

## FROM THE EDITOR

# Case Studies in Biofeedback and Neurofeedback

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The cover of this issue of *Biofeedback* shows “Springtime in Savannah,” a reminder that the 45th annual meeting of the Association for Applied Psychophysiology and Biofeedback will take place in Savannah, Georgia, from March 19 to 22, 2014. Mark your calendars now, and plan to attend this meeting dedicated to the theme: *Applied Psychophysiology Comes of Age*.

### Professional Issues

Paul Lehrer, PhD, President of the Foundation for Education and Research in Biofeedback, (FERB), opens this issue with an update on FERB activities. Last year, FERB funded the attendance of 40 students at the AAPB Portland meeting. This is three times the number funded in most previous years. FERB is dedicated to building the future in biofeedback by enabling students to attend the AAPB meeting and supporting student research. FERB deserves AAPB members’ full financial support.

Judy Crawford and Fred Shaffer provide an update on the Biofeedback Certification International Alliance (BCIA). BCIA has streamlined the requirements for recertifying, with reduced continuing education (CE) requirements, and a reduced fee for persons who maintain a second BCIA certification (for example, biofeedback and neurofeedback). There are also new online avenues, including approved Massive Open Online Courses, for obtaining CE hours for recertification. There is also a new free BCIA job board to help employers find certified practitioners, and to help the practitioners find employment!

### Special Issue Articles: Case Studies in Biofeedback and Neurofeedback

Michael Thompson, Lynda Thompson, Andrea Reid-Chung, and James Thompson provide an overview of the symptoms and neuropathology of mild traumatic brain injury, or postconcussion syndrome. They also introduce a comprehensive assessment process, including quantitative electroencephalogram (EEG), evoked potentials, heart rate variability, neuropsychological testing, and blood and

urine testing. Finally, they outline an approach using neurofeedback, heart rate variability (HRV) biofeedback, and counseling for the treatment of mild traumatic brain injury.

In a companion article, Tanushree Bhandari, Lynda Thompson, and Andrea Reid-Chung summarize the extended biofeedback and neurofeedback treatment of Mike, a 27-year-old survivor of a motor vehicle accident. Mike suffered severe headaches, limited mobility of his left arm and shoulder, and extensive cognitive and affective disturbance. The authors describe their assessment of Mike, drawing on a single channel quantitative EEG profile, a 19-channel quantitative EEG analyzed using the Neuroguide® database, two continuous performance tests, and several self-rating questionnaires. The treatment team has provided both neurofeedback and HRV biofeedback to Mike over a period of six years. He has continued to improve in cognitive, affective, and physical functioning over that time period, so treatment was continued. There was also considerable normalization in both cortical activation patterns and HRV.

Jeffrey Bolek and Sarah Fultz provide a case study describing the use of quantitative surface electromyography (SEMG) in the treatment of Ann, a preschool age child with a rare genetic disorder. The treatment involved setting goals so that when four muscles—the left and right gluteus maximus and quadriceps muscles—activated within a desired range, a video played and rewarded Ann. Bolek describes the many challenges of working with a child so young, with limited readiness for social interaction, with a number of undiagnosed medical challenges. Nevertheless, 12 sessions of biofeedback enabled Ann to master necessary muscle control and learn to stand. Quantitative SEMG offers hope for many severely disabled children affected by a variety of genetic and accident-related neuromuscular disorders.

Aaron Klein and Erik Peper provide a case study of James, a 23-year-old college student suffering treatment resistant psoriasis over a 5-year period. Klein and Peper

designed a treatment program drawing on familiar elements which Peper had used in self-regulation training for college students: a biofeedback baseline, autogenic training, effortless breathing, stress reduction education, and self-monitoring of symptoms. Whenever James detected the onset of itching, an urge to touch the psoriatic plaques, or self-critical thinking, he engaged in relaxed breathing and autogenics, as well as a quick assessment of his self-talk (inner dialogue). James showed a dramatic clearing of the skin eruptions, a positive shift in his self-talk, and a reduction in the anxiety he experienced whenever he touched his skin. The case study shows that consistent application of basic biofeedback and self-regulation can often provide relief for stress-related conditions when medical treatments fail.

### Feature Article

Andrea Meckley provides an overview of the use of capnographic biofeedback in breath training. She summarizes the physiology of breathing, and emphasizes the physiological and psychological costs of dysfunctional breathing. She highlights the variety of devices available to assist respiratory biofeedback, and then identifies the advantages to be gained by using a capnometer in clinical

biofeedback. She reviews some of the capnometry systems available today, and introduces her approach to using a capnometer in assessment and treatment.

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### Proposal and Abstracts

*Authors are invited to submit case studies illustrating any application of biofeedback, neurofeedback, or self-regulation oriented therapies, for the Spring 2014 issue of Biofeedback. Articles are also welcome for a special issue on The Assessment and Treatment of Attention Deficit, Hyperactivity, and Related Disorders for Summer 2014.*