

FROM THE EDITOR

Advances in the Use of Neurofeedback with Traumatic Brain Injury

Donald Moss, PhD

The cover of this Fall issue of *Biofeedback* shows a view of the beautiful Town and Country Resort Hotel in San Diego, the scene for Association for Applied Psychophysiology & Biofeedback's 2010 Annual Meeting. Mark your calendars now for the Workshops (March 24–25, 2010) and the Annual Meeting (March 25–27, 2010).

Each year in the United States, approximately 1.5 million people sustain a traumatic brain injury (TBI). About 5.3 million Americans live with a disability related to TBI, and each year 80,000 additional persons become disabled with TBI (Centers for Disease Control and Prevention, 1999). Today's conflicts in Iraq and Afghanistan make this topic timely, as the "signature" injury in these conflicts is a "blast injury," the explosion of roadside bombs, often causing both traumatic brain injury and post-traumatic stress disorder. This issue includes a special section highlighting the danger and adverse effects human beings suffer from undiagnosed TBI, and emphasizing the effectiveness of the quantitative electroencephalograph (QEEG) in improving the identification, assessment, and treatment of TBI.

Professional Issues

Fred Shaffer and Judy Crawford provide an article "What Has the Biofeedback Certification Institute of America Been Up To?" They highlight the efforts of BCIA to involve certificants in strategic planning, to strengthen BCIA's advocacy for the profession, to streamline the certification process, and to identify initiatives to add value to the BCIA credential.

Sebastian Striefel addresses ethical principles guiding the neurofeedback assessment and treatment of TBI. He cites the accumulation of research and clinical evidence, which justifies the ethical use of neurofeedback and QEEG in the diagnosis and treatment of TBI. The acceptance of QEEG by the Department of Defense, Veterans Administration, and National Institutes of Health as part of the standard of care for TBI gives additional credibility for neurofeedback and QEEG. Striefel emphasizes the practitioner's need to remain current on clinical and research data on TBI.

Special Issue Articles: Advances in the Use of Neurofeedback with Traumatic Brain Injury

The special issue on TBI opens with a report from Ronald Swatzyna, who narrates his personal history with mild traumatic brain injury (MTBI) and then discusses the challenges of identifying and diagnosing MTBI. He describes the use of QEEG to assess MTBI and typical cortical activation patterns and clinical indicators evident in individuals with MTBI. He uses two case studies of boys with nondiagnosed MTBI to illustrate the challenges in identifying such cases.

Next, Kirtley Thornton advocates an approach he calls the Coordinated Allocation of Resources (CAR) model, which states that individual cognitive tasks involve specific frequencies and locations for successful performance. The CAR model provides guidance for neurofeedback treatment, focusing training at specific locations and frequencies. He provides a case study of a 30-year-old male who suffered TBI in a motor vehicle accident and showed significant improvement in several areas of cognitive function with neurofeedback treatment.

Sara Hunt Harper describes the use of the Low Energy Neurofeedback System (LENS) in the treatment of an acquired brain injury (ABI), secondary to cardiac arrest. Her article, first of all, reminds us that brain injuries are not all traumatic; they can be acquired through many medical illnesses. Second, this article reports on a successful outcome with the LENS approach, developed by Len Ochs, one that is now receiving wide acceptance in the neurofeedback field.

Stephen Larsen has also provided an article on the use of the Low Energy Neurofeedback System (LENS) with traumatic brain injury. Larsen emphasizes the multiple sources of trauma to the brain, and the variety of ways in which brain trauma impacts human functioning. He presents a conceptual understanding of LENS treatment. A future article by Larsen will report on three clinical cases applying LENS to TBI.

Jay Gunkelman provides a clinical vignette involving his own father, who suffered a fall on ice in the North Dakota winter. Jay narrates the saga for his father and the family as his father developed decreased speech fluency and word-

finding difficulties. The initial ER visit was unremarkable, but the medical team neglected to conduct a CT scan, which should be routine in older individuals with a blow to the head. Reevaluation disclosed an undiagnosed subdural hematoma of such size that it compressed the entire left hemisphere. The case provides a lesson in neuropsychology for the reader, and a caution about not ignoring mental status symptoms when they occur.

Feature Articles

Michael Wong of Hong Kong discusses the use of “limb position biofeedback” to address patellafemoral pain. He describes a configuration of readily available biofeedback instruments, including an electronic goniometer, to provide this feedback on limb position and reports on the use of this biofeedback system with three individuals to correct knee valgus.

In addition, Imei Lin and Erik Peper contribute an article highlighting the electromagnetic interference that cell phones produce in physiological recordings. They report on an experiment measuring the effects of such interference on surface electromyography (SEMG). Their article also touches on the health risk associated with cell phone use.

Color Figures and Photos

Because color images play an increasingly central role in the fields of neurofeedback and biofeedback, especially in spectral displays and QEEG-based brain maps, selected figures from articles in *Biofeedback* magazine that require color for clear understanding will now be posted on the AAPB Web site, along with the articles, at www.aapb.org/magazine.html.

References

Centers for Disease Control and Prevention (1999). Traumatic brain injury in the United States: A report to Congress. Washington, DC: Department of Health and Human Services and Centers for Disease Control and Prevention. Retrieved May 26, 2009, from www.cdc.gov/ncipc/tbi//tbi_congress/tbi_in_the_us.pdf



Donald Moss

Proposals and Abstracts

Authors are invited to submit manuscripts on any topic in applied psychophysiology and biofeedback. Articles are welcome presently for special issues on *Biofeedback Applications in Medical Settings* for Winter 2009, *Advances in the Use of Surface Electromyography* for Spring 2010, and *The Psychophysiology of Yoga, Meditation, and Spiritual Practices* for Fall 2010. Proposals and abstracts are also invited for additional topics for future special issues of *Biofeedback*.