Update on Neuroscience: How Therapy Changes the Brain

Martha S. Burns, Ph.D., CCC-SLP
Friday -Saturday, February 8-9, 2019

Location

Children's Healthcare of Atlanta Office Park
Classroom 5
1680 Tullie Circle
Atlanta, GA 30329

Course description

This course will review current neuroscience research on neuroplasticity and the role of therapy in facilitating brain maturation, reorganization, and recovery. The focus will be on our current knowledge about the human brain as an experience-dependent organ and the environmental, genetic and cognitive/perceptual effects on brain development and recovery after injury. The course will review in practical terms how therapists facilitate and maximize maturation through synaptic and axonal proliferation, pruning, and consolidation. Specific PT, OT and SLP interventions for dyslexia, autism spectrum disorders, language impairment, sensory and motor disorders as well as brain injuries that have neuroscience-based evidence will be reviewed.

Agenda

Friday

7:30 a.m. *Registration & Continental Breakfast*

8:00 a.m. Introduction – Overview of neuroplasticity research 2018-2019
- Review of the human connectome project
- Review of the physiology of brain organization – structural, chemical and temporal

10:00 a.m. *Break*

10:15 a.m. The human brain as an experience dependent organ: processes of maturation and reorganization after injury
- The three processes of Brain Maturation: Proliferation, Pruning and Consolidation
- The multi-factors that affect Brain Maturation: Genetics, Cognitive/Perceptual, Environmental, Brain Level

12:00 p.m. *Lunch (on your own)*

1:00 p.m. The mechanisms of brain injury
- Concussion and TBI
- Stroke
- Illness
- Aging versus dementia

2:45 p.m. *Break*

3:00 p.m. Overview of natural neuroplasticity processes associated with diaschesis and brain re-organization during acute stages of stroke recovery
- Natural processes of early reconnection after injury
- Natural processes of interhemispheric effects of stroke and transfer of function
- Limitations based on lesion size and type

4:00 p.m. Q&A

4:30 p.m. *Adjourn*

Saturday

7:30 a.m. *Continental Breakfast*

8:00 a.m. How therapy upregulates neuromodulators that drive brain maturation and reorganization
- Dopamine
- Acetylcholine
- Noradrenaline
- Serotonin
- Others

8:45 a.m. Therapeutic factors essential to driving neuroplastic change in neurodevelopmental disorders & injury
- The importance of intensity and frequency in therapy
- The importance of motivation and reward in therapy
- Technological drivers that can supplement one-on-on treatment to drive neuroplastic change

10:00 a.m. *Break*

10:15 a.m. Overview of natural neuroplasticity processes associated with diaschesis and brain re-organization during Acute stages of stroke recovery
- Natural processes of early reconnection after injury
- Natural processes of interhemispheric effects of stroke and transfer of function
- Limitations based on lesion size and type

Brain reorganization processes after acute recovery ends
- Local changes associated with intensive stimulation
- Intra-hemispheric transfer of function
- Interhemispheric transfer of function

12:00 p.m. *Lunch (on your own)*

1:00 p.m. Other therapeutic factors essential to driving neuroplastic change
- The importance of intensity and frequency in therapy
- The importance of motivation and reward in therapy
- Technological drivers that can supplement one-on-on treatment to drive neuroplastic change

2:30 p.m. *Break*

2:45 p.m. Neuroscientific evidence of effects of treatment for:
- Motor disorders
- Dyslexia
- Apraxia of Speech
- Autism Spectrum Disorders
- Other diagnoses

3:30 p.m. Q and A

Registration

Registration Price (includes continental breakfast):

Regular Registration	$355
Group Discount (2 or more attendees from the same facility)	$305
Children's Healthcare of Atlanta Staff	$255

Space is limited, register today at https://events.eply.com/UpdateNeuroscience

Contact michelle.moore@choa.org for more information.

Target audience

This course is intended for SLP's, PT's, OT's and Psychologists who work with pediatric and/or adult patients with neurodevelopmental disorders and brain injuries.

Course Objectives

At the conclusion of the conference, the participant will be better able to:

- Demonstrate knowledge about experience-dependent, genetic and cognitive perceptual components of brain maturation
- Design treatment goals based on neuroscience principals known to drive positive neuroplastic change
- Utilize knowledge about diaschesis and other natural recovery processes to develop goals for patients who have suffered from brain injury.
- Develop short and long-term goals based on evidence-based practice in treatment of neurogenic developmental disabilities.
- Develop short and long-term goals based on evidence-based practice designed to maximize recovery outcomes in brain injured patients.

Continuing Education

Direct contact hours have been applied for through the **Georgia Occupational Therapy Association** (GOTA) for **13 contact hours** for Occupational Therapists. These credits may apply toward licensure in other states.

Continuing Education Credits have been applied for through the **Physical Therapy Association of Georgia** (PTAG) for **13 contact hours** for Physical Therapists. These credits may apply toward licensure in other states.

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Children's Healthcare of Atlanta is approved by the Continuing Education Board of the American Speech-Language-Hearing Association (ASHA) to provide continuing education activities in speech-language pathology and audiology. **See course information for number of ASHA CEUs, instructional level and content area.** ASHA CE Provider approval does not imply endorsement of course content, specific products or clinical procedures.

This program is offered for **1.3 ASHA CEUs** (Intermediate level; Professional area)

Speaker

Dr. Martha S. Burns currently serves as the Director of Neuroscience Education at Scientific Learning Corporation. She is also Adjunct Associate Professor at Northwestern University, Department of Communication Sciences and Disorders. She has been a consultant at the Shirley Ryan Ability Lab (formerly, The Rehabilitation Institute of Chicago) for 35 years and has provided yearly professional development instruction at Children's Healthcare of Atlanta for over 15 years. Dr. Burns is a Fellow of the American Speech-Language-Hearing Association and has received honors from Northwestern University, Evanston Hospital Corporation, the American Speech Language Hearing Foundation and St. Xavier University. She has authored 3 books and over 100 book chapters and articles. Doody's Rating Service selected her book on the Right Hemisphere published through Aspen Press as one of the best health sciences books of 1997. In addition to that book, Dr. Burns is the author of a book on aphasia and the test *Burns Brief Inventory of Communication and Cognition* published by Pearson. Dr. Burns is a consultant to many school districts around the world. She presents 75-100 invited in-services, keynotes, webinars and continuing education courses world-wide each year on neuroscience applications to education and clinical practice.

Disclosures

Martha Burns, PhD--*Financial*: Honorarium is received from Children's Healthcare of Atlanta for presenting this program; *Non-Financial*: none

Accommodations

Courtyard Atlanta Executive Park/Emory
1236 Executive Park Drive NE
Atlanta, GA 30329
404-728-0708 (Call and ask for Children's Healthcare of Atlanta rate)
Click here for Children's reduced rate to book online

Doubletree Hotel Atlanta North Druid Hills
2061 North Druid Hills Road
Atlanta, GA 30329
Click here for website. (Click on Special Rate Codes and then enter 0009885641 under Corporate Account)

All programs are intended to be accessible to all persons. If you have a disability and require assistance in order to fully participate in the conference activities, call the conference coordinator to discuss your specific needs.

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