

## FROM THE EDITOR

# Special Issue: Advances in the Use of Biofeedback and Neurofeedback for Optimal Performance

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### Editors' Introduction

The cover of this Spring 2011 issue of *Biofeedback* shows a view of the Olympic cauldron of the Vancouver Winter Olympics as a fitting symbol for the human aspiration to reach higher levels of athletic achievement (our thanks to "Tourism Vancouver" for the use of this photo).

Since the opening days of the biofeedback movement in the late 1960s and early 1970s, the biofeedback paradigm has excited visions of expanding human potential (Moss, 1999; Moss & Wilson, in press). Early biofeedback research showed human beings gaining enhanced awareness and control over visceral physiology (Miller, 1969), musculature (Basmajian, 1967), and states of consciousness (Kamiya, 1969). Barbara Brown, the first president of the Biofeedback Research Society, proclaimed that biofeedback could give to the human being a *new mind* and a *new body* (Brown, 1974). Later, she imaged this new mind as a *supermind* with expanded consciousness and unlimited potential (Brown, 1980).

This Special Issue provides a broad spectrum of articles showing how biofeedback and neurofeedback are being utilized in the world of optimal performance today. Our publication has given attention regularly in the past decade to the applications of biofeedback and neurofeedback in sports, the performing arts, and other areas of peak performance. I will review only the past decade in this context. In 2002 *Biofeedback* published a Special Issue, entitled "Performing Arts Psychophysiology through the Lifespan." The issue was edited by Marcie Zinn and Donald Moss and included a broad range of applications of general biofeedback to the performing arts, including an overview of the use of psychophysiological approaches to the performing arts (Zinn & Moss, 2002). In 2003 and 2004, Jeffrey Leonards (2003a, 2003b, 2004) provided a comprehensive review, in three articles, of the progress in the application of biofeedback with athletes and highlighted the burgeoning field of sport psychophysiology as an applied science in its own right, with a growing evidence base. In 2006, the Italian soccer team utilized a panoply of general biofeedback and EEG biofeedback

tools on their way to the World Cup. Vietta Wilson, Erik Peper, and Donald Moss (2006) then published in *Biofeedback* a broad review of the use of biofeedback and neurofeedback in sports. Timothy Harkness (2009) also reported on his use of biofeedback to coach India's first gold medalist competitive shooter.

We have now seen the power of biofeedback and neurofeedback in another Olympics, the Vancouver Winter Olympics, and it is time to visit once again what feedback learning can do for athletes, and for peak performance in general. I want to thank the Guest Editor, Rae Tattenbaum, for this Special Issue. First of all, Rae tirelessly recruited the articles for this issue and for a follow-up Special Issue for Fall 2011, which will accent what is happening in optimal performance work internationally. She brings to this issue her wealth of experience, coaching peak performance in the expressive and performing arts, and in the corporate environment. At Nortel, for example, Rae was awarded the President's Prize for Excellence. Rae also served for several years as the chair of Association of Applied Psychophysiology and Biofeedback's (AAPB) Optimal Performance Section.

For this Special Issue, we have endeavored to select articles addressing performance in athletics, the arts, and business, and drawing on a diversity of biofeedback and neurofeedback approaches and instrumentation systems. Beyond this, Rae has used the occasion of this special issue, to reach out to professionals using biofeedback for optimal performance worldwide, through several listserves and internet sites, to solicit brief "round-up reports" on any unique and interesting application of biofeedback, neurofeedback, self-regulation, and related psychophysiological techniques to enhance athletic and artistic performance. Our readers will be seeing these round-up reports for several issues. It is my hope that Rae's efforts will produce renewed awareness of the power of biofeedback and psychophysiology to awaken human potential.

## Professional Issues

This article begins with an article by Aubrey Ewing, past president of AAPB, on the new global outreach of the Biofeedback Certification International Alliance (BCIA). BCIA recently changed its name to emphasize its international mission, and Aubrey highlights several aspects of this international outreach. BCIA certificants currently represent 24 countries on 5 continents.

## Special Issue Articles

Richard Harvey, Marla Beauchamp, Marc Saab, and Pierre Beauchamp report on their use of reaction time biofeedback to train Canadian speed skaters in preparation for the Vancouver 2010 Winter Olympics. Reaction time is critical in many areas of performance: track and field events, other athletic events, academic test taking, and music. Harvey et al. emphasize measured reaction time as one factor, in conjunction with pre-start routine, start techniques, start power and acceleration, and start confidence, in preparing the skaters for Olympic gold.

Next, Leah Lagos, Evgeny Vaschillo, Bronya Vaschillo, Paul Lehrer, Marsha Bates, and Robert Pandina report on their combination of heart rate variability biofeedback training with virtual reality golf practice to enhance the performance of a collegiate golfer. Biofeedback professionals have made relatively few inroads into the world of golf, so this research report is worthy of the reader's attention.

Eric Chamberlin provides a discussion of his integration of heart rate variability (HRV) biofeedback training with psychotherapy, to resolve emotional trauma and enhance potential. He introduces a detailed protocol for in office psychotherapy and HRV biofeedback training, with home practice of "resonance frequency breathing." Chamberlin provides a case study of a business executive who was able to improve his level of function through this "Trauma Window" approach. Dr. Chamberlin will also be publishing a second article in a later issue of *Biofeedback* on his integration of the "EMDR" technique and HRV biofeedback in psychotherapy for trauma.

Vietta "Sue" Wilson and Erik Peper discuss the unique aspects of providing biofeedback and neurofeedback to elite athletes, compared to clinical work with patients. Vietta Wilson has been a real pioneer in sport psychophysiology, and this article draws on her wealth of experience with Olympic-level competitors. She comments, for example, that "Athletes want to go beyond normal; they want to be superb; to be atypical; to be the outlier."

Kathleen Riley describes her use of surface electromyography (SEMG) and video feedback to help musicians

overcome significant performance problems and attain optimal levels of achievement. Her article identifies maladaptive postures and alignment in pianists, measurable with SEMG. These patterns produce high levels of muscle tension, fatigue, discomfort, and pain. There is a musical performance deficit as well, when muscles suffer repetitive strain. Riley uses SEMG biofeedback and video feedback to retrain posture at the keyboard.

Katherine Leddick introduces a model integrating psychoanalytic psychotherapy with neurofeedback, in a case of performance anxiety in a professional musician. Like the Chamberlin article, Leddick discusses the emergence of unresolved conflicts and unprocessed emotional issues that undermine artistic performance. Optimal performance work sometimes is conceptualized simplistically, as the standardized application of a series of skills and techniques. Leddick's article and the case she describes remind us that human beings carry emotional baggage that must be skillfully addressed if the individual is ever to tap his or her artistic potential.

## Brief Report

Sanford Silverman provides a brief case report on the integrative use of neurofeedback with Interactive Metronome® and EMDR to help a professional baseball player to improve his attention and focus and to enhance his athletic performance. The athlete's time for treatment was limited due to the approach of spring training, and Silverman's case narrative shows an artful combination of interventions that produced significant progress in six 2-hour sessions.

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Donald Moss



Rae Tattenbaum

### Proposal and Abstracts

Authors are invited to submit manuscripts on any topic in applied psychophysiology and biofeedback. Articles are welcome presently for special issues on *The Psychophysiology of Yoga, Meditation, and Spiritual Practices* for Summer 2011, and *International Perspectives on the Use of Biofeedback and Neurofeedback for Optimal Performance* for Fall 2011. Proposals and Abstracts are also invited for additional topics for future special issues of *Biofeedback*.