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 diaschisis 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 diaschisis 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):  

<table>
<thead>
<tr>
<th>Registration Type</th>
<th>Price</th>
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<tbody>
<tr>
<td>Regular Registration</td>
<td>$355</td>
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<tr>
<td>Group Discount (2 or more attendees from the same facility)</td>
<td>$305</td>
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<tr>
<td>Children’s Healthcare of Atlanta Staff</td>
<td>$255</td>
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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.

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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