2021

ASNR VIRTUAL ANNUAL MEETING

APRIL 5-9

2021 ASNR VIRTUAL ANNUAL MEETING

APRIL 5 - 9, 2021

TARGET AUDIENCE

The target audience for this event are physicians, researchers, clinicians, and trainees.

LEARNING OBJECTIVES

Upon completion of this conference, participants should be able to:

- Discuss the neuroprotective mechanisms targeted by enriched environments in an animal model of Parkinson's Disease.
- Explore the potential neural mechanisms and pathways that may be associated with the expression and treatment of the non-motor symptoms of Parkinson's Disease.
- Describe how to translate enriched environment experiences into clinical treatment of patients with Parkinson's Disease
- Identify sensory and motor interactions that can be targeted for intervention in model systems and humans
- Determine whether coordinated interventions can alter the sensory-motor system more than interventions that are not paired
- Evaluate the efficacy of interventions that target sensorimotor integration for systems recovery and functional improvement
- Develop increased awareness of the wide range of neurologic impairments that could be ameliorated through the use of BCI
- Discuss the pros and cons of invasive vs non-invasive BCI technologies
- Describe how BCIs might be used as tools for driving brain reorganization and development
- Identify the social determinants of health
- Recognize the impact of social determinants of health throughout the continuum of poststroke care
- Identify opportunities for advocacy for equitable patient care
- Describe at least three, long-term aspirational goals for neural repair and rehabilitation as a field
- Debate the relative and collaborative promise of biology, technology, and clinical environments for optimizing neurorehabilitation of the future
- Appraise one's individual, lab, or departmental strategic plans to evaluate how they align with one or more aspirational goals
- Recognize that the rapidly growing evidence of lifelong central nervous system (CNS) plasticity makes neurorehabilitation one of the most exciting areas of neuroscience
- Develop new therapies that can help to restore impaired behaviors
- Explain how research advances have led to two new concepts that together explain how the normal CNS acquires and maintains useful behaviors throughout life

METHOD OF PARTICIPATION

Statements of credit will be awarded based on the participant's attendance. A statement of credit will be available upon completion of an online evaluation/claim credit form available at: *akhcme.com/akhcme/pages/asnr*

Please claim your credit by May 1, 2021.

If you have questions about this CE activity, please contact AKH Inc at joldman@akhcme.com.

CE credit provided by AKH Inc., Advancing Knowledge in Healthcare. This activity is jointly-provided by AKH Inc., Advancing Knowledge in Healthcare and American Society of Neurorehabilitation.

In support of improving patient care, this activity has been planned and implemented by AKH Inc., Advancing Knowledge in Healthcare and American Society of Neurorehabilitation. AKH Inc., Advancing Knowledge in Healthcare is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

PHYSICIANS

AKH Inc., Advancing Knowledge in Healthcare designates this live activity for a maximum of 8.5 AMA PRA Category 1 Credit(s)™.

COMMERCIAL SUPPORT

There is no commercial support for this activity.

DISCLOSURES

It is the policy of AKH Inc. to ensure independence, balance, objectivity, scientific rigor, and integrity in all of its continuing education activities. The planners and faculty must disclose to the participants any significant relationships with ineligible companies whose primary business is producing, marketing, selling, re-selling, or distributing healthcare products used by or on patients." or with the commercial supporter of this accredited continuing education activity. Identified conflicts of interest are mitigated by AKH prior to the planners/faculty assuming their role in this accredited continuing education activity.

DISCLOSURE OF UNLABELED USE AND INVESTIGATIONAL PRODUCT

This educational activity may include discussion of uses of agents that are investigational and/or unapproved by the FDA. Please refer to the official prescribing information for each product for discussion of approved indications, contraindications, and warnings.

DISCLAIMER

This course is designed solely to provide the healthcare professional with information to assist in his/her practice and professional development and is not to be considered a diagnostic tool to replace professional advice or treatment. The course serves as a general guide to the healthcare professional, and therefore, cannot be considered as giving legal, nursing, medical, or other professional advice in specific cases. AKH Inc. specifically disclaims responsibility for any adverse consequences resulting directly or indirectly from information in the course, for undetected error, or through participant's misunderstanding of the content.

WELCOME TO THE 2021 ASNR ANNUAL MEETING

On behalf of the American Society of Neurorehabilitation (ASNR), we are excited you are joining us for the 2021 Virtual Annual Meeting, and our first independent meeting. While I know we all wish we could convene together physically, we are excited to provide an intellectually stimulating virtual experience! Our meeting provides interactions among neurorehabilitation clinicians, basic scientists, industry representatives, and funders in a dynamic environment of presentations and discussion. This year, world-renown experts will lead panels in stimulating presentations focused on:

- understanding the role of sensory and motor systems for motor recovery,
- engaging topics such as brain computer interfaces, virtual and remote rehabilitation, enriched environments and the role of distributed plasticity,
- understanding the impact of race on neurorehabilitation, and how to aggressively diversity our field,
- and an exciting debate that promises to challenge us to think boldly about the future of neurorehabilitation!

A continuing feature of this year's program is the focus of ASNR on providing valuable content for career development. This will include three "Morning Mentoring Sessions" which will take shape as panel presentations and interactive roundtable discussions. There will also be two poster sessions, which always generate stimulating discussion and provide outstanding opportunities for sharing science and networking.

Also, do attend the ASNR Business Meeting for a chance to learn how the society works and how your ASNR leaders have been working hard behind the scenes to best serve our ASNR membership.

It will be an exciting five days of learning and interacting together. Enjoy the meeting!

Sincerely,
Lewis A. Wheaton, PhD
2021 ASNR Program Committee Chair
School of Biological Sciences
Georgia Institute of Technology

ON BEHALF OF THE PROGRAM COMMITTEE:

Ahmet Arac, MD
Cathrin Buetefisch, MD, PhD, FASNR
Laurel Buxbaum, PsyD
Jason Carmel, MD, PhD
Matthew Edwardson, MD
Kate Hayward, PhD
Teresa Kimberley, PT, PhD
Catherine Lang, PT, PhD
Sangeetha Madhavan, PT, PhD
Kelsey Potter-Baker, PhD
W. Zev Rymer, PhD, MD
Heidi Schambra, MD
Steven Wolf, PhD, PT, FASNR
Steven Zeiler, MD, PhD

PROGRAM AT-A-GLANCE

ALL TIMES EASTERN STANDARD TIME

	Monday, April 5	Tuesday, April 6	Wednesday, April 7	Thursday, April 8	Friday, April 9
11:00 am	*Morning Mentorship* Lessons Learned 11:00 - 12:00	Poster Session 1 11:00 - 12:00	*Morning Mentorship* Identity and Transitions 11:00 - 12:30	Poster Session 2 11:00 - 12:00	*Morning Mentorship* Funding Strategies and the Current Landscape of Grants 11:00 - 12:00
11:30 am					
12:00 pm	*Morning Mentorship* Mentoring Roundtables: Managing Conflict 12:00 - 12:30	Virtual rehabilitation: exergames and tele-rehabilitation: Untangling terminology, evidence, and efficacy and application to practice *Symposium Directors: Tricia Kesar, Naveed Ejaz, Mindy Levin, and Sangeetha Madhavan* 12:00 - 2:00		Not separate but still unequal: race and outcomes post-stroke *Symposium Director: Kara Kennedy* 12:00 - 1:30 CE ACTIVITY	*Morning Mentorship* Mentoring Roundtables 12:00 - 12:30
12:30 pm	Targeting sensory and motor integration for recovery of movement after CNS injury *Symposium Director: Jason Carmel* 12:30 - 2:00 CE ACTIVITY		Role of Enriched Environments in Parkinson's Disease *Symposium Director: Kelsey Baker* 12:30 - 2:00 CE ACTIVITY		The future of neurorehabilitation is bright, if we choose it to be *Symposium Director: Catherine Lang* 12:30 - 2:00 CE ACTIVITY
1:00 pm					
1:30 pm				ASNR Education Foundation Presents: Fostering Diversity, Equity and Inclusion in Healthcare and Science 1:30 - 2:30	
2:00 pm	Brain Computer Interfaces (BCIs) Through the Lifespan *Symposium Director: Alex Carter* 2:00 - 3:30 CE ACTIVITY	21st-Century Neurorehab: Enabling Heksors to Restore a Satisfactory Equilibrium of CNS Properties *Symposium Director: Carolee Winstein* 2:00 - 3:00 CE ACTIVITY	Business Meeting 2:00 - 2:30		
2:30 pm					
3:00 pm					

PROGRAM DETAILS

MONDAY MORNING MENTORING SESSION

Lessons Learned

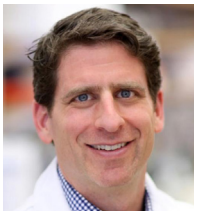
Monday, April 5 • 11:00am - 12:00pm ET

The goal of this session is to begin to have more transparent conversations about the challenges of an academic career. Four esteemed panelists will share a real-life, "unfiltered" look into their journey through academia so far and talk candidly about challenges they've faced and impart lessons that they've learned through the process. Participants can submit questions during the session.

SCHEDULE:

11:00 - 11:02 am	Drs. Carmel & Liew - Introduce Panel
11:02 - 11:09 am	Brad Voytek, PhD
11:09 - 11:16 am	James Finley, PhD
11:16 - 11:23 am	Stephanie DeLuca, PhD
11:23 - 11:30 am	Steve Wolf, PT, PhD
11:30 am - 12:00 pm	LIVE Q&A w/all Panelists

MODERATORS:



Jason Carmel MD, PhD

Sook-Lei Liew, PhD, OTR/L

PANELIST SPEAKERS:

Brad Voytek, PhD

James Finley, PhD

Stephanie Deluca, PhD

Dr. Steve Wolf, PT, PhD

MONDAY MORNING MENTORING SESSION

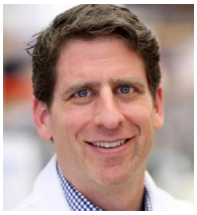
Managing Conflict Roundtables

Monday, April 5 • 12:00pm - 12:30pm ET
The goal of this session is to begin to have more transparent conversations about the challenges of an academic career. Four esteemed panelists will share a real-life, "unfiltered" look into their journey through academia so far and talk candidly about challenges they've faced and impart lessons that they've learned through the process. Participants can submit questions during the session.

SCHEDULE:

Live Breakout Rountables

MODERATORS:



Jason Carmel MD, PhD

Sook-Lei Liew, PhD, OTR/L

BREAKOUT ROOM FACILITATORS:

Bruce Dobkin, MD

Tom Carmichael, MD, PhD

Lara Boyd, PT, PhD

Targeting sensory and motor integration for recovery of movement after CNS injury

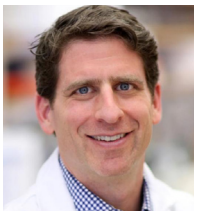
Monday, April 5, 2021 • 12:30pm – 2:00pm ET
Organizer: *Jason Carmel, MD, PhD*

Motor commands integrate with sensory feedback to enable purposeful movement. CNS injury or disease that impairs movement often alters both motor and sensory circuits. To restore movement, motor and sensory circuits have been generally targeted independently. An emerging approach is to target the interaction of motor and sensory connections by manipulating each in a coordinated way. For example, electrical stimulation of the motor cortex and sensory peripheral nerves have been timed to arrive synchronously in the brain or spinal cord, which results in better recovery when compared to single stimulation. The reliance on coordinated manipulation means that the specific target is the interaction of sensory and motor pathways. The manipulations that target these interactions are diverse and include co-stimulation (electrical, magnetic, optogenetic, and chemogenetic), experience (sensory stimulation/feedback), movement training, axon regrowth, or their combinations. The key uniting principle is the intervention has to engage both motor and sensory systems in a coordinated fashion. Speakers will discuss the plasticity mechanisms in diverse neural systems, organisms, and approaches.

SCHEDULE:

12:30 - 12:35 pm	Introductions – Jason Carmel
12:35 - 1:00 pm	Sensory and motor interactions for touch and pain - Yuanyuan Liu
1:00 - 1:25 pm	Paired stimulation for recovery of dexterity – Jason Carmel
1:25 - 1:45 pm	Spinal cord stimulation for lower extremity motor function- Karen Minassian
1:45 – 2:00 pm	Discussion - ALL

SPEAKERS:



Jason Carmel MD, PhD

Karen Minassian PhD

Yuanyuan Liu PhD

Brain Computer Interfaces (BCIs) Through the Lifespan

Monday, April 5, 2021 • 2:00pm - 3:30pm ET
Organizer: *Alex Carter, MD, PhD*

In recent years there have been formidable developments in the field of brain computer interfaces (BCIs), a concept once relegated to science fiction. But BCI's are moving ever closer to everyday reality. Elon Musk's ambitious Neuralink project promises the "first neural implant that will let you control a computer or mobile device anywhere you go", a technology that would have far reaching implications for brain injury rehabilitation and for human behavior. However, in spite of the growing public attention garnered by such efforts, there is a surprising lack of awareness among neurorehabilitionists of current medical applications of BCI technology to the treatment of neurologic disease and injury. This symposium, BCI Through the Lifespan, will take the audience on a journey through recent advances in BCI applications. Our panel of experts will provide a large scale overview of the range of BCI applications, from those that require neurosurgical implantation of delicate electrodes within the brain to those that a hemiparetic stroke patient can "plop" on their head at home with one hand and almost no training; from those that monitor brain activity to those that guide the very course of brain development; from those that control the environment or a prosthesis to those that reshape the brain itself. Throughout, the panel will invite the audience to consider how BCI-based therapy might improve their patients' lives today. BCIs are not coming, they are here! This symposium will increase clinicians' awareness of BCIs and help BCI scientists understand what is important to patients.

SCHEDULE:

2:00 - 2:25 pm	Neural Correlates of Training the "Good" Hemisphere - Alex Carter
2:25 - 2:50 pm	A patient- and family-centered approach to brain computer interfaces for severely disabled children - Adam Kirton
2:50 -3:15 pm	Intracortical Control of Neuroprosthetics - Leigh Hochberg
3:15 -3:30 pm	Discussion - ALL

SPEAKERS:

Alex Carter
MD, PhD

Adam Kirton
MD, MSc, FRCPC

Leigh Hochberg
MD, PhD

Virtual rehabilitation, exergames and tele-rehabilitation:
Untangling terminology, evidence, efficacy and application to practice

Tuesday, April 6, 2021 • 12:00pm – 2:00pm ET
Organizers: *Mindy Levin, Naveed Ejaz (moderator), Trisha Kesar, Sangeetha Madhavan*

SCHEDULE:

Part 1:	POSITION STATEMENT, DEFINITIONS, AND RATIONALE (58 mins)
12:00 - 12:15 pm	Is there a role for tele-rehab without technology? - Nick Ward
12:15 - 12:30 pm	VR technologies – definition and treatment delivery platforms; Definition of immersion, and presence and role in rehab; Pros and cons of different technologies for targeting movement quality; Measurement of quantity; Summary of evidence of effectiveness - Mindy Levin
12:30 - 12:42 pm	Exergame technologies – definition and treatment delivery platforms; Summary of evidence of effectiveness - Judith Deutsch
12:42 - 12:52 pm	The state of telerehabilitation and exergaming in neurorehabilitation - David Putrino
12:52 - 12:58 pm	Q & A
Part 2:	EXAMPLES IN RESEARCH AND PRACTICE (45 mins)
12:58 - 1:08 pm	Integrating telerehabilitation into clinical practice and its implementation during COVID - Preeti Raghavan
1:08 - 1:18 pm	The Hand and Foot Mentor for home- and tele-rehabilitation – Rationale, design, and experiences from commercial application of two game-based tele-rehab systems, the Hand MentorTM and Foot MentorTM; insights from the real-world and users about how exergames have impacted recovery from stroke. - Nick Housley
1:18 - 1:28 pm	Design, development, and testing of a novel exergame system for augmenting paretic propulsion post-stroke - Rationale, challenges and user-data related to game design, and preliminary test results from audiovisual gait biofeedback and a novel, exergame interface system for post-stroke gait training. - Trisha Kesar
1:28 - 1:38 pm	Serious Games for motor priming and enhancing neuroplasticity - The use of a novel game-based priming device (DIG-I-PRIMETM) to facilitate corticomotor excitability of the affected hemisphere to enhance outcomes of functional training; therapeutic rationale of gamified motor priming and preliminary results from a tele-rehabilitation based stroke study. - Sangeetha Madhavan
1:38 - 1:43 pm	Q & A
Part 3:	PANEL DISCUSSION AND RESPONSE TO QUESTIONS SUBMITTED BY THE AUDIENCE (12 mins)
1:43 - 1:55 pm	Challenges and opportunities - Mindy Levin, Judith Deutsch, Naveed Ejaz, Trisha Kesar, Sangeetha Madhavan, Nick Ward, Michelle Woodbury, Nich Housley, Preeti Raghavan, David Putrino
Part 4:	SUMMARY AND CONCLUSIONS (5 mins)
1:55 - 2:00 pm	Mindy Levin, Naveed Ejaz, Trisha Kesar, Sangeetha Madhavan

21st-Century Neurorehab: Enabling Heksors to Restore a Satisfactory Equilibrium of CNS Properties

Tuesday, April 6, 2021 • 2:00pm – 3:00pm ET
Organizer: *Carolee J. Winstein, PhD, PT, FAPTA*

Recent insights into how the normal CNS produces behaviors can guide development of new therapies for restoring impaired behaviors. In the normal CNS, each behavior is produced by a heksor (Wolpaw/Kamesar, in press), a distributed substrate of plasticity that can extend from cortex to spinal cord and changes as needed to maintain the behavior's key features. Heksors share neurons and synapses. Thus, each is continually responding to what others have done; they negotiate the properties of the neurons/synapses they all use. They thereby create a negotiated equilibrium of these properties that maintains the key features of all their behaviors. Neurorehabilitation seeks to enable heksors to restore a satisfactory negotiated equilibrium, an equilibrium in which each heksor once again achieves its key features. One end of the therapeutic spectrum comprises protocols that target beneficial plasticity to critical CNS sites and thereby remove impediments to negotiation (e.g., foot-drop); the other end comprises protocols that induce widespread plasticity and thereby provide the heksors with additional opportunities for negotiation (e.g., regenerated axons). Wolpaw describes the complementary concepts of the heksor and the negotiated equilibrium that heksors create; he then applies the concepts to neurorehabilitation. Thompson describes, in people with CNS disorders, the widespread beneficial impact of protocols that target beneficial plasticity to a critical spinal or corticospinal pathway. These talks introduce a new understanding of how behaviors are produced and maintained, explain its implications for neurorehabilitation, and illustrate the efficacy of therapies based upon it. Winstein's panel addresses relevant and controversial scientific/clinical issues.

SCHEDULE:

2:00 – 2:05 pm	Introductions – Carolee Winstein
2:05 – 2:25 pm	Concepts, strategy, and therapeutic spectrum – Jonathan Wolpaw
2:25 – 2:45 pm	Operant conditioning of EMG evoked potentials: new heksors can help old ones – Aiko Thompson
2:45 – 3:00 pm	Remarks/Discussion - ALL

SPEAKERS:

Carolee Winstein PhD, PT, FAPTA

Jonathan R. Wolpaw MD

Aiko K. Thompson PhD

WEDNESDAY MORNING MENTORING SESSION

Identity & Transitions

Wednesday, April 7 • 11:00am - 12:30pm ET

A panel with a diverse group of five speakers will discuss their periods of transition. Transitions are interpreted very broadly. Panelists will reflect on both professional transitions (e.g., from academia to industry, from trainee to PI, and from research to administration) to more personal transitions (e.g., moving around the country, work-life balance before and after children, retirement). Speakers will discuss how they navigated transitions, and how their transitions have informed their identity as researchers. After speakers have shared their experiences, there will be opportunity for live discussion.

SCHEDULE:

11:00 - 11:03 am	Introduction to the panel, Drs. Hayward and Lohse
11:03 - 11:14 am	Topic 1 - TBD, Dr. Carmel
11:14 - 11:25 am	Topic 2 - (Industry), Dr. Lakhani
11:25 – 11:36 am	Topic 3 - TBD, Dr. Schaefer
11:36 – 11:47 am	Topic 4 - (Research to Admin), Dr. Celnik
11:47 – 11:58 am	Topic 5 - TBD, Dr. Winstein
11:58 am– 12:30 pm	Audience Q&A

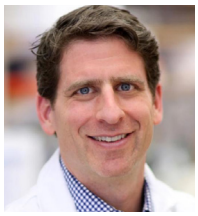
MODERATORS:

Kate Hayward, PhD

Keith Lohse, PhD, Pstat

PANELIST SPEAKERS:

Bimal Lakhani, PhD



Jason Carmel, MD, PhD

Sydney Schaefer, PhD

Carolee Winstein, PhD, PT, FAPTA, FASNR

Pablo Celnik, MD

Role of Enriched Environments in Parkinson's Disease

Wednesday, April 7, 2021 • 12:30pm – 2:00pm ET
Organizer: *Kelsey Baker, PhD*

Parkinson's (PD) is a neurological disorder that is affecting millions of people including war veterans. This disease majorly affects the movement, memory, and many other daily activities of the patients. PD is increasingly common among the Vietnam War and other Veterans, due to a higher risk of exposure to potential neurotoxins (e.g. Agent Orange). Unfortunately, there is no early detection method for PD other than the clinical symptoms. Most importantly, the lack of understanding regarding the underline molecular mechanisms of disease pathology between classic PD and PD caused by neurotoxin makes it more difficult to treat the disease, particularly the behavioral and non-motor symptoms. In this regard, identifying and characterizing the key molecular mechanism that regulates the idiopathic PD pathology will be very important. Several lines of evidence support a protective role of enriched environmental (EE) experiences and exercise on neurons of animal models of PD. In our symposia, we will describe the protective role of EE on an established dopamine dysregulation of PD and subsequent prevention of progressive neuronal cell death (Dr. Roy, Dr. Jadavji). In addition, we will also explore the influence of EE on behavioral outcomes in PD (Dr. Gil). The symposia will conclude with a description of how EE can be translated into a clinical setting for application (Dr. de Erausquin). Considering exercise and lifestyle behaviors have a huge impact on PD progression, the presented research can have a paradigm-changing effect on treatment for PD without impacting the current line of treatment.

SCHEDULE:

12:30 – 12:35 pm	Introductions – Kelsey Baker
12:35 – 12:50 pm	In vivo evaluation of enriched environments to encourage neuroprotection in Parkinson's Disease – Upal Roy
12:50 - 1:05 pm	Enriched environment improves motor function in intact and unilateral dopamine-depleted rats – Nafisa Jadavji
1:05 – 1:20 pm	In vivo evaluation of how enriched environment can influence psychosocial and non-motor symptoms in Parkinson's Disease – Mario Gil
1:20 – 1:35 pm	From Bench to Bedside: Translating Enriched Environments to the clinic for application in Parkinson's Disease - Gabriel A. de Erausquin
1:35 – 2:00 pm	Discussion - ALL

SPEAKERS:

Upal Roy
PhD

Mario Gil
PhD

Gabriel A. de Erausquin
MD, PhD, MSc

Nafisa M. Jadavji
Ph.D.

Not separate but still unequal: race and outcomes post-stroke

Thursday, April 8, 2021 • 12:00pm – 1:30pm ET
Organizer: *Kara Kennedy, DO*

Stroke is a leading cause of disability in the United States. Black patients experience greater levels of poststroke disability than their white counterparts. While the exact reasons for these differences remain unknown, there is a strong suspicion that social determinants of health play an important role. Identifying such factors is an essential step in creating a more just healthcare system. Since stroke survivors spend the majority of their disease experience in the rehabilitation phase, stroke rehabilitationists must develop approaches to mitigate the disparity in poststroke disability. Awareness of how these disparities may manifest throughout poststroke care are essential to recognizing the impact this can have on our patients' recovery and quality of life. This symposium proposes to engage the audience to explore the social determinants of health and their impact on poststroke care. Approached along three different dimensions, we will provide a variety of thought provoking and interactive formats that will promote reflection, dialogue, and provide actionable information. The panel will guide the audience through what is known about poststroke health care disparities and whether our current knowledge accounts for the discrepancy observed in clinical outcomes. We will also experience stroke disability from the patients' point of view in an attempt to understand what matters most to them and the obstacles they face. Finally, we will report on an investigation of why, in some cases, Medicaid does not cover outpatient physical and occupational therapy when these activity-based therapies remain the pillars of stroke rehabilitation. This will serve as a case study in advocacy for creating a more equitable healthcare system. Our goal on this platform is to identify and explore the problem of healthcare inequities in poststroke care, then provide actionable solutions.

SCHEDULE:

12:00 – 12:20 pm	Case Presentation: social determinants of health – Kara Kennedy
12:20 – 12:40 pm	Research discussion: Impact of social determinants of health on poststroke care – Lesli Skolarus
12:40 - 1:00 pm	Think Globally, Advocate Locally: the Case of Missouri Medicaid – Alex Carter
1:00 – 1:30 pm	Discussion - ALL

SPEAKERS:

Kara Kennedy
DO

Lesli Skolarus
MD, MS

Alexandre Carter
MD, PhD

ASNR FOUNDATION PRESENTS:

Fostering Diversity, Equity and Inclusion in Healthcare and Science

Thursday, April 8 • 1:30 – 2:30 pm ET

Moderated by: *Carolee Winstein, PT, PhD, FAPTA, FAHA*
Professor, Biokinesiology and Physical Therapy
Director, Motor Behavior and Neurorehabilitation Laboratory
Health Sciences Campus
University of Southern California

PANELISTS:

Deboleena Roy, PhD
Senior Associate Dean, Emory College of Arts and Sciences
Professor - WGSS and Neuroscience and Behavioral Biology

Deboleena Roy is Professor of Neuroscience and Behavioral Biology (NBB) and Women's, Gender, and Sexuality Studies (WGSS) at Emory University. She is currently the new Senior Associate Dean of Faculty for Emory College of Arts and Sciences and serves as Associate Faculty in the Neuroscience Program, Graduate Division of Biological and Biomedical Sciences at Emory.

Ndidiamaka "Didi" Matthews, PT, DPT, NCS
Associate Professor of Clinical Physical Therapy at University of Southern California
Vice Chair of Equity, Diversity, and Inclusion

Didi Matthews teaches the physical therapy management of individuals with neurologic disorders. She serves as a mentor in the USC/RanchoLos Amigos Neurologic Physical Therapy Residency program and is board certified in Neurologic Physical Therapy. In addition to her duties at USC, Dr. Matthews practices at InCourage Physical Therapy in Pasadena, CA

Joyce Richey, PhD
Associate Professor of Clinical Physiology & Neuroscience
Associate Dean for Diversity and Inclusion (Education)
Chief Diversity Officer

Dr. Richey is currently a faculty member in the department of Physiology and Biophysics at Keck School of Medicine of USC and a member of the diabetes and obesity research groups. Dr. Richey conducts research examining the relationship between diabetes, obesity and hypertension.

FRIDAY MORNING MENTORING SESSION

Funding Strategies and the Current Grant Landscape

Friday, April 9 • 11:00am - 12:00pm ET

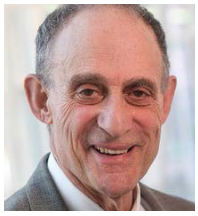
This free-form panel and roundtable will consist of grant officers sharing examples of what a reviewer is looking for in successful grant applications. The session will help applicants understand how reviewers and funding agencies see your grants from their perspective. Four grant officers will hold a panel discussion and interactive roundtable session with attendees, moderated by Drs. Noam Harel and Steve Wolf.

SCHEDULE:

11:00 - 11:05 am	Dr. Harel Introduce Panel
11:05 - 11:10 am	Dr. Teresa Cruz
11:10 - 11:15 am	Dr. Naomi Kleitman
11:15 - 11:20 am	Dr. Timothy Brindle
11:20 - 11:25 am	Dr. Robert Scheidt
11:25 - 11:55 am	Live Q&A w/ all Panelists
11:55 am - 12:00 pm	Closing Remarks & Instructions for Breakouts

MODERATORS:

Noam Harl, MD



Steve Wolf, PT PhD

PANELIST SPEAKERS:

Teresa Cruz, PhD

Naomi Kleitman, PhD, FASIA

Timothy Brindle, PhD

Robert Scheidt, PhD

FRIDAY MORNING MENTORING SESSION

Funding Strategies and the Current Grant Landscape

Friday, April 9 • 12:00am - 12:30pm ET

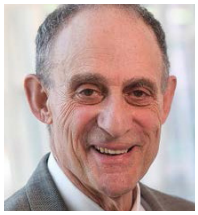
Panelists: *Timothy Brindle, PhD; Robert Scheidt, PhD; Theresa Cruz, PhD; Naomi Kleitman, PhD, FASIA; Ralph Nitkin, PhD*

SCHEDULE:

Live Breakout Roundtables

MODERATORS:

Noam Harl, MD



Steve Wolf, PT PhD

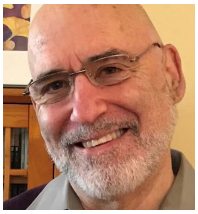
PANELIST SPEAKERS:

Teresa Cruz, PhD

Naomi Kleitman, PhD, FASIA

Timothy Brindle, PhD

Robert Scheidt, PhD



Ralph Nitkin, PhD

The future of neurorehabilitation is bright, if we choose it to be

Friday, April 9, 2021 • 12:30pm – 2:00pm ET
Organizer: *Catherine Lang, PT, PhD*

The purpose of this session is to generate and discuss aspirational goals for the future of neurorehabilitation. We envision a future where biology, technology, and the clinical environment are positioned to deliver personalized, efficient, and optimal neurorehabilitation services. Three speakers will share their visions for: translational science for neurorehabilitation (Stowe), technology for neurorehabilitation (Hammond), and clinical neurorehabilitation research and practice (Lang). Our intent is to move the audience past thinking about the next experiment or grant to thinking about career and collective lifetime goals. From the audience, we will solicit additional visions, along with ideas as to how individuals, departments, institutions, and professional communities might align themselves to contribute to the realization of these visions. This symposium will be structured to promote a lively, engaging discussion with the ASNR community regarding the abundant possibilities for neurorehabilitation of the future.

SCHEDULE:

12:30 – 12:35 pm	Introductions – Catherine Lang
12:35 – 12:55 pm	The biological future of neurorehabilitation– Ann Stowe
12:55 - 1:15 pm	The promise of technology for neurorehabilitation– Frank Hammond
1:15 – 1:35 pm	The future of neurorehabilitation clinical research and practice – Catherine Lang
1:35 – 2:00 pm	Discussion

SPEAKERS:

Catherine Lang PT, PhD

Ann M. Stowe PhD

Frank L. Hammond III PhD

FINANCIAL DISCLOSURES

Kelsey Baker, PhD	None
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Judith Deutsch, PT, PhD	Other: VSTEP Inventor (intellectual property)
	Other: VRACK Inventory (intellectual property)
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	Royalty: Human Kinetics, Inc
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Jonathan Wolpaw, MD	None

All of the relevant financial relationships listed for these individuals have been mitigated.

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POSTERS

Abstract titles are printed as submitted by the author. Full abstracts can be found at www.asnr.com

Poster 1: Frequency and profile of cognitive deficits in hospitalized COVID-19 patients undergoing inpatient rehabilitation
Abhishek Jaywant[1], Michael Vanderlind[1], George Alexopoulos[1], Chaya Fridman[1], Roy Perlis[2], Faith Gunning[1]
[1]Weill Cornell Medicine. [2]Massachusetts General Hospital/Harvard Medical School

Poster 2: Increased functional impairment predicts progression to Mild Cognitive Impairment in cognitively unimpaired older adults: Setting the stage for the use of novel motor tasks in identifying preclinical Alzheimer's disease
Andrew Hooyman[1], Tyler Rose[1], Michael Malek-Ahmadi[2], Sydney Schaefer[1]
[1]Arizona State University, Tempe, USA. [2]Banner Alzheimer's Institute, Pheonix, USA

Poster 3: Emotional prosody recognition after right-hemisphere stroke – an fMRI study of functional brain reorganization
Anna Seydell-Greenwald[1], Katherine O'Connell[2], Abigail Marsh[2], Alexander Dromerick[3]
[1]Georgetown University Medical Center, Washington, DC, USA. [2]Georgetown University, Washington, DC, USA. [3]MedStar National Rehabilitation Hospital, Washington, DC, USA

Poster 4: How much treatment does a person with aphasia need to get the best recovery? A novel method for investigating dose-response relationships in aphasia treatment
Sam Harvey[1,2], Miranda Rose[1,2], Michael Walsh Dickey[3,2], Marcella Carragher[1,2]
[1]Latrobe University, Melbourne, Australia. [2]CRE Aphasia Recovery & Rehabilitation, Melbourne, Australia. [3]University of Pittsburgh, Pittsburgh, USA

Poster 5: Relationship between integrity of white matter tracts and severity of aphasia after stroke
Hyeonji Park, Sumin Jeong, Woo Been, Yumi Hwang, Yoonhye Na, Minjae Cho, Eunyeong Lee, Sung-Bom Pyun
Korea University College of Medicine, Seoul, Korea, Republic of

Poster 6: Effects of social comparative feedback on motor sequence learning and perceived competence
Allison Lewis, Rachel Bohnenkamp, Lynn Johnson, Dirk den Ouden, Sara Wilcox, Stacy Fritz, Jill Stewart
University of South Carolina, Columbia, USA

Poster 7: Improvement and Retention of Dual-Task Reactive Stepping in People with Parkinson's Disease and Age-Matched Controls
Andrew Monaghan[1], James Finley[2], Shyamal Mehta[3], Daniel Peterson[1,4]
[1]Arizona State University, Phoenix, USA. [2]University of Southern California, Los Angeles, USA. [3]Mayo Clinic, Scottsdale, USA. [4]VA Health Care Center, Phoenix, USA

Poster 8: STEGA: an iPad app to measure precision drawing and handwriting
Benjamin Philip[1], Fuhai Li[1], Elizabeth Hawkins-Chernof[1], Victoria Swamidass[2], Igor Zwir[1]
[1]Washington University School of Medicine, St. Louis, USA. [2]PlatformSTL, St. Louis, USA

Poster 9: Reach Peak Velocity Affected by Task Complexity and Variability in Grasp Strategy During Prosthesis Use
Bennett Alterman[1], Saif Ali[1], Emily Keeton[1], William Hendrix[2], Jade Lee[3], John Johnson[1], Katrina Binkley[1], Lewis Wheaton[1]
[1]Georgia Institute of Technology, Atlanta, USA. [2]Kenney Orthopedics, Lexington, USA. [3]Hanger Clinic, Dallas, USA

Poster 10: Hebbian-type stimulation of premotor cortex. Development of a new treatment approach for impaired hand function after stroke

Paul Christian[1,2], Scott Shaeffer[1], Cathrin Buetefisch[1]
[1]Emory University, Atlanta, USA. [2]Dresden University, Dresden, Germany

Poster 11: A rapid Upper-Extremity Fugl-Meyer assessment tool for patient selection in rehabilitation trials

Abigail McGeorge, Leo Cekus, Winston Byblow, Cathy Stinear
University of Auckland, Auckland, New Zealand

Poster 12: Rapid and Remote Categorisation of Upper Limb Motor Outcome after Stroke

Harry Jordan[1], Joia Che[2], Winston Byblow[1], Cathy Stinear[1]
[1]University of Auckland, Auckland, New Zealand. [2]Monash University, Melbourne, Australia

Poster 13: Instrumented measurement of contracture and spasticity in the lower limbs of people with CP undergoing activity-based training: a systematic review

David Yang[1], Caitlin Hurd[2], Jaynie Yang[2], Diane Lorenzetti[1], Elizabeth Condliffe[1]
[1]University of Calgary, Calgary, Canada. [2]University of Alberta, Edmonton, Canada

Poster 14: Impaired visuomotor integration during rapid reaching and interception in children with cerebral palsy

Deborah A. Barany[1], Owais Ahmed Khan[1], Ana Gómez-Granados[1], Tarkeshwar Singh[2], Christopher M. Modlesky[1]
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Poster 15: A new method for extracting neural correlates of movement in people with movement disorders: A study of ipsilateral control for bimanual function in pediatric hemiplegia

Disha Gupta[1,2], Alexandre Barachant[3], Jason Carmel[4,5], Kathleen Friel[3,6]
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Poster 16: A comparison of mean truncal accelerometry during upper extremity rehabilitation exercises in individuals with post-stroke hemiparesis and healthy controls

Edwin Dang[1], Noah Balestra[1], Ania Busza[2]
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Poster 17: Using accelerometry to quantify motor traits of children with and without autism

Jeff Konrad, Natasha Marrus, Catherine Lang
Washington University, St. Louis, USA

Poster 18: Relating global cognition and upper-extremity motor skill retention in individuals with mild-to-moderate Parkinson disease

Jennapher Lingo VanGilder[1], Cielita Lopez-Lennon[2], Serene Paul[2,3], Leland Dibble[2], Kevin Duff[4,5], Sydney Schaefer[1]
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Poster 19: Alterations in upper limb muscle synergies underlying coupling of end-point force post stoke during isokinetic force generation

Jeong-Ho Park[1], Hangil Lee[1], Jinsook Roh[2], Hyung-Soon Park[1]
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Poster 20: Accuracy of the PREP2 algorithm in predicting upper limb functional capacity in a United States population with first ever stroke

Jessica Barth[1], Kimberly Waddell[1], Marghuretta Bland[1,2,3], Catherine Lang[1,4,3]
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Poster 21: Neural and Behavioral Dissociation in Development of Coordination and Control Using a Prosthesis Simulator with Vibrotactile Feedback

John Johnson, Lewis Wheaton
Georgia Institute of Technology, Atlanta, USA

Poster 22: Characterizing the Impact of Baseline Cognitive Status on Dual Task Performance While Backward Protective Stepping

Jordan Barajas[1], Daniel Peterson[1,2], Linda Denney[3], Shyamal Mehta[4]
[1]Arizona State University, Phoenix, USA. [2]Phoenix VA Health Care Center, Phoenix, USA. [3]Northern Arizona University, Phoenix, USA. [4]Mayo Clinic, Scottsdale, USA

Poster 23: The Role of Contralesional Motor Cortex During the Early Subacute Phase of Stroke Recovery

Kathleen Revill[1], Deborah Barany[2], Julie Tran[3], Samir Belagaje[1], Fadi Nahab[1], Cathrin Buetefisch[1]
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Poster 24: Brain-Computer Interface treatment for gait rehabilitation of chronic stroke patients

Marc Sebastián-Romagosa[1], Rupert Ortner[1], Woosang Cho[2], Katrin Mayr[2], Christoph Guger[1,2]
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Poster 25: Adapting telerehabilitation to COVID-19 regulations: preliminary results of participants' satisfaction and effectiveness of an adapted telerehabilitation exercise program to improve upper limb function in individuals in the chronic phase of a stroke

Marie-Hélène Milot[1,2], Johanne Higgins[3,4], Hélène Corriveau[1], Louis-David Beaulieu[5], Sonia Toy[6], Marie-Hélène Boudrias[6,7]
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Poster 26: The incorporation of motor learning principles in virtual rehabilitation for individuals with cerebral palsy: a systematic review

Marika Demers[1], Karen Fung[2], Sandeep Subramanian[3], Martin Lemay[4,5], Maxime Robert[2,6]
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Poster 27: Diffusion tensor-based morphometry detects volume loss in corticospinal tract associated with impaired motor recovery after stroke

Matthew Edwardson[1,2], Amritha Nayak[3], Pooja Modi[4], Neda Sadeghi[3], Marie Luby[5], Larry Latour[5], Carlo Pierpaoli[3]
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Poster 28: Between vs. Within-Subject Predictors of Step Length Asymmetry Post-Stroke: One Predictor Does Not Fit All

Natalia Sanchez, Nicolas Schweighofer, James Finley
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Poster 29: Upper Limb and Trunk Responses to Repeated Lateral Perturbations in Aging

Nesreen Alissa[1], Ruth Akinlosotu[1], John D. Sorkin[2,3], George F. Wittenberg[4,5], Kelly Westlake[1]
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Poster 30: Real-Time Gait and Posture Measures from Wearable Sensors for Rehabilitation in Parkinson's Disease

Niveditha Muthukrishnan[1], Abhi Ashwinkumar Mevawala[1], Holly A. Shill[2], James J. Abbas[1], Narayanan Krishnamurthi[3]
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Poster 31: Understanding Intracortical Excitability in Phantom Limb Pain: A Multivariate Analysis from a Multicenter Randomized Clinical Trial

Paulo Teixeira[1,2], Kevin Pacheco-Barrios[1,2], Muhammed Enes Gunduz[1,2], Anna C. Gianlourenco[1,2], Luis Castelo-Branco[1,2], Felipe Fregni[1]
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Poster 32: What is the scientific premise of current therapeutic approaches in motor rehabilitation after stroke?: A thematic analysis

Rajiv Ranganathan[1], Carson Doherty[1], Michael Gussert[1], Eva Kaplinski[1], Mary Koje[2], Chandramouli Krishnan[2]
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Poster 33: Insights into Coordination Deficits After Stroke: A Refined Analysis of the Lower Extremity Motor Coordination Test (LEMOCOT)

Shirley Handelzalts[1,2], Yogev Koren[1,2], Noy Goldhammer[2], Adi Yeshurun[2], Simona Bar-Haim[1,2]
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Poster 34: Myoelectric upper limb orthosis use in motor learning therapy in chronic stroke

Svetlana Pundik[1,2], Jessica McCabe[1], Margaret Skelly[1], Ahlam Salameh[1,2], Zhengyi Chen[2], Curtis Tatsuoka[2], Stefania Fatone[3]
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Poster 35: Metabolome changes are seen in people with Multiple Sclerosis who respond to progressive resistance training

Jennifer Keller[1], Pavan Bhargava[2], Kathleen Zackowski[3,2]
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Poster 36: The Current Landscape of Exercise and Physical Rehabilitation Services for People Living With Multiple Sclerosis in Saskatchewan: A Formal Environmental Scan and Needs Assessment

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Poster 37: Spontaneous neural synchrony links intrinsic spinal sensory and motor networks during unconsciousness

Jacob McPherson, Maria Bandres
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Poster 38: Vagus Nerve Stimulation Paired with Rehabilitation to Improve Recovery of Upper Extremity Function in Stroke and Spinal Cord Injury

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Poster 39: Characterization of spontaneous sensorimotor neural transmission in the adult spinal cord in vivo

Maria F Bandres, Jacob G McPherson
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Poster 40: Potentially Preventable Readmissions after Inpatient Rehabilitation

Amanda Herrmann[1,2], Ella Chrenka[1,2], Leah Hanson[1,2], Haitham Hussein[1,2,3], Gretchen Niemioja[1,3]
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Poster 41: Virtual Lab Toolbox: Infrastructure and reliability of translating in-lab motor tasks to an online, unsupervised version

Andrew Hooyman, Sydney Schaefer
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Poster 42: Virtual Lab Toolbox: Application of machine learning for grading figure-drawing visuospatial tests

Andrew Hooyman, Jessica Trevino, Sydney Schaefer
Arizona State University, Tempe, USA

Poster 43: Visual recognition algorithm in differential diagnosis between glioblastoma and solitary brain metastasis in patients with no history of systemic cancer: a mri-based study

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Poster 44: Volumetric assessment of white matter lesion burden and grey matter volume changes in mild cognitive impairment: a clustering analysis

Camilla Russo[1], Elisa Capone[1], Luigi Della Gatta[1], Alfredo Di Gaeta[1], Francesco Laquaniti[1], Eugenio Capobianco[1], Eduardo Gragnano[2], Rossana Senese[3], Mario Muto[1]
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Poster 45: Transcranial Magnetic Stimulation (TMS) Analysis Toolbox: A user friendly open source Matlab GUI for basic and advanced analysis of TMS related outcomes

David Cunningham[1,2], Bei Zhang[1,2], Aaron Cahn[1,2]
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Poster 46: Withdrawn

Poster 47: Expanding Horizons of Rehabilitation Technology with 3D Printable Elastics: A Case Series of Stroke Survivors
Justin Huber
University of Kentucky, Lexington, KY, USA

Poster 48: OnabotulinumtoxinA Treatment in Patients with Upper Limb and Lower Limb Spasticity from the ASPIRE Study
Ganesh Bavikatte[1], Gerard Francisco[2], Alberto Esquenazi[3], Michael Dimyan[4], Kenneth Ngo[5], Marc Schwartz[6], Aleksej Zuzek[7], Wolfgang Jost[8,9]
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Poster 49: An objective hand proprioception assessment system for pediatric and adult population
Jinseok Oh[1], Arash Mahnan[1], Jessica Holst-Wolf[1], Jiapeng Xu[1], Hannah Block[2], Juergen Konczak[1]
[1]University of Minnesota, Minneapolis, USA. [2]Indiana University Bloomington, Bloomington, USA

Poster 50: Vibro-tactile stimulation as a non-invasive neuromodulation approach for cervical dystonia: a case study
Yi Zhu, Arash Mahnan, Jürgen Konczak
University of Minnesota, Minneapolis, USA

Poster 51: Aerobic exercise and neuroplasticity in spinal cord injury: a systematic review
Anjali Sivaramakrishnan[1], Aditi Hombali[2]
[1]UT Health San Antonio, San Antonio, USA. [2]

Poster 52: Neuroplasticity underlying balance recovery in individuals with incomplete SCI: Effects of a strength and perturbation-based training
Charlotte H. Pion[1,2,3], Dorothy Barthélemy[1,2,3,4]
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Poster 53: Use of Computational Modeling to Inform tDCS Electrode Montages for the Promotion of Motor Recovery in Spinal Cord Injury
Maria Martin[1,2], Ileana Therese Mendoza[1,2], Kelsey Baker[2]
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Poster 54: Effect of remote ischemic conditioning on hand function in cervical spinal cord injury
William Savage[1], Yu-Kuang Wu[1,2], Grace Famodimu[1], Gregory Mendez[1], Noam Harel[2,3]
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Poster 55: Withdrawn

Poster 56: Probing sensorimotor integration within the spinal cord using paired, non-invasive stimulation in post-stroke and neurotypical older adults
Alejandro Lopez[1], Jiang Xu[2], Lena Ting[1], Michael Borich[1], Trisha Kesar[1]
[1]Emory University, Atlanta, USA. [2]Tongji Hospital, Wuhan, China

Poster 57: A machine learning approach to predict stepping activity levels in individuals with chronic stroke

Emily Russell, Allison Miller, Darcy Reisman, Hyosub E. Kim, Vu Dinh
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Poster 58: Comprehensive Cardiac Rehabilitation Feasibility after Stroke (CCR FAST)

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Poster 59: Post-Stroke Upper Extremity Motor Recovery Predicted by Sensorimotor Connectivity using EEG

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Poster 60: Explanation of recovery after stroke: the severely impaired are a distinct group

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Poster 61: Estimating impairment from functional task performance

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Poster 62: NMDA receptor-mediated post-hypoxic potentiation in mice lacking glutamate antiporter, system xc-

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Poster 63: The role of glutamate antiporter, system xc-, in the ischemic cascade

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Poster 64: Ipsilateral and paretic motor evoked potentials have delayed onset latency in individuals with chronic stroke

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Poster 65: Luxury perfusion score for predicting clinical outcome in anterior circulation ischemic stroke: a pilot study

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Poster 66: Remedial training of the less-impaired arm in chronic stroke survivors with severe paresis improves functional independence: A pilot study

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Poster 67: Upper limb performance plateaus before or with impairment and capacity post stroke
Catherine E. Lang, Kimberly J. Waddell, Jessica Barth, Carey L. Holleran, Michael J Strube, Marghuretta D. Bland
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Poster 68: Neural re-organization after upper extremity rehabilitation therapy with sensory stimulation in chronic stroke survivors
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Poster 69: A Gamified Electromyographic Computer Interface to Measure Individual Motor Control Impairments Across Multiple Time Points
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Danielle Kline[1], David Lin[2], Alison Cloutier[2], Kelly Sloane2, Kristin Parlman[2], Jessica Ranford[2], Matthew Picard-Fraser[1], Annie Fox[1], Leigh Hochberg[2,3,4], Teresa Kimberley[1]
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Poster 71: Too much to handle: performance of dual-object primitives is limited in the nondominant and paretic upper extremity
Emily Fokas, Avinash Parnandi, Anita Venkatesan, Natasha Pandit, Audre Wirtanen, Heidi Schambra
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Poster 72: Impact of Amantadine Hydrochloride on Hospitalized Acute Ischemic and Hemorrhagic Stroke Patients
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Gabrielle Scronce, Amanda Vatinno, Corey Morrow, Allison Pennington, Na Jin Seo
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Poster 74: Developing newly emerging intermuscular coordination patterns through an electromyographic signal-guided exercise in the upper extremity
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Grace Bellinger, Michael Ellis
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Poster 76: Effects of Dry Needling on Spinal Reflexes
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Poster 77: Withdrawn

Poster 78: a study of single task vs dual task training on balance and gait performance in stroke patients
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Hyosok Lim, Sonia Pradhan, Nicholas Marjanovic, Cristian Luciano, Sangeetha Madhavan
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Jasmine Mirdamadi, Karla Arevalo-Alas, Liana Kam, Michael Borich
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Jasper Mark, Rachana Gangwani, Eric Zheng, Rachel Vaughn, Jessica Cassidy
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Poster 82: Predicting clinically significant improvement after robot-assisted upper limb rehabilitation in subacute and chronic stroke
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Poster 84: Modified Rankin Scale Does Not Capture Precise Recovery Phenotypes after Acute Stroke
Kimberly Erler[1,2], Rui Wu[2], Julie DiCarlo2, Leigh Hochberg[2,3,4], Steven Kautz[5,6], Lee Schwamm[2], Steven Cramer[7,8], Seth Finklestein[2], David Lin[2,3]
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Poster 85: Pathological inhibition limits motor unit rate modulation during voluntary contractions in a muscle-dependent manner post-stroke
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Poster 86: Video Survey of Occupational Therapy Exercises Sessions During Acute Rehabilitation for Stroke
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Poster 87: Validity and usability of a wearable, multi-sensor system for monitoring upper and lower limb activity in chronic stroke survivors in a community setting
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Poster 88: Post-stroke vascular repair and remodeling are facilitated by reactive astrocytes

Michael Williamson, Cathleen Joy Fuertes, Andrew Dunn, Michael Drew, Theresa Jones
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Poster 89: Examining the relationship between motor control and abnormal synergies during arm and index finger movement in chronic stroke patients

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Poster 90: Corticoreticulospinal tract neurophysiology in healthy and chronic stroke subjects

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Poster 91: Pre-morbid Ischemic Stroke Functioning Impacts Stroke Recovery, Independent of Stroke Severity

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Poster 92: Virtual Reality based rehabilitation improves self-perceived quantity and quality of upper limb use after stroke: A systematic review and meta-analysis

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Poster 93: Can kinematic outcomes help distinguish between different levels of upper limb motor impairment severity?

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Poster 94: Investigating Speed-Dependent Changes in Gait Kinematics: A Comparison between Age-Matched and Post-Stroke Gait

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Poster 95: Specialized roles of each hand during a mechanically coupled bilateral task in patients with mild hemiparesis and age-matched typical adults

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Poster 96: Capturing the dynamics of stroke gait impairments towards developing a generative model of gait

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Poster 97: Gut microbial dysbiosis is correlated with infarct size, edema size, and cerebral blood flow in aged rats following stroke

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Poster 98: Intraparenchymal hemorrhage in a patient on chronic anticoagulation with warfarin for venous thromboembolism : challenges in neurorehabilitation- where do we go from here?

Viswanath Aluru, Stephen Moran, Nidhi Purohit, Gollamudi Reddy
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Poster 99: The Dose-Response Effectiveness of Active Music Therapy for Upper Extremity Stroke Rehabilitation: A Systematic Review and Meta-Analysis Study

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Poster 100: Evaluating the ability of START, a telehealth-delivered therapy, to enhance speech for individuals with moderate-to-severe post-stroke aphasia and apraxia

Zoe Swann, Claire Honeycutt
Arizona State University, Tempe, AZ, USA

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