

FROM THE EDITOR

Special Issue: Yoga, Meditation, and Applied Psychophysiology

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The cover of this special issue shows a Buddhist monk in Taiwan, reflecting the theme of this special issue: Yoga, Meditation, and Applied Psychophysiology. I wish to thank Erik Peper, PhD, and I-Mei Lin, PhD, who recorded this photo June 5, 2007 during a research study investigating the physiological correlates of meditation and chanting, with a highly experienced Buddhist monk. The photo was recorded at the Longshan Temple in Huwei Town, Yunlin County, Taiwan.

Yoga emerged within the history of Hinduism in India and evolved as it spread across Asia and later into North America and Europe. Originally a comprehensive system for spiritual and personal awareness and discipline, integral to the Indian culture and to its spiritual heritage, today yoga is practiced for physical fitness, weight management, and general wellness and increasingly for its well-documented therapeutic effects for medical and emotional problems.

Meditation has roots in many spiritual traditions, including Hinduism, Buddhism, Islam, Judaism, and Christianity. Meditation emerged in each case as a spiritual practice to discipline the mind and deepen spiritual awareness. Today meditation is also practiced for stress management, personal growth, general wellness, and its therapeutic effects for medical and emotional difficulties. The most recent boost to meditation comes from the mindfulness meditation movement, derived from Vipassana in Buddhism but presented in Western form by Jon Kabat-Zinn and others. An abundance of empirical research studies has now emerged documenting specific benefits from mindfulness meditation and meditation in general.

This special issue takes a fresh look at advances in the use of yoga and meditation as wellness practices, as forms of self-regulation training, and as clinical therapies. Both yoga and meditation provide useful adjuncts to clinical biofeedback. Clinical biofeedback and neurofeedback increase the human organism's ability to self-regulate, and regular practice of meditation or yoga serves to sustain and deepen this self-regulation over time, long after treatment has ended. Both yoga and meditation offer long-term lifestyles and disciplines with health effects

supported by the articles in this special issue. Yoga and meditation also provide a rich focus for research, exploring the neural and physiological correlates of various states of consciousness and of specific yogic and meditative practices.

Professional Issues

This article begins with a report by Aubrey Ewing, past-president of AAPB, on the availability of "certification by prior experience" (CPE) through the Biofeedback Certification International Alliance. Experienced professionals, who have cultivated knowledge and skills in biofeedback and neurofeedback for many years, are eligible to apply for certification by documenting this experience. Ewing summarizes the requirements for CPE in general biofeedback, neurofeedback, and pelvic floor biofeedback. He also presents an interview with Les Fehmi, a pioneer in neurofeedback, who was one of the inspirations for the CPE program.

Special Issue Articles

Adam Burke and Autumn Gonzales open the special issue by reviewing recent survey data showing the increasing use of meditation in the general population. Meditation today is one of the top 10 most commonly used complementary and alternative therapies, and the most recent survey data, gathered in 2007, showed that 9.4% of the general adult population had used meditation in the past 12 months.

B. N. Gangadhar and Shivarama Varambally review the emerging evidence base supporting the use of yoga as a targeted therapy for medical and mental health disorders. The authors cite supportive research for the use of yoga for depression and schizophrenia. They cite their own research showing efficacy in reducing symptoms in schizophrenia; their study compared the yoga condition with both physical exercise and a wait list, showing an advantage for yoga over exercise. The authors acknowledge the resistance to yoga in the medical community and discuss the types of research that are needed to overcome such resistance.

Jonathan Shear reviews the research on a typology of meditation experiences, highlighting a "state-enlivening"

and a “practice-makes-perfect” approach to meditation. He also reviews the phenomenological descriptions of a “ground state” of consciousness and draws as well on the growing body of neuroimaging research on meditation. Shear is pursuing an understanding of meditative experiences that integrates subjective experiences and research on the accompanying neurophysiological mechanisms.

In a parallel investigation, Shirley Telles and Bhat Ramachandra Raghavendra combine research on the neurophysiological correlates of meditation, with attention to phenomenological descriptions of the meditation process, based on ancient texts. They delineate four discrete states of consciousness described in classical texts (the Bhagavad Gita and Patanjali’s yoga sutras) and seek to identify physiological accompaniments of these states.

Lisa Napora introduces readers to a new application area for meditation: higher education. She suggests that meditation and mindfulness, with their documented effects on attention, information processing, and problem solving, are relevant tools for cultivating higher-level cognitive skills in college students. Research results thus far are mixed, with some studies showing improved grade point averages and exam grades, and other studies showing little measurable benefit. Napora calls for more research and further development of a “contemplative education” approach.

Lawrence Edwards discusses the early work of biofeedback pioneers Elmer and Alyce Green at the Menninger Foundation, studying yogi Swami Rama to document the higher potential of human beings for self-regulation. Edwards proposes attention as the primary mechanism for many of the positive effects of meditation. Edwards calls for creative integration of meditation and mindfulness with biofeedback instrumentation to optimize learning.

When Westerners turn to the East for divergent perspectives, they encounter a spiritual horizon broader than specific yogic asanas and meditation techniques. In her article on *The Gifts of Illness*, Erica Shane Hamilton draws on the philosophical framework of Buddhism to address the challenges of living with illness. It is useful for biofeedback professionals to be reminded of the human struggle to cope with illness and of the rich contributions that spiritual

traditions can provide to reduce suffering. Hamilton’s article draws on personal experience in living with irritable bowel syndrome, as well as on her knowledge of Buddhist teaching.

Feature Articles

Gerald Gluck provides a report on a breakthrough in the application of quantitative electroencephalography (QEEG) in legal settings. Gluck conducted the QEEG of a convicted murderer and presented the QEEG in evidence during the death penalty trial of this individual. After vigorous challenges by the prosecution, Gluck’s testimony, based on the defendant’s conduct, the QEEG results, other testing, and history, was accepted as evidence of the individual’s impairment, resulting in a sentence of life in prison without parole.

Vieta “Sue” Wilson and Lindsay Shaw have contributed a thought-provoking research report applying electroencephalography to study the unique profiles of elite athletes. The authors advocate attention to the amplitudes in each “one Herz bin”—a 1-Hz wide frequency range. They show evidence, using data from several convergent research studies, that there is a specific signature in the lower frequency range. This signature distinguishes the elite athlete neurophysiologically from the athletes of lesser ability. Their work highlights the value of multi-modality psychophysiological evaluation of athletes.



Donald Moss

Authors are invited to submit manuscripts on any topic in applied psychophysiology and biofeedback. Articles are welcome presently for special issues on *International Perspectives on the Use of Biofeedback and Neurofeedback for Optimal Performance* for Fall 2011, *Advances in Neurofeedback and QEEG* in Spring 2012, *Advances in the Practice of Pelvic Floor Biofeedback* in Summer 2012, and *Advances in Surface Electromyography Biofeedback and Rehabilitation* in Winter 2012. Proposals and abstracts are also invited for additional topics for future special issues of *Biofeedback*.