



## ISNR 2010 Pre-Conference Workshops

Monday, September 27, 2010, Tuesday, September 28, 2010  
and Wednesday, September 29, 2010

### MONDAY, SEPTEMBER 27

**Pre WS 1.1 (Monday), 1.2 (Tuesday) & 1.3 (Wednesday):**  
**Foundations Low Energy Neurofeedback (LENS) Training**  
**– 3 Day Workshop**  
**(Lecture, Experiential, Demonstration)**  
Catherine Wills, RN, Ochs Labs, Inc., [cathywills@ochslabs.com](mailto:cathywills@ochslabs.com)

**Credits:** CME – 22.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences CE – 22.5, BCIA recertification – 22.5

**Level of Difficulty:** Basic

#### **Abstract**

This is a three day training in the LENS covering conceptual and practical elements that will allow the participant to:

1. Operate the software.
2. Make entry level clinical treatment decisions based on assessments and interview.
3. Evaluate the success of meeting treatment objectives.
4. Understand the elements of informed consent, communication with clients, and recommended and not-recommended early-experience clients.

#### **References**

- Fisch, B.J. (1999) Fisch and Spehlmann's EEG Primer: Basic Principles of Digital and Analog EEG. Elsevier Science Pub Co.
- Hammond, D. C., Editor (2007). LENS: The Low Energy Neurofeedback System. Binghamton, NY, The Hawthorne Medical Press. Radiological Sciences, University of California Davis.
- Larsen, S. (2006). The Healing Power of Neurofeedback: The Revolutionary LENS Technique for Restoring Optimal Brain Function. Rochester, VT, Healing Arts Press.
- Marcus, L. (2001). EEG Amplitude and Variability Changes Following Low-Intensity Neurofeedback Based Stimulation for Fibromyalgia. Palo Alto, CA, Western Graduate School of Psychology. Ph.D.
- Rowan, J. and Gates, J.R. (Eds) (2000. 2 edition). Non-Epileptic Seizures. London: Butterworth-Heinemann.
- Schoenberger, N. E., S. C. Shiflett, et al. (2001). "Flexyx neurotherapy system in the treatment of traumatic brain injury: An initial evaluation." Journal of Head Trauma Rehabilitation 16(3): 260-274.

#### **Goals/Objectives**

Day 1

- a. Understand the definitions of Perceptual Sensitivity, Reactivity, Behavioral Suppression, Hardiness, and Anxiety
- b. Practice in assessing Perceptual Sensitivity, Reactivity, Behavioral Suppression, Hardiness, and Anxiety
- c. Consider relation between Traits and Dose considerations
- d. Consider relation between Traits and Informed Consent considerations
- e. Consider relation between Traits and Conversation with Client re what to expect during the LENS
- f. Discuss of LENS Topographic Mapping
- g. Name the 10-20 International Classification of Sensor Sites and connect electrodes to the scalp

Day 2

- h. Practice Applying electrodes

- i. Attend to information about the LENSware user interface
- j. Practice running the user interface for mapping
- k. Practice applying the electrodes for mapping
- l. Discuss estimating the offset for sensitive and less sensitive individuals
- m. Discuss components of the LENS signals and stimulation vs. feedback paradigms
- n. Consider components of treatment and their relation to the assessment(s)

Day 3

- o. Practice Running Treatment
- p. Discuss experiences of LENS assessment and treatment
- q. Discuss providing context and perspective to the experience of change using the LENS
- r. Question the instructor about confusion and future course of learning
- s. Discuss special cases, which cases are appropriate and which are inappropriate to accept
- t. Discuss the courses of healing and what to observe about the change processes
- u. Respond to test and workshop evaluation

**Outline**

Day 1:

- a. Definitions of Perceptual Sensitivity, Reactivity, Behavioral Suppression, Hardiness, and Anxiety -1 hour
- b. Assessing Perceptual Sensitivity, Reactivity, Behavioral Suppression, Hardiness, and Anxiety -1 hour
- c. Relation between Traits and Dose considerations -1 hour
- d. Relation between Traits and Informed Consent considerations -1 hour
- e. Relation between Traits and Conversation with Client re what to expect during the LENS -1 hour
- f. LENS Topographic Mapping -1 hour
- g. The 10-20 International Classification of Sensor Sites and connect electrodes to the scalp -1 hour

Day 2

- h. Applying electrodes -1 hour
- i. Information about the LENSware user interface -1 hour
- j. Running the user interface for mapping -1 hour
- k. Applying the electrodes for mapping -1 hour
- l. Estimating the offset for sensitive and less sensitive individuals -1 hour
- m. Components of the LENS signals and stimulation vs. feedback paradigms -1 hour
- n. Components of treatment and their relation to the assessment(s) -1 hour

Day 3

- o. LENS Treatment -1 hour
- p. The experiences of LENS assessment and treatment -1 hour
- q. Providing context and perspective to the experience of change using the LENS -1 hour
- r. The future course of learning -1 hour
- s. Special cases, which cases are appropriate and which are inappropriate to accept -1 hour
- t. The courses of healing and what to observe about the change processes -1 hour
- u. Test and workshop evaluation -1 hour

**Financial Interest:** Owner of OchsLabs, Inc.

**Pre WS 2.1(Monday), 2.2 (Tuesday) & 2.3 (Wednesday):**

**Advanced LENS Training – 3 Day Workshop**

**(Discussion, Experiential)**

**Len Ochs, Ph.D., Ochs Labs, lochs@earthlink.net**

**Credits:** CME – 22.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 22.5, BCIA recertification – 22.5

**Level of Difficulty:** Advanced

**Abstract**

This is an advanced integrated training updating past knowledge including new information on:

1. Traits such as perceptual sensitivity, reactivity, hardiness, behavioral suppression and anxiety
2. The use of suppression maps
3. Components of Complex applications

4. New understanding of the LENS signals: hum, baseline, and feedback
5. Integration of standard and suppression maps
6. New applications such as seizure management and wound applications

## References

- Fisch, B.J. (1999) *Fisch and Spehlmann's EEG Primer: Basic Principles of Digital and Analog EEG*. Elsevier Science Pub Co.
- Hammond, D. C., Editor (2007). LENS: The Low Energy Neurofeedback System. Binghamton, NY, The Hawthorne Medical Press. Radiological Sciences, University of California Davis.
- Larsen, S. (2006). The Healing Power of Neurofeedback: The Revolutionary LENS Technique for Restoring Optimal Brain Function. Rochester, VT, Healing Arts Press.
- Marcus, L. (2001). EEG Amplitude and Variability Changes Following Low-Intensity Neurofeedback Based Stimulation for Fibromyalgia. Palo Alto, CA, Western Graduate School of Psychology. Ph.D.
- Rowan, J. and Gates, J.R. (Eds) (2000. 2 edition). Non-Epileptic Seizures. London: Butterworth-Heinemann.
- Schoenberger, N. E., S. C. Shiflett, et al. (2001). "Flexyx neurotherapy system in the treatment of traumatic brain injury: An initial evaluation." Journal of Head Trauma Rehabilitation 16(3): 260-274.

## Goals/Objectives

### Day 1

- a. To Review the latest in treatment of Traumatic Brain Injury
- b. To Review topic of EEG Suppression: Diagnostic and Treatment implications
- c. TBI treatment
- d. Review Protocol Selection and strategies
- e. Review of TBI treatment considerations from the point of view of a large treatment center
- f. Review of Review of concepts, suppression data via topographic mapping of Coefficient of Variation, and the use of Suppression mapping in treatment.
- g. Case presentations, reports of experience, discussion of evaluation and treatment considerations

### Day 2

- i. Participants demonstrate placebo issues related to the use of the LENS
- j. Participants demonstrate of interaction of glucose response curve and its implications for both the physiology underlying the EEG and aspects of functioning, as well as the implications for the use of the LENS with the consequences of aberrant insulin responses.
- k. Participants demonstrate a grasp of different treatment options paired with different clinical pictures.
- l. Review of the standard and advanced applications, including the extra-long applications, their components, and the effects of each of the components across our treatment spectrum
- m. Participants are able to enumerate a range of clinical pictures associated with TBI, and discuss a range of treatment considerations for different clinical pictures
- n. Participants demonstrate a grasp of different treatment options paired with different clinical pictures

### Day 3

- o. Participants demonstrate an understanding of electrophysiological characteristics of autism, changes in the EEG, and how the LENS treatment can be enhanced just LENS treatment, and by concurrent cranial-sacral work by reviewing a current study
- p. Participants demonstrate an understanding of electrophysiological characteristics of anxiety, changes in the EEG, and how the LENS treatment is used with anxiety
- q. Participants review research methodology
- r. To provide multiple views of anxiety evaluation, treatment and re-evaluation with the LENS
- s. Review and Discuss components of the LENS signals, applications, and paradigms
- t. Review vascular physiology and infrared interventions
- u. Complete Test, Workshop evaluation, and comments

## Outline

### Day 1

- a. To Review the latest in treatment of Traumatic Brain Injury – didactic - 1 hour
- b. To Review topic of EEG Suppression: Diagnostic and Treatment implications -1 hour
- c. TBI treatment - discussion – 1 hour
- d. Review Protocol Selection and strategies - 1 hour
- e. Review of TBI treatment considerations from the point of view of a large treatment center - 1 hour
- f. Review of Review of concepts, suppression data via topographic mapping of Coefficient of Variation, and the use of Suppression mapping in treatment - 1 hour
- g. Case presentations, reports of experience, discussion of evaluation and treatment considerations – 1 hour

### Day 2

- i. Participants demonstrate placebo issues related to the use of the LENS - 1 hour
- j. Participants demonstrate of interaction of glucose response curve and its implications for both the physiology underlying the EEG and aspects of functioning, as well as the implications for the use of the LENS with the consequences of aberrant insulin responses - 1 hour
- k. Participants demonstrate a grasp of different treatment options paired with different clinical pictures - 1 hour
- l. Review of the standard and advanced applications, including the extra-long applications, their components, and the effects of each of the components across our treatment spectrum - 1 hour
- m. Participants are able to enumerate a range of clinical pictures associated with TBI, and discuss a range of treatment considerations for different clinical pictures - 1 hour
- n. Participants demonstrate a grasp of different treatment options paired with different clinical pictures - 1 hour

#### Day 3

- o. Participants demonstrate an understanding of electrophysiological characteristics of autism, changes in the EEG, and how the LENS treatment can be enhanced just LENS treatment, and by concurrent cranial-sacral work by reviewing a current study - 1 hour
- p. Participants demonstrate an understanding of electrophysiological characteristics of anxiety, changes in the EEG, and how the LENS treatment is used with Anxiety - 1 hour
- q. Participants review research methodology - 1 hour
- r. To provide multiple views of anxiety evaluation, treatment and re-evaluation with the LENS.
- s. Review and Discuss components of the LENS signals, applications, and paradigms - 1 hour
- t. Review vascular physiology and infrared interventions - 1 hour
- u. Complete Test, Workshop evaluation, and comments - 1 hour

**Financial Interest:** Dr. Ochs draws income from OchsLabs, Inc.

## **TUESDAY, SEPTEMBER 28**

### **Pre WS 3.1 (Tuesday) & 3.2 (Wednesday):**

## **Fundamentals for the Practice of Neurofeedback: Assessment Leads to Appropriate Intervention – 2 Day Workshop (Lecture, Experiential, Demonstration)**

Lynda Thompson, Ph.D., The ADD Centre, [lyndamichaelthompson@gmail.com](mailto:lyndamichaelthompson@gmail.com)  
 Michael Thompson, M.D., The ADD Centre, [lyndamichaelthompson@gmail.com](mailto:lyndamichaelthompson@gmail.com)  
 Andrea Reid, The ADD Centre, [areid777@gmail.com](mailto:areid777@gmail.com)

**Credits:** CME – 15, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences 15, BCIA recertification – 15

**Level of Difficulty:** Basic – Day 1; Intermediate – Day 2

#### **Abstract**

Participants are welcome to sign up for one day or two days. The purpose of the first day is to introduce new practitioners to the basics of EEG biofeedback (Neurofeedback). The second day will expand on the basics of EEG assessment and Neurofeedback and introduce how to combine Neurofeedback with peripheral Biofeedback and metacognitive strategies for various disorders.

#### **Day 1 Outline**

This introductory workshop begins with a brief history of the scientific basis of NFB followed by defining the basic terms and concepts including: the electroencephalogram (EEG) and understanding brainwaves (frequency, morphology, amplitude, magnitude, power, location, reactivity and origin); artifacts; impedance; high and low pass filters, and the differential amplifier; international 10-20 sites and relation to Brodmann Areas (BA.s); basic functional neuroanatomy, such as lobes of the brain, to provide an understanding of why you train at particular sites; montages emphasizing referential, sequential and Laplacian and how these are used for EEG assessment and training decisions;. Discussion of these terms is enhanced by hands-on demonstration to show in detail how electrodes are applied, impedance is checked, artifacts are identified and removed, and how the EEG results in one Hz bins (2 to 60 Hz) with key ratios (e.g., theta/beta) are evaluated and graphed. For the graphing we use excel because this is available to most practitioners regardless of the equipment used as long as their equipment can show the raw EEG and do statistics. (Graphing learning curves is also shown for training sessions.) We explain the logic of combining EEG assessment results, using a decision making triangle, with knowledge of functions of relevant areas (BAs) and with the client's key symptoms, to lead to a plan for successful NFB intervention. ADHD will be used as the first example and a number of case examples will be shown.

There will be discussion of symptom pictures that require a 19 channel EEG assessment that a beginning practitioner could ask an experienced colleague to do, interpret, and give guidance for treatment programming. We will show data from 19 channel (full cap) EEG assessments, including LORETA analysis to introduce this more advanced level of assessment and intervention. With both single channel and 19 channel assessments, the EEG findings, knowledge of functional neuroanatomy, and the client's symptom picture are all used to determine the site and frequency ranges for training.

The afternoon will emphasize how to do NFB using operant and classical conditioning, shaping, measurement of sustaining desired EEG activity, tracking the percentage of time "in the zone", and doing amplitude training of each targeted frequency band. Graphing of progress during the session (and across sessions) using Excel will be shown. Designing appropriate interventions is stressed and discussion will centre on how the triad of symptom picture, neuroanatomy, and EEG findings leads to a logical placement of electrodes for enhancement or inhibition of specific frequency bands. There will be mention of z-score training in addition to the usual amplitude and coherence training paradigms.

We want the workshop participants to learn to avoid the pitfall of expecting the machine to do the work. Their coaching is an important component in their client's success so we explain how to combine NFB with work on metacognitive strategies and show how to combine simple biofeedback methods, especially respiration and heart rate variability training, to encourage the client to relax while remaining alert and focused.

We do not wish to frighten the new comers but we want them to be realistic about how much time and effort it really takes to get excellent results. We ourselves are still learning literally every day and that is one reason why applied neuroscience is such an interesting field.

#### Day Two Outline

First we will answer questions arising from Day 1. Then comes definitions and demonstrations of electromyography (EMG) and peripheral Biofeedback (BFB), such as heart rate variability (HRV), noting how BFB training synergistically combines with the NFB training. The demonstrations on the second day will combine the EEG assessment with a psycho-physiological stress assessment using respiration and heart rate (used for HRV), peripheral skin temperature, electrodermal responses (EDR), and muscle tension. We emphasize how single and two channel assessments can be done to do a reliability check on 19 channel findings. A hands-on demonstration will show how 1 and/or 2 channel NFB is combined with BFB and with learning strategies to address more complex disorders that often have anxiety as a core symptom.

Asperger's, for example, commonly presents as ADHD plus anxiety and thus is used as an example. As dictated by the participants' needs and wishes, we will cover other disorders, such as seizure disorders, different types of depression, Tourette's syndrome, and head injury (TBI).

As appropriate for the group, some discussion may centre on the use of 19 channel EEG, LORETA, and Brodmann areas in deciding on appropriate intervention. Briefly we will explain how event related potentials (ERPs), MRI, SPECT, and PET scan research has broadened our understanding of what we are seeing in the EEG and the neuroanatomical basis of executive functions and affect modulation. Adding to what was just 'mentioned' during Day 1 concerning 19 channel "full cap" recording of the EEG, we will demonstrate how this is artifacted and how different montages are used to help circumvent medication effects. Participants will observe how the power spectrum shows standard deviations (SD) outside the data base norms, how brain maps are derived, and how LORETA provides the cortical source localization for EEG findings measured on the scalp, such as excessive high beta relating to anterior cingulate dysfunction.

This discussion will also emphasize how EEG and autonomic nervous system profiles differ according to symptoms, including short attention span, impulsivity, learning disabilities, movement disorders (Tourette's, Parkinson's,) Asperger's syndrome and autistic spectrum disorders), seizure disorders, head injury, anxiety, depression, pain. Examples of EEG patterns for each of these disorders may be shown as dictated by participants' interests. We will note how each clinical presentation corresponds to the EEG and LORETA findings and to our knowledge of the functional neuroanatomy (Brodmann areas) of the regions found to be outside the database norms.

Efficacy guidelines will be noted for each of the disorders discussed in the workshop with reference to the joint ISNR/AAPB guidelines.

#### References

- Thompson, M. & Thompson, L. (2003). *The Neurofeedback Book: An Introduction to Basic Concepts in Applied Psychophysiology*, Wheat Ridge, Colorado: Association for Applied Psychophysiology.
- Fisch, B.J., (1999). *Fisch and Spehlmann's EEG Primer*. New York: Elsevier.
- Hirshberg, Laurence M., Chiu, Sufen, Frazier, Jean A., (2005) *Emerging Interventions, Child and Adolescent Psychiatric Clinics of North America*, Saunders, Philadelphia, Vol 14, Number 1.
- Devinsky, Orin., Morrell, Martha, Vogt, Brent, (1995). Contributions of Anterior Cingulate Cortex to behaviour, *Brain*, 118, 279-306.
- Chan, Agnes, S., Sze, Sophia, L., and Cheung, Mei-chun, (2007). Quantitative Electroencephalographic Profiles for Children with Autistic Spectrum Disorder. *Neuropsychology*, Vol 21, No. 1, 74-81.

Iacoboni, Marco & Dapretto, Mirella (2006). The mirror neuron system and the consequences of its dysfunction. *Nature Reviews Neuroscience*, December issue, 942-951.

Thompson, M. & Thompson, L. (2007). *Neurofeedback for Stress Management*. In P. Lehrer, Woolfolk and W. Sime (Eds.) *Principles and Practice of Stress Management*, 3rd Edition. New York: Guilford Publications .

Yucha, C., Gilbert, C. (2004), *Evidence-based practice in biofeedback and neurofeedback*. Wheat Ridge, Colorado: Association for Applied Psychophysiology.

Kropotov, Juri (2009), *Quantitative EEG, Event Related Potentials And Neurotherapy*, San Diego, CA: Academic Press.

Thompson, M. & Thompson, L. (2009). Chapter 15: Asperger's Syndrome Intervention: Combining Neurofeedback, Biofeedback and Metacognition. In T. Budzynski, H. Budzynski, J. Evans, A. Abarbanel, (Eds.) *Introduction to Quantitative EEG and Neurofeedback: Advanced Theory and Applications* (second edition), New York: Academic Press, 365-415.

Thompson, M. & Thompson, L., (2009) Chapter 14: Treatment of Attention Deficit Disorders. In T. Budzynski, H. Budzynski, J. Evans, A. Abarbanel, (Eds.) *Introduction to Quantitative EEG and Neurofeedback: Advanced Theory and Applications* (second edition). NY: Academic Press, 337-364.

## **Goals/Objectives and Outline**

### **A. Knowledge:**

Understand the basic fundamental principles that underlie every-day work with clients and be able to define and discuss:

- i. Neurofeedback terminology including: 10-20 system, origin of the EEG, 5 characteristics that define every EEG waveform, types of waveforms, correspondence of bandwidth frequencies to mental states, LORETA, z-scores, Brodmann areas, coherence, and basic functional neuroanatomy.
- ii. How learning theory underlies every training session and be able to define key terms such as: operant and classical conditioning, shaping, generalization, etc.
- iii. Basic psychophysiological measures including heart rate variability (HRV), heart rate, respiration, electrodermal responses, peripheral skin temperature, electromyogram and, very briefly, the functional neuroanatomical/neurophysiological explanation for how NFB combines synergistically with BFB to optimize a client's performance.
- iv. Other terms including: Differential amplifier, impedance, optical isolation.

### **B. Assessment:**

- i. Briefly discuss the common EEG, LORETA, and/or psychophysiological findings in two or more of the following disorders including: ADHD, Autistic Spectrum Disorders (Asperger's, Autism), Movement disorders (Tourette's, Parkinson's), Anxiety Disorders, Depression, Seizures.
- ii. Briefly compare different information provided by single channel EEG assessment and be able to state when this may be sufficient, and when a 19-channel EEG assessment should be carried out.
- iii. Describe appropriate data collection procedures: electrode placement for EEG, impedance, recognizing and handling artifacts, gathering accurate statistics during different conditions including: eo, ec, reading, math and using ratios for ADHD assessment.
- iv. Recognize characteristic EEG patterns of the disorders in two or more disorders listed in b (i.) above.
- v. Identify basic psychophysiological responses to stress and patterns found in recovery from stress.
- vi. Understand in broad general terms how 19 channel assessments are done, including use of normative databases such as NeuroGuide and LORETA. and state how these assessments may broaden the diagnostic categories of clients that can be helped and increase the variables that can be addressed.
- vii. Discuss medication effects on the EEG and a method for distinguishing whether the EEG findings are influenced by medication.

### **C. Intervention:**

- i. Use assessment data to develop a rationale for intervention using neurofeedback (NFB) and combine it with biofeedback (BFB) and strategies in a responsible manner for ADHD with anxiety.
- ii. Optional: Develop an approach for optimizing performance of executives, academics, and athletes.
- iii. Describe the basic principles, cautions, uses, and methods for using alpha-theta therapy.
- iv. List and describe the potential side effects of NFB and of BFB.
- v. Discuss the efficacy guidelines for research on NFB and BFB as developed by the joint ISNR/AAPB committee and state which two disorders have the highest level of efficacy with NFB.

**Financial Interest:** Lynda Thompson is co-author of *The A.D.D. Book*. Michael & Lynda are co-authors of *Setting Up for Clinical Success* and *The Neurofeedback Book*. It is possible these books may be on sale at the meeting. The authors will state their interest in these books at the workshop.

## **Pre WS 4.1 (Tuesday) & 4.2 (Wednesday):**

# **Introduction to Gamma Induction/Beta Attunement Intervention Protocol for Intermediate and Above EEG Neurofeedback Providers – 2 Day Workshop (Lecture, Experiential, Demonstration)**

**Credits:** CME – 15, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 15, BCIA recertification – 15

**Level of Difficulty:** Basic

### **Abstract**

The GI/BA protocol is an intervention protocol developed over the past four years. Formerly known as “beta-reset,” the GI/BA intervention protocol has shown promise with cognitive, affective, and physical pathologies. Its full potential, limitations, and the understanding of its neurological potentials are still being explored. However, the purpose of this workshop is to both present and teach this protocol and several adjunct modalities, all of which have shown utility as interventions that interrupt and/or reverse the systemic activities associated with chronic and neurodegenerative disorders.

This will be a theoretical and experiential workshop with demonstrations so the participants can follow the process in real-time. Participants will have time for questions and answers throughout the two days. We will begin by discussing the role of gamma wave potentials, which naturally emanate from the occipital and parietal regions, and how we surmise its evoked and induced potentials are instrumental in the restoration of more normal frequency distribution throughout the brain. We will present and discuss several case studies that reflect the resetting activities as evidenced by the often-instantaneous recovery of the clients. We will also discuss briefly the role of stress/trauma in the development of pathologies and several adjunct modalities that help the clients resolve these entrenched and often encapsulated experiences.

This workshop is designed for experienced EEG neurofeedback users who are open to working with stress and/or trauma event reconciliation with adjunct modalities. Participants are encouraged to bring their laptop systems in order to gain some experiential practice. This protocol can be done manually; however, we anticipate that software will be available for EEGer and Thought Technology users, so that the process will run automatically. The cost of the software has yet to be determined, but will be in addition to the cost of the workshop.

### **References**

- Bauer M, Oostenveld R, Peeters M, and P Fries. (2006). Tactile spacial attention enhances gamma-band activity in somatosensory cortex and reduces low-frequency activity in parieto-occipital areas. *The Journal of Neuroscience* , 26 (2), 490-501.
- Canolty RT, Edwards E, Dalal SS, Soltani M, Nagarajan SS, Kirsch HE, Berger MS, Barbaro NM, and RT Knight. (2006, September 15). High gamma power is phase-locked to theta oscillation in human neocortex. *Science* , pp. 1626-1628.
- Fields RD. New culprits in chronic pain. *Scientific American*. November 2009. Pp. 50-57.
- Levy R, Hutchinson WD, Lozano AM, and JO Dostrovsky. (2000). High-frequency synchronization of neuronal activity in the subthalamic nucleus of Parkinsonian patients with limb tremor. *The Journal of Neuroscience* , 20 (20), 7766-7775.
- Porreca F and T Price. When pain Lingers. *Scientific American*. November 2009. Pp.34-41.
- Schiller et al. (2008) From Fear to Safety and Back: Reversal of Fear in the Human Brain. *Journal of Neuroscience* 28(45): 11517-11525.

Expanded list of references available upon request.

### **Goals/Objectives**

- Articulate three differences between what GI/BA is and what it is not, i.e., the three differences between frequency-based and intervention-based protocols
2. Understand the between evoked (phaselocked w/theta) and induced (non-phaselocked) gamma wave functions, and ERP
  3. Understanding the role and function of gamma wave activities
  4. Describe briefly the protocol and its uses, limitations, and potentials
  5. Name and describe at least three neurodegenerative disorders (NDD) from a broad spectrum of neurodegenerative disorders and articulate what we surmise are the reasons GI/BA works
  6. Articulate the difference between fibromyalgia and arthritis based on dynamic, stories, and as observed in GI/BA
  7. Articulate the six most likely observable outcomes related to the brain’s resetting with GI/BA
  8. Articulate the site selection & sequencing of the GI/BA intervention protocol
  9. Articulate the rationale for the use of GI/BA and/or other intervention protocols
  10. Articulate 3 factors for determining how and when to transition from intervention to stabilization protocol and which frequency-based protocol is most appropriate
  11. Gain an understanding on resetting functions of GI/BA, e.g., alpha/beta suppression and rebounding, REM sleep, outcomes
  12. Understand role of gamma induction and beta attunement (GI/BA) as an intervention strategy, the "resetting" functions and the role of REM sleep
  13. Understand the significance of “stories” and the emergence of trauma-event(s) memories, and introduce research on significance of this “window of opportunity” and reconsolidation of memories

14. Learn what to be aware of if protocol doesn't work and list at least three psychological factors that might inhibit a client's progress of recovery
15. Learn and articulate three types of client "resourcing" and at least two adjunct modalities and their role in resourcing the client
16. Successfully execute the basics of at least one of the adjunct modalities

## **Outline**

### Day 1

1. Intro & Background – GI/BA Intervention vs. Traditional NFT
2. Research, Demonstration #1, & Q&A
- Break
3. Chronic & Neurodegenerative Disorders (NDD)
4. Differences between NDD conditions
- Lunch
5. Follow up with demonstration participant, GI/BA overview & site selection
6. GI/BA sequencing
- Break
7. Assessments, demonstration session #2
8. Q&A, how do you determine if GI/BA or intervention strategy is appropriate

### Day 2

1. Introduction -What successful outcomes look like, when to switch to different protocols, which protocols
2. Limitations, what we know not to do
- Break
3. Demonstration #3, Q&A
4. Understanding the numbers
- Lunch

5. Hindrances to recovery
6. Introduction of Adjunct Modalities
- Break
7. Demonstration of 2 Adjunct Modalities, Q&A
8. Practice introductory skills, review, & Q&A

**Financial Interest:** No financial interest or relationship to any commercial supporters.

## **WEDNESDAY, SEPTEMBER 29**

### **Pre WS 5: The Utility of Integrating QEEG/EEG with Behavioral Information in Selecting Neurofeedback Protocols** (Lecture)

**Joy Lunt, RN, Brain Potential Inc., eegjoy@aol.com**  
**Jack Johnstone, PhD, Q-Metrx, Inc., jack@q-metrx.com**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Intermediate

#### **Abstract**

This workshop reviews the basics of EEG waveforms, including differentiating clinically important features from artifacts, drowsiness, and medication effect. Complementary information from qEEG and behavioral analyses can then be combined to provide a rational basis for neurofeedback protocols. The use of qEEG information typically relies on comparison with databases. The nature of “normative” or “reference” databases will be reviewed and the problems associated with using databases in clinical settings will be addressed. The concept of EEG phenotypes and biomarkers will be introduced to provide a framework for using EEG/qEEG information in addition to classification in behavioral diagnostic categories (e.g. “DSM”).

The development of protocols for neurofeedback is demonstrated based on integration of EEG/qEEG information and behavioral evaluation obtained by clinical interview, focusing on history and symptoms, emphasizing the core issue of behavioral and physiological arousal. A multidimensional view of arousal is discussed.

We will compare neurofeedback methods based on measures of activation, e.g. amplitude training, including sum training, and measure of connectivity, e.g. phase and coherence. The effects of reference electrode activity on coherence measures will be emphasized. In particular we will show when it is important not to reward increased coherence.

#### **References**

- Johnstone, J. A Three-Stage Neuropsychological Model of Neurofeedback: Historical Perspectives, *Biofeedback*, 2008, 36 (4), 142-147.
- Johnstone, J., Gunkelman, J., and Lunt, J. Clinical Database Development: Characterization of EEG Phenotypes, *Clinical Electroencephalography and Neuroscience*, 2005 36 (2), 99-107.
- Johnstone, J. and Gunkelman, J. Use of databases in QEEG evaluation. *Journal of Neurotherapy*, 2003, 7(3/4).
- Johnstone, J. Effects of Antidepressant medication of the EEG. *Journal of Neurotherapy*, 2002 5, 93-97.

#### **Goals/Objectives**

- Recognize common EEG patterns.
- Understand the importance of non-cerebral artifact, medication effects, drowsiness and sleep.
- Gain familiarity with EEG phenotypes concept.
- Understand use of qEEG databases.
- Generate neurofeedback protocols by integrating patient information, EEG findings, and qEEG features.
- Approaches to neurofeedback training: global, regional, and connectivity.
- Appropriate use of coherence information.

#### **Outline**

- Basics of reading EEG: montages, transients, background - 60 mins.
- Common EEG artifacts - 30 mins.
- Effects of medications - 30 mins.

Drowsiness and Sleep - 30 mins.  
EEG Phenotype Model - 60 mins.  
Use of qEEG Databases - 60 mins.  
Generate neurofeedback protocols by integrating patient information - 90 mins.  
Arousal based model for NF - 60 mins.  
Regional model for NF - 30 mins.  
Connectivity and Coherence model - 30 mins.

**Financial Interest:** Dr. Johnstone owns Q-Metrx, Inc. Joy Lunt owns Brain Potential, Inc.

**Pre WS 6: Suicide Risk Assessment and Management:  
Interviewing, Documentation and Safety Planning  
(Lecture, Experiential – Role Playing)**

**Dan Meyer, PhD., Hudson Valley Center for Neurofeedback, bfnfdrdan@aol.com**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Basic

**Abstract**

Completed suicides have been increasing among various sectors of the US population, including young people, the economically stressed and returning veterans. Clinicians working with members of these groups or with clients suffering from depressive and/or bipolar disorders must be able to accurately assess the likelihood of suicidal intention and planning. Successful assessments will reduce the likelihood of completed suicides and will enable clinicians to document efforts toward preventing suicide. Accurate assessments lead to useful and defensible safety planning. Safety planning may engage just the client, members of his/her family, or other sectors of the community at large. The prevention of suicide is the first priority of clinicians working with at risk groups. This presentation will identify: those at risk for completed suicides; the best practice approach to interviewing to assess risk; documentation supporting this work; safety plan development; and malpractice risk reduction. Health and mental health professionals will benefit from participating in this workshop.

**References**

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Berman, A.L., Jobs, D.A., and Silverman, M.M. (2005). Adolescent suicide: Assessment and Intervention. American Psychological Association: Washington, D.C.  
Jobs, David A., and Shneidman, Edwin S. (2008). Managing suicidal risk: A collaborative approach. Guilford Press: New York.  
Kutcher, Stan and Chehil, Sonia. (2006 ). Suicide risk assessment: A manual for health professionals. Blackwell: Massachusetts.  
Quinnett, Paul. (1993 ). Suicide: The forever decision...for those thinking about suicide, and for those who know, love or counsel them. Crossroad/Herder and Herder: New York.

Valuable web sites:

[www.nimh.nih.gov](http://www.nimh.nih.gov)  
[www.afsp.org](http://www.afsp.org)  
[www.suicidology.org](http://www.suicidology.org)  
[www.survivorsofsuicide.com](http://www.survivorsofsuicide.com)  
[www.who.int/en](http://www.who.int/en)  
[www.suicideknowmore.com](http://www.suicideknowmore.com)  
[www.suicidepreventionlifeline.org](http://www.suicidepreventionlifeline.org)

**Goals/Objectives**

Identify the demographics of suicide risk groups: including gender, age, race, substance abuse and mental health status.  
Conduct an interview that will help to indicate the level of suicide risk  
Learn to create documentation of the assessment and safety planning efforts.  
Understand the value of safety plan.  
Engage in role plays that will reveal risk factors and levels.  
Use the question, persuade, refer intervention methodology to determine and protect clients at risk.  
Recognize the threat of malpractice issues and identify ways to minimize the risk of malpractice.  
Take a pre and post test assessment for the purposes of certification if desired.

**Outline**

Knowing what you don't know - 60 mins.

The epidemic of suicide in the United States - 60 mins.  
The why and how of interviewing for suicide risk - 60 mins.  
The roles of gender, age, race, substance abuse, and mental illness in suicide risk - 60 mins.  
The purpose of thorough assessments - 60 mins.  
Being a responsible clinician and safety guide - 60 mins.  
What is a good safety plan given risk - 60 mins.  
Role plays, questions and answers, and post assessment - 60 mins.

**Financial Interest:** I am certified to teach this course by the QPR Institute. They will receive a fee for the course materials. That fee goes directly to the company.

## **Pre WS 7: The Power is in the Squiggles: The Fine Art of Mastering and Appreciating the Analog EEG Recording** **(Lecture)**

**Marvin Sams, ND, The Sams Center, drsams@thesamscenter.com**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Basic to Intermediate

### **Abstract**

Much has been said about using the Quantitative EEG (QEEG) to shape Neurofeedback training strategy protocols. Yet, in the presenter's experience, some 80% of the information available to the clinician is often found, not the QEEG analysis and reference database reports, but in the Analog ("clinical" or "raw") EEG data. To add even greater importance to the EEG recording, if artifacts and state changes are not identified and corrected during the data collection and the EEG is not carefully edited before submission to the database, spurious but valid appearing deviations may cause inappropriate training decisions. This workshop, taught by a Registered EEG Technologist (ABRET) with over four decades of clinical and research EEG experience, is designed to help you more efficiently evaluate the critical 80% and to feel confident that QEEG analysis and database reports contain valid data. Questions to be explored include: How does one determine whether a particular waveform is artifact or cerebral activity? What makes a particular EEG pattern normal or abnormal? What is the important difference between a neurological inefficiency and a neurological abnormality? What techniques will give you the greatest chance of revealing a "hidden" neurological problem? How do drugs influence the EEG and what can be done about it? When must you refer a client to a neurologist? Emphasis is placed on the EEG patterning with numerous examples being shown.

### **References:**

Electroencephalography: Basic Principles, Clinical Applications, and Related Fields by Ernst Niedermeyer and Fernando Lopes da Silva.  
Clinical Electroencephalography and Topographic Brain Mapping: Technology and Practice by Frank H. Duffy, Vasudeva G. Iyer, and Walter W. Surwillo.  
American Society of Electroneurodiagnostic Technologists Reprint Series – Available at [www.aset.org](http://www.aset.org).

### **Goals/Objectives**

Understand the various types of electrodes.  
Rapidly analyze the EEG patterning for normal, abnormal, and artifactual patterning.  
Learn quick and easy ways to determine whether a particular EEG pattern is cerebral or extracerebral (artifact).  
Learn the important clinical differences between normal, abnormal, and neurologically inefficient EEG activity.  
Understand the types of task activation.  
More optimally display EEG activity for quick and easy analysis: Referential versus Sequential recording.  
Gain a new understanding of the value of the Analog recording over the QEEG and database reports.  
Gain a better understanding of the influence of drugs on the EEG.

### **Outline**

Introduction - 15 mins.  
Recording the EEG – Electrodes, Electrode placement, Instrumentation, and Montages - 90 mins.  
Principles of Localization - 30 mins  
The Normal EEG - 45 mins.  
The Abnormal EEG - 45 mins.  
The inefficient EEG - 45 mins.  
Artifacts – Dandelions in the lawn of EEG - 45 mins.

Describing the EEG - 30 mins.  
Drug Effects - 15 mins.  
Activation Procedures - 30 mins.  
Application of Principles - 90 mins.

**Financial Interest:** No financial interest.

## **Pre WS 8: The Emerging Technologies of Stimulation: Audio-Visual Entrainment, Cranio-Electro Stimulation and Transcranial DC Stimulation - Physiology and Clinical Outcomes**

**(Lecture, Experiential, Demonstration)**

**David Siever, CET, Mind Alive, Inc., [info@mindalive.com](mailto:info@mindalive.com)**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Intermediate

### **Abstract**

Stimulation modalities of Audio-visual Entrainment (AVE), cranio-electro stimulation (CES) and transcranial DC stimulation (tDCS) have been in clinical use for several decades.

Since the discovery of photic driving by Adrian and Matthews in 1934, much has been discovered about the benefits of brainwave entrainment (BWE) or audio-visual entrainment (AVE), as it is commonly known today. The first clinical applications of AVE are the credit of Sidney Schneider who developed the first photic stimulation device called the Brain Wave Synchronizer in 1958 and prompted the first research. AVE affects cerebral blood flow, neurotransmitters, dissociative states and brainwave activity. Research on the effectiveness of AVE in promoting relaxation, cognition and hypnotic induction, treating ADD, PMS, SAD, PTSD, migraine headache, chronic pain, anxiety, depression and episodic memory is now available.

As far back as the first century, the Greeks and Romans used the electric eel, a variety of the “torpedo fish” for electrical stimulation. Current interest in CES was initiated by Robinovitch, who, in 1914, made the first claim for electrical treatment of insomnia. In 1958, the book *Electro-Sleep* inspired research in Europe and in Eastern Block countries, as well as in South America, Asia and finally the US. Roughly 130 studies have been published on CES. Most of the roughly 130 studies have shown CES as a reliable method to reduce anxiety, depression, pain, improve sleep, and improve cognition and IQ.

In 43 to 48 AD, Scribonius Largus, the physician of Roman emperor Claudius, observed that placing a large torpedo fish (electric eel) over the scalp of a patient suffering with headache, elicited a sudden transient stupor with pain relief. A major advantage of tDCS is that the cortical activity over a specific site on the brain may be enhanced or suppressed, much like NF. Dozens of studies on, tDCS have been published to date.

All maladies are the result of dysarousal on a physical or cortical level. This course covers both physical and cortical arousal issues and how stimulation technologies can restabilize one’s arousal. This course will teach the physiological mechanisms (neurotransmitter effects, brain waves, cerebral blood flow, dissociation) by which AVE and CES act on and the clinical outcomes of each.

This course is particularly of benefit to those who have been practicing with a clinical population for some time and realize the need for some more innovative tools in their tool chest. This applies to nurses, MDs, hypno-therapists, biofeedback and neurofeedback practitioners.

### **References**

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- Thomas, N., Siever, D. (1989). The effect of repetitive audio/visual stimulation on skeletomotor and vasomotor activity, 238-245. In Waxman, D., Pederson, D., Wilkie, I., & Meller, P. (Eds.) *Hypnosis: 4th European Congress at Oxford*. Whurr Publishers, London.

### **Goals/Objectives**

- Understand a wider perspective on the causes of arousal dysregulation.
- Understand the physiological mechanisms of AVE/BWE and the studies that have shown efficacy.
- Learn about using AVE for heart-rate variability and ADD/ADHD.
- See and understand AVE in action.
- Learn about the physiological mechanisms of CES and the studies that have shown efficacy.
- Learn about the physiological mechanisms of transcranial DC Stimulation and the studies which support tDCS.
- Experience and understand tDCS.

### **Outline**

- How genetics, life experiences, nutrition and prenatal factors affect arousal - 80 mins.
- We will review QEEGs and observe how arousal is reflected in the brainwaves - 30 mins.
- We will learn about the physiological mechanisms of AVE - 30 mins.
- We will review the previous research on AVE - 30 mins.
- We will review research using AVE to treat ADD/ADHD - 25 mins.
- We will see how AVE affects heart rate variability - 20 mins.
- We will learn to breathe to the AVE breath pacer - 20 mins.
- We will see a demo of AVE & CES - 50 mins.
- We will learn the theory of operation of CES - 10 mins.
- We will review the research on CES - 15 mins.
- We will learn about the theory of operation of tDCS - 25 mins.
- We will review the research involving tDCS - 20 mins.
- We will learn how to operate the equipment - 30 mins.
- We will experience AVE, CES and tDCS - 95 mins.

**Financial Interest:** I have a financial interest in Mind Alive, Inc.

## **Pre WS 9: Live Z Score Training and QEEG** **(Lecture, Experiential)**

**Mark Smith, MSW, Private Practice, [marksmith50@verizon.net](mailto:marksmith50@verizon.net)**  
**Thomas Collura, PhD, BrainMaster Technologies, Inc., [tomc1@brainmaster.com](mailto:tomc1@brainmaster.com)**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Basic to Intermediate

### **Abstract**

This workshop will demonstrate the clinical utility of combining QEEG recording and assessment with Z score training. Participants will experience hands-on recording and analysis of EEG and QEEG data using BrainMaster Discovery 24E hardware and software. This workshop is designed for clinicians, researchers, and QEEG professionals who are or will be using QEEG and Z score training. Workshop attendees will learn how to set up and record EEGs, assess the quality of the results, read the records into analytic software including NeuroGuide, to review EEG, to create and interpret reports, and execute full cap Z score training.

The practicum portion of the workshop will include neurofeedback training using the Discovery 24E, Atlantis, and BrainMaster software, as well as NeuroGuide Live software. 4-channel and 19-channel Z Score training will be demonstrated, using both types of software.

Workshop attendees are encouraged to bring computers, amplifiers, and EEG supplies. Participants are invited to bring in previously recorded QEEG files.

### References

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### Goals/Objectives

- Understand the practice of recording, reviewing and processing EEG to produce valid reports.
- Inspect the raw trace to identify what is being revealed in the EEG, recognize state changes, normal variants, and paroxysmal activity. Expertly differentiate muscle and other artifact from paroxysmal activity and use automated, as well as, manual procedures for selection of artifact-free EEG.
- Proficiently interpret QEEG data using a wide range of NeuroGuide features including re-montaging, LORETA, and Phase Reset.
- Utilize data from QEEG maps in developing Z score training strategies.
- Appreciate the clinical application of multivariate proportional(%ZOK) versus targeted Z score strategies.
- Use BrainMaster and NeuroGuide software to map and train in a one hour clinical contact.

### Outline

- Basics of QEEG setup and recording - 60 mins. Collura
- Inspecting raw EEG - 30 mins. Collura
- Recognize and remove Artifacts - 30 mins. Collura
- Read and interpret EEG and QEEG - 60 mins. Collura
- Importing EEG into NeuroGuide - 30 mins. Collura
- Data collection directly into NeuroGuide - 30 mins. Smith
- Demonstration of rapid QEEG assessment and Z score training - 60 mins. Smith
- Practicum - 120 mins. Smith

**Financial Interest:** Mark Smith is an instructor for Stress Therapy Solutions, a subsidiary of BrainMaster Technologies, Inc. Thomas Collura is the President of BrainMaster Technologies, Inc.

## **Pre WS 10: Gamma: The New Frontier** **(Lecture, Experiential, Demonstration)**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Intermediate

### **Abstract**

Frequencies above 30 Hz have traditionally been given very little attention because of their small amplitude at the scalp, and the potential for confusing them with EMG. However, they may hold the key for understanding and improving learning, awareness, happiness, and even love.

This workshop will review recent studies which have shown a strong connection of the 40 Hz rhythm to cerebral energy consumption, associative learning, awareness, and the event binding rhythm. It will put forth the hypothesis that there is a brain system for understanding new events and learning about them which involves the 40 Hz rhythm.

Furthermore, the prefrontal 40 Hz rhythm may be associated with positive feelings that act as a reward for new learning and encourage continuing on the path of discovery. We will present evidence from three recent studies including Rubik (in press) using a clarified 40 Hz rhythm (Neureka!) which minimizes the problems with measurement. These studies show that there is a selective relationship between Neureka! and happiness, joy, pleasure, delight, love, awareness, mindfulness, gratitude, and satisfaction.

We will present the results of a recent study involving a 12-session intervention with the Neureka! Protocol. In this pilot research study 12 subjects participated in 12 weekly 30 minute long sessions of neurofeedback training aimed at Neureka! enhancement. Feedback was arranged in a form of audio-visual stimulation: Neureka! parameters controlled a DVD with a documentary film about nature. Subjective reports about perceived happiness rating were acquired on-line using the Continuous Response Digital Interface (CRDI, Geringer et al., 2004) dial. Self-reports on Happiness and Life Satisfaction scores (Siahpush et al., 2008) were collected before and after completion of neurofeedback course. Our results showed positive correlation of perceived happiness and Neureka! scores, increased rating of happiness and life satisfaction, and decreased depression scores on BDI-II (Beck et al., 1996) at the post-neurofeedback evaluation stage.

We will describe application of evoked gamma oscillations induced in response to stress-and drug-related images in a visual cue reactivity test in patients with substance use disorder and PTSD. Excessive power of gamma activity at the frontal and parietal topographies in response to salient drug and stress cues in dual patients is indicative of attentive orienting and activation of drug-related representations. We will discuss the potential usefulness of the measure of evoked gamma as an outcome of neurofeedback training in patients with substance use disorder comorbid with PTSD (Sokhadze et al., 2009).

Another application of evoked gamma activity is to investigate ability of children with autism spectrum disorder to differentiate target and non-target stimuli in an illusory figure tests known to readily induce gamma response. In particular we will report application of evoked gamma reactivity to illusory figures in children with autism undergoing treatment based on repetitive transcranial magnetic stimulation (rTMS) and neurofeedback (Sokhadze et al., 2008). We will discuss the utility of evoked and induced gamma oscillatory responses as sensitive functional diagnostics measures of potential clinical outcomes.

We will demonstrate the only neurofeedback system which can measure Neureka! and give participants a chance to explore the many relationships between their subjective experiences and Neureka!

The implications of using gamma-based neurofeedback for improving emotions, learning, memory, awareness, and mindfulness are quite remarkable. We will facilitate a group discussion on the many possibilities.

### **References**

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Sokhadze, E., Stewart, C., El-Baz, A., Hollifield, M., & Tasman, A. (2009) Induced EEG gamma oscillations in response to drug-and stress-related cues in addicts and patients with dual diagnosis. Presented at the 17th annual conference of International Society for Neurofeedback Research, September 2-4, Indianapolis, IN.

### **Goals/Objectives**

Become familiar with the neurobiology of gamma EEG activity and brief history of 40 Hz neurofeedback.

Understand functional significance of gamma rhythm.

Compare different application using spontaneous, evoked and induced gamma oscillations.

Understand that the brain's 40 Hz. system combines the enhancement of awareness, learning, memory, and positive emotional states to process and reward new learning.

Describe neurofeedback protocols based on gamma activity self-regulation training.

Describe utility of gamma neurofeedback for peak performance and for clinical applications.

Describe ways of using gamma measurement to quantify aspects of autism and addiction.

### **Outline**

Historical perspectives of 40 Hz rhythm applications in neurophysiology and neurofeedback - 1 hour Cowan

Neurobiology of gamma and functional significance of spontaneous, evoked and induced gamma - 1 hour Sokhadze

Gamma rhythm (Neureka!) and emotional states -review of theory and experimental data - 1 hour Cowan

Neurofeedback training aimed to regulation of attention and emotional state - 1 hour Sokhadze

Application of evoked gamma measures in substance use disorder and PTSD research - 1 hour Sokhadze

Application of evoked and induced gamma in autism research and TMS clinical trial - 1 hour Sokhadze

Demonstration of BrainHappiness application and Neureka! treatment protocol - 1 hour Cowan

Discussion of potential application of 40 Hz based protocols for treatment and functional diagnostic - 1 hour Cowan

**Financial Interest:** Jon Cowan is owner of Neurotek LLC, R&D and manufacturer of Peak Performance Trainer, he has financial interest in device and protocol products. Estate Sokhadze has no financial interest.

## **Pre WS 11: Basics of the QUICKQ Assessment and Braindriving** **(Lecture, Demonstration)**

**Paul Swingle, PhD, Psychoneurophysiology, [pswingle@swingleandassociates.com](mailto:pswingle@swingleandassociates.com)**

**Credits:** CME – 7.5, American Psychological Association, NBCC, ASWB and CA Board of Behavioral Sciences– 7.5, BCIA recertification – 7.5

**Level of Difficulty:** Basic

### **Abstract**

This workshop introduces the QuickQ and Braindryvr methods. Each topic is designed to help newcomers learn what has been shown to work from experience and research. Participants learn how to record the QuickQ and to interpret the results. Methods for probing the client based on comparisons with the QuickQ clinical data base are reviewed and many cases are studied to help participants learn how to capably use this remarkably efficient intake procedure. The details associated with selecting appropriate unconditioned stimuli for braindriving are reviewed and the methods for administering the less complex Braindryvr protocols are shown. Unique concerns regarding treating clients with severe emotional trauma, chronic depression and those who are heavily medicated are reviewed.

### **References**

Swingle, P.G., (2008) Biofeedback for the Brain, Rutgers University Press.

Swingle, P.G., (2008) Basic Neurotherapy: The Clinician's Guide, Vancouver, Soundhealth Products.

### **Goals/Objectives**

Record QuickQ.

Interpret QuickQ.

Conduct intake session.

Develop treatment plan.

Learn treatment strategy for neurofeedback.

Learn when to use braindriving.

Learn how to use brain driving protocols.

### **Outline**

The basics of the QuickQ rapid intake assessment Q - 30 mins.

Client probes based on the comparisons with the clinical QuickQ database - 60 mins.

Case reviews showing various disorders identified by the QuickQ - 60 mins.

Development of treatment plans for the neurofeedback component of treatment - 45 mins.

Special considerations for severe conditions including emotional trauma, severe depression, chronicity, heavily medicated clients - 90 mins.

Basics of braindriving - 60 mins.

Selection of unconditioned stimuli for braindriving - 45 mins.

Case reviews of braindriving - 60 mins.

Adjunctive treatment procedures - 30 mins.

**Financial Interest:** I receive royalties from the Biofeedback Foundation of Europe for software sold and for courses I teach for this organization, on-line.