FROM THE EDITORS

Special Issue: Advances in the Use of Quantitative Electroencephalography and Neurofeedback

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The cover of this Fall 2012 issue of Biofeedback shows a view of Portland, Oregon, which will be the scene for the March 13–16, 2013 annual meeting. The meeting theme is Creating Synergy: Integrating Methods and Modalities. This special issue focuses on advances in the applications of quantitative electroencephalography (QEEG) and neurofeedback. The issue will give the reader an idea of the scope today of neurofeedback practice. The disorders addressed by these articles range from attention deficit disorder and oppositional and defiant disorder to nocturnal enuresis to dysgraphia. I extend my special thanks to John Davis and Roger DeBeus who served as special editors for this issue.

Professional Issues
Fredric Shaffer, Judy Crawford, and Donald Moss provide an article on the role of the mentor in the Biofeedback Certification International Alliance (BCIA) certification process. BCIA requires a specified number of mentoring hours with a BCIA-certified biofeedback practitioner for whichever of its three certification pathways the candidate selects—certification in general biofeedback, neurofeedback, and pelvic floor muscle biofeedback. Mentors take the student of biofeedback beyond the textbook and the knowledge of instrumentation, to examine the practical application of biofeedback and neurofeedback interventions for human beings with a variety of complaints and treatment goals.

Special Issue: Quantitative Electroencephalography and Neurofeedback
This special issue opens with a case study by Dianne Winkelmolen, Vera Kruiver, and Martijn Arns in The Netherlands, applying a combination of neurofeedback and cognitive behavior therapy with an 11-year-old girl diagnosed with attention deficit hyperactivity disorder (ADHD) and oppositional and defiant disorder (ODD). The authors utilized a QEEG assessment to identify training goals. After 31 sessions of neurofeedback, the girl no longer met diagnostic criteria for ADHD and ODD, and showed significant improvements in neuropsychological measures and event-related cortical potentials.

Nocturnal enuresis (bed-wetting) was one of the first disorders successfully treated with biofeedback, in the form of a bed-wetting alarm (Mowrer & Mowrer, 1938). Jonathan Walker provides an alternative treatment using a neurofeedback protocol guided by QEEG. He reports on the QEEG assessments and identifies a consistent abnormality in individuals with enuresis, not present in those without enuresis, an excess of low frequency cortical activity at Oz (the occipital vertex). He describes positive treatment outcomes of 11 enuretic individuals, aged 4 to 70 years; all participants in this clinical series achieved a cessation of the enuresis with no recurrence for 12 months or longer. It is truly remarkable when a study such as this identifies a consistent cortical marker present in a clinical sample of patients with a medical-behavioral disorder such as enuresis, and when remediation of this abnormality produces durable clinical improvement. This report calls out for replication studies.

Dysgraphia is a disturbance in written language expression appearing in childhood. The presence of dysgraphia contributes to general academic performance problems and undermines adult achievement. Jonathan Walker reports on a study of 25 individuals with dysgraphia, which began with a QEEG assessment. In each case abnormalities were found in frontal and/or central areas, specifically at C3 or F3 in the International 10–20 system; the abnormalities consisted of excesses in slow or fast wave activity in these areas. Neurofeedback was undertaken to “down-train” specific abnormalities in the QEEG. (Two individuals underwent the QEEG but declined neurofeedback.) The 23 individuals who completed training showed significant improvement in handwriting, as measured by a modified Checklist of Written Expression. The 2 participants who declined neurofeedback showed no improvement in written expression.
Feature Articles
David Siever provides an overview of the application of audio-visual entrainment (AVE) to college student populations for stress management and academic performance. Siever discusses the links between stress and cortical arousal, as well as the link between stress and neurochemicals. He highlights the complex learning challenges facing the college student, and the importance of optimizing cortical activation for information processing. He reviews a series of studies applying AVE to learning, which showed improved concentration, enhanced memory, elevations in grade point average, and a reduction in worry. He concludes that AVE is a useful and inexpensive tool for work with college students.

Eric Peper and I-Mei Lin discuss the links among body posture, movement, and mood. The article is critical of the narrow focus of mainstream mental health care, which attends almost exclusively to neurochemicals and cognitions in the treatment of depression, and ignores other factors contributing to mood. Peper and Lin report on a study of 100 undergraduate students who were rated on their general depression level, and then guided to participate in a series of prescribed postures and movements. The students self-rated their subjective energy level and mood at baseline and after each sequence of movements. Generally, the students showed a decrease in subjective energy after moving in a slouched posture with head downcast, and an increase in subjective energy after engaging in a skipping/cross-crawl movement. The decrement in energy with slouched walking was greater for those students who rated themselves as most depressed at baseline. The positive energy effects of skipping/cross-crawl were significant across groups, regardless of self-rated mood. Peper and Lin acknowledge limitations in their study, but call for more attention in research and clinical practice to the variables of posture and movement and their links with mood.

Reference

Proposal and Abstracts
Authors are invited to submit manuscripts on any topic in applied psychophysiology and biofeedback. Articles are welcome presently for a special issue on *The Promise of Cardio-Plasticity: Psychophysiological Approaches to Cardiovascular Rehabilitation for Spring 2013*, an issue on *Advances in Pediatric Applications of Biofeedback and Self-Regulation in Summer 2013*, and an issue on *Advances in the Science and Practice of Heart Rate Variability Biofeedback* for Fall 2013.