to Guide Optimal Control Design*** – Catherine Lang, PT, PhD, FAPTA, FASNR

8:15 – 9:00am: ***Hands On Small Group Work Using the Tool -*** All speakers & facilitators will be available for questions & discussion

9:00 – 9:15am: ***Feedback & Discussion*** – Kate Hayward, PT, PhD

NOTES TO PARTICIPANTS

Please bring your laptop computer (essential to access the tool online), and a research question for an upcoming trial you are planning or have dreamt about conducting.

WEDNESDAY PROGRAM DETAILS

Aerobic Exercise Effects on Brain Function & Neuroplasticity Across the Lifespan & Disease
Wednesday, March 15, 2023 • 9:30 am – 11:00 am • Carolina Ballroom
Course Director: Jacqueline Palmer, DPT, PhD

DESCRIPTION:

Aerobic exercise has a robust effect on neural function and plasticity. Exercise training elicits therapeutic effects on behavior in the domains of motor function and cognition across the lifespan and a wide range of disease processes (e.g. stroke, Parkinson's disease, dementia). Exercise-induced neuroplasticity may be mediated by increased blood lactate, peripheral-induced neurotrophic factors, and heightened cerebrovascular plasticity. These neuroplastic effects appear to preferentially target specific brain regions vulnerable to aging and disease (e.g. prefrontal cortex, hippocampus) and neural processes (e.g. response inhibition). Despite the current clinical guidelines for a standardized approach to exercise prescription, emerging evidence indicates that the neurobiological effects of aerobic exercise training are variable between individuals and are significantly influenced by factors such as age, sex, genotype, and cerebrovascular health. In this symposium, we will explore how our increasing mechanistic understanding of the effects of aerobic exercise on brain function and neuroplasticity provides rich opportunity for the development of multimodal neurorehabilitation approaches through the pairing of potent and targeted effects of aerobic exercise with the complementary physiologic effects of other therapeutic strategies (e.g. skilled motor practice, noninvasive brain stimulation) to maximize clinical outcomes. We will also discuss how exercise-induced neuroplasticity can be leveraged towards the development of precision-rehabilitation approaches to improve behavioral outcomes across the lifespan and in disease.

SPEAKERS:

Jacqueline Palmer, DPT, PhD

Jason Neva, PhD

Keith McGregor, PhD

SCHEDULE:

10:30 - 10:35am: ***Introduction*** – Jacqueline Palmer, DPT, PhD

10:35 – 10:55am: ***Effects of Aerobic Exercise on Intersection of Neuromotor & Cognitive Function in Aging*** - Keith McGregor, PhD

10:55 – 11:15am: ***Neuroplasticity Mechanisms of Acute Aerobic Exercise in Health, Aging, & Disease*** – Jason Neva, PhD

11:15 - 11:35am: ***Exercise Through the Lens of Precision Rehabilitation*** - Jacqueline Palmer, DPT, PhD

11:35 - 12:00pm: ***Discussion*** - ALL

2023 ASNR AWARD CEREMONY

Wednesday, March 15, 2023 • 11:00 am – 12:00 pm • Carolina Ballroom

Heidi Schambra, MD

2023 FELLOW OF AMERICAN SOCIETY OF NEUROREHABILITATION (FASNR) RECIPIENT

The title of Fellow of the American Society of Neurorehabilitation is reserved for individuals who have contributed significantly to the field of Neurorehabilitation, and also to the American Society of Neurorehabilitation.

Tom Carmichael, MD, PhD

2023 FELLOW OF AMERICAN SOCIETY OF NEUROREHABILITATION (FASNR) RECIPIENT

The title of Fellow of the American Society of Neurorehabilitation is reserved for individuals who have contributed significantly to the field of Neurorehabilitation, and also to the American Society of Neurorehabilitation.

Steve Cramer, MD, MMSc

2023 OUTSTANDING NEUROREHABILITATION CLINICIAN-SCIENTIST AWARD RECIPIENT

The award, based on the evaluation of his or her peers, honors scholarly achievements and contributions to knowledge about mechanisms of neural repair, translational research from mechanisms of repair to clinical practice, or clinical Neurorehabilitation. Nominations are invited from the membership of the American Society of Neurorehabilitation.

Jyutika Mehta, PhD, CCC-SLP

2023 KENNETH VISTE, JR., MD MEMORIAL LECTURESHIP AWARD RECIPIENT

Kenneth M. Viste, Jr., MD was a tireless advocate for Neurorehabilitation and the American Society of Neurorehabilitation, and was active in the organization since its inception as President, Membership Committee Chair and a member of the Practice Issues Committee. The American Society of Neurorehabilitation honors his memory by presenting the award annually to an individual that has supported the mission and vision of the American Society of Neurorehabilitation over the course of his or her career, by supporting neurorehabilitation as a field, engaging in clinical and educational work, and making our medical peers aware of the importance of neurorehabilitation.

WEDNESDAY PROGRAM DETAILS

Exploring the Role of Sleep in Neurorehabilitation
Wednesday, March 15, 2023 • 1:00 pm – 2:30 pm • Carolina Ballroom
Course Director: Melanie Fleming, PhD

DESCRIPTION:

This symposium will focus on a typically overlooked aspect of neurorehabilitation; that of the role of sleep. Sleep disruption is highly prevalent after acquired brain injury, including stroke, and there is growing evidence that sleep problems are associated with impaired motor and cognitive recovery. Symposium content will include findings from recent NNR publications on the relationship between sleep disruption and motor rehabilitation as well as exploring sleep problems at the chronic stage of stroke. We will also discuss the interplay between sleep, physical activity, and cognitive function. Potential options for improving sleep and to target neural sleep processes to improve rehabilitation will also be discussed.

SPEAKERS:

Melanie Fleming, PhD

Ryan Falck, PhD

Karunesh Ganguly, MD, PhD

SCHEDULE:

1:00 - 1:05pm: ***Introduction*** – Melanie Fleming, PhD

1:05 – 1:25pm: ***Sleep, Physical Activity & Cognition*** - Ryan Falck, PhD

1:25 – 1:45pm: ***Sleep Problems, Motor Recovery & Potential Treatment*** – Melanie Fleming, PhD

1:45 - 2:05pm: ***Animal Models of Learning in Sleep & Disruption After Stroke*** - Karunesh Ganguly, MD, PhD

2:05 - 2:30pm: ***Discussion*** - ALL

POSTER SESSION II

Wednesday, March 15, 2023 • 3:00 pm – 5:00 pm • Gold Ballroom

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 Sutter1,2, 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 withweakness 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/L1,2, Amanda A. Vatinno, PhD, OTR/L1, Viswanathan Ramakrishnan, PhD3, Michelle L. Woodbury, PhD, OTR/L1,4, Jenna Blaschke, OTD, OTR/L1, Gabrielle Scronce, PT, DPT, PhD1,2, Na Jin Seo, PhD1,2,4
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 Seamon1,2, Shraddha Srivastava1,2, Richard Neptune3, Mark Bowden4, Steven Kautz1,2
1Ralph H. Johnson VA Heath 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 Esquenazi3,4, Lorie Brinkman2,5, Isabel Ferreira2,5, Michael Su2,5, Stephanie Stein3, Jaun May3, Allison Hendrix3, Casey Finley3, Emily Howard3, Steven Cramer2,5
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. McIntosh1,2, Jacob L. Goldberg2, Phoebe Greenwald1, Lynda M. Murray3,4, 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 Riew2,1, Christopher Mandigo1, Noam Y. Harel4,3, Michael S. Virk2, Jason B. Carmel1,2
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

POSTER SESSION II

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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 Embry1,2, Jesse Dean2,1
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 Vidal1,2, 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 Smith1,2, Peter Rohloff3,4
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 Cunningham1,2, P. Hunter Peckham1,2, Kevin Kilgore1,2
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 Raji2,1, Jessica Babineau3, Cesar Marquez- Chin1,2, Mark Bayley1,2, Milos Popovic1,2
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. 33The Center for Tone Management of the Main Line, Paoli, USA. 4OrthoNeuro, New Albany, USA. 5Ipsen, 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

POSTER SESSION II

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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 Wolf1,3, 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 Rezania2, 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 Scronce1,2, Corinne Gillion1, Na Jin Seo1,2
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

POSTER SESSION II

Wednesday, March 15, 2023 • 3:00 pm – 5:00 pm • Gold Ballroom

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. Dusang2,3, Sydney S. Cash1,4, Steven C. Cramer5,6, Ander Ramos- Murguialday7,8, Leigh R. Hochberg1,2,3,4, David J. Lin1,2,4
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 McKiernan2,3,4, Baothy Huynh1, Leigh Hochberg2,3,4, Teresa Kimberley1, David Lin2,3,4
1MGH 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 McGloon1, 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 Spencer1,2, 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

POSTER SESSION II

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P.115 Visuospatial cognition predicts performance on a complex obstacle walking task in older adults
Steven Winesett1,2, Sudeshna Chatterjee1,2,3, Brianne Borgia1,2, Brigette Cox1, Kelly Hawkins2, Jon Miles1, Clayton Swanson1,2, Julia Choi2, Rachael Seidler2, Emily Fox2, David Clark1,2
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 Oppizzi1,2, Kyung Koh1, Dali Xu2, Raziyeh Baghi2, Sanjana Rao2, Glenn Kehs3, Li-Qun Zhang1,2,4
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 Vakil1,2,3, Perrine Ferré1,4, Johanne Higgins2,5,6, Louis-David Beaulieu7, Claude Vincent8,9, Kimberley Singerman3, Diana Zidarov2,5,6, Marie-Hélène Milot10,11, Marie-Hélène Boudrias1,2,3
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 (CIRRIS), 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-Najarali1, Grace Wang1, Madeline Heleno1, Siyuan Pan1, Aarzoo Arya1, Jennifer Shao1, Aimee Nelson3, Vineet B K Johnson2,4, Jocelyn Harris5
1Rotman Research Institute, Baycrest Hospital, Toronto, Canada. 2IRegained 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 Dalton1,2,3, Leonid Churilov1, Bruce Campbell1,3, Natasha Lannin4,5, Vincent Thijs2,6, Kate Hayward1,6
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 Maenza1,2, Carolee Winstein3, Nick Kitchen1, Robert Sainburg2,1
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 Sainburg2,3, 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 Augenstein1,2, Edward Washabaugh3, Seonga Oh4, Trevor Norris2, Shekoofe Saadat2, Joshua Meckler2, Edward Claflin2, Rajiv Ranganathan5,6, Chandramouli Krishnan2,1,7,8
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 Yang1,2,4
1University of Oklahoma, Norman, USA. 2University of Oklahoma Health Sciences Center, Oklahoma City, USA. 3UT Health Huston, Huston, USA. 4Northwestern University, Chicago, USA

P.129 Feasibility of Interleaved Computerized Cognitive Training and Accelerated, High-Dose Repetitive Transcranial Magnetic Stimulation in Amnestic 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 Swanson1,2, Brianne Borgia1,2, Steven Winesett1,2, Anthony Gruber2, Adam Woods2, Dorian Rose1,2, Rachael Seidler2, David Clark1,2
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 Turkeltaub1,2
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 Hackney1,2,3
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 Seo1,2
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 Cuadra1,2, Steven Wolf1,3, 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 Contralesional 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 Dhaher2, 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

THURSDAY MORNING PROFESSIONAL DEVELOPMENT SESSION

Research Study Management: Manageable Bites or More than You Can Chew?
Thursday, March 16, 2023 • 8:00 am – 9:15 am • Carolina Ballroom
Course Director(s): Sangeetha Madhavan PT, PhD & Bernadette T. Gillick PT, MSPT, PhD

DESCRIPTION:

This session will include highlights from opportunities and challenges clinical scientists from diverse backgrounds (stage of career, type of research, varying populations) as well as different neurorehabilitation backgrounds have faced during their careers. The aim is to share what has worked and what has not, and to garner unique and transparent perspectives in navigating the academic landscape in our fields. Themes that we will focus on include appropriateness of study to career juncture, choosing your study team and study participant diversity.

SPEAKERS:

Sangeetha Madhavan PT, PhD

Bernadette T. Gillick PT, MSPT, PhD

Sunday M. Francis PhD

Daniel M Corcos PhD

SCHEDULE:

8:00 - 8:05am: ***Introduction*** – Sangeetha Madhavan, PT, PhD

8:05 – 8:25am: ***Theme 1. Career Timelines & Research Study Selection*** – Daniel Corcos, PhD

8:25 – 8:45am: ***Theme 2. Study Team*** – Sangeetha Madhavan, PT, PhD

8:45 - 9:10am: ***Theme 3. Participant Diversity*** - Sunday M. Francis, PhD & Bernadette T. Gillick PT, MSPT, PhD

9:10 - 9:15am: ***Closing Remarks*** - Bernadette T. Gillick PT, MSPT, PhD

THURSDAY PROGRAM DETAILS

Neuroanatomic & Neurophysiologic Underpinnings of Mobility Adaptations in People with Multiple Sclerosis

Thursday, March 16, 2023 • 9:30 am – 11:00 am • Carolina Ballroom
Course Director: Brett Fling, PhD

DESCRIPTION:

Humans are remarkably adept at modifying their walking patterns to accommodate changing task demands. However, with increasing age, neural disease and/or insult, there are changes in the neural control of locomotion and the associated adaptations within these populations remain unclear. Our first speaker will detail the current state of knowledge regarding the neural adaptations underlying mobility adaptations in healthy adults and changes that happen with increased age. Impaired walking ability is common in persons with multiple sclerosis (MS), with 85% identifying walking difficulty as their primary issue and 63% experiencing a fall in any 12-month period. Due to the unique pathophysiology of MS, the neural adaptations responsible for mobility impairments and the potential for recovery in people with MS remain poorly understood. Our second speaker will highlight recent work that has used motor learning protocols to identify the neural structures and functions that accompany movement adaptations during both upright standing and locomotion in people with MS. Finally, emerging evidence indicates that impaired motor control is closely associated with declines in sensory function in people with MS. Our final speaker will describe recent work identifying improvements in locomotor function elicited by sensory-specific transcutaneous electrical nerve stimulation (TENS) to lower limb muscles of individuals with MS. Taken together, the speakers in this panel will provide an overview of the neural adaptations responsible for changes in mobility, neuroimaging results detailing central adaptations associated with changes in mobility, and the restorative benefits of supplementary sensory stimulation on motor function in people with MS.

SPEAKERS:

Brett Fling, PhD

Roger Enoka, PhD

Sumire Sato, DPT, PhD

SCHEDULE:

9:30 - 9:35am: ***Introduction*** – Brett Fling, PhD

9:35 – 9:55am: ***Neural Mechanisms of Mobility Adaptation*** - Sumire Sato, PT, DPT, PhD

9:55 – 10:20pm: ***Neural Mechanisms of Mobility Adaptations in People with MS*** – Brett Fling, PhD

10:20 - 10:45pm: ***Sensory Stimulation to Improve Locomotor Performance in People with MS*** - Roger Enoka, PhD

10:45 - 11:00am: ***Discussion*** - ALL

THURSDAY PROGRAM DETAILS

Precision Neurorehabilitation after Stroke: Connecting the Right Patients with the Right Restorative Therapies

Thursday, March 16, 2023 • 11:30 am – 1:00 pm • Carolina Ballroom

Course Director(s): Steve Cramer, MD, MMSc & Margaret French, PT, DPT, PhD

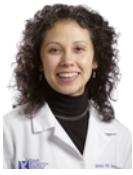
DESCRIPTION:

Precision medicine aims to deliver the right intervention, at the right time, and for the right patient, in order to improve the value of the care provided. This can be achieved in neurorehabilitation through a better understanding of patient level variability. First, we provide an overview of precision neurorehabilitation and the important role of biomarkers. Next, we discuss one approach to precision neurorehabilitation that leverages the health system to generate large data to assist in the identification of patient subgroups and biomarkers. Lastly, we examine biological issues. Patients receiving neurorehabilitation and restorative therapies differ substantially, in many ways, such as initial injury and post-injury plasticity. It therefore becomes necessary to develop biomarkers (e.g., measures of neural injury or neural function) that are aligned with a biological model of treatment effects. This pertains to many forms of neurorehabilitation therapies, including emerging forms of restorative therapies such as drugs, neural stimulation, and behavioral training. In this way, investigators and clinicians can align patient selection with a known likelihood of response to a restorative therapy. Together, these approaches are expected to foster growth of precision neurorehabilitation and so increase the efficacy and efficiency with which neurorehabilitation therapy is delivered.

SPEAKERS:

Steve Cramer, MD, MMSc

Margaret French, PT, DPT, PhD



AM Barrett, MD

Ryan Roemmich, PhD

SCHEDULE:

11:30 - 11:50am: ***Precision Neurorehabilitation & What Role do Biomarkers Play*** – Ryan Roemmich, PhD

11:50 – 12:10am: ***Precision Neurorehabilitation in a Learning Health System*** - Margaret French, PT, DPT, PhD

12:10 – 12:30pm: ***Biomarkers Predicting Response to Restorative Therapies: Hemineglect*** – AM Barrett, PhD

12:30 - 12:50pm: ***Biomarkers Predicting Response to Restorative Therapies*** - Steve Cramer, MD, MMSc

12:50 - 1:00pm: ***Discussion*** - ALL

DEI OFFSITE SLAVE MART TOUR

Thursday, March 16, 2023 • 3:00 pm – 5:00 pm • 6 Chalmers St, Charleston, SC 29401

TOUR SIGN UP TIME OPTIONS

3:00 - 3:30pm: FULL

3:30 - 4:00pm: FULL

4:00 - 4:30pm: OPEN SPOTS

4:30 - 5:00pm: OPEN SPOTS

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An NIH Medical Rehabilitation Research Resource Network Center at Medical University of South Carolina

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San Antonio, Texas

April 10 - 13, 2024

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