Applied Psychophysiology: Commentary from a Rehabilitation Perspective

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This commentary endorses a broad definition of applied psychophysiology that can accommodate professionals from many different disciplines, including rehabilitation. As we adopt and implement a definition, we need to be alert to outmoded terminology suggesting that applied psychophysiology procedures are primarily for functional and stress-related disorders.

KEY WORDS: applied psychophysiology; biofeedback; rehabilitation; EMG; psychophysiology.

The working definition of applied psychophysiology proposed by Mark Schwartz aptly highlights the dual nature of the word “applied.” Physiological recording procedures may be used to provide physiological feedback to the patient. Alternatively, physiological recording procedures may be used to provide feedback for the therapist. In both applications, the intent is to improve the therapeutic process. Both applications are an integral part—and some would say an equally important part—of applied psychophysiology procedures in clinical treatment (Middaugh, 1988, 1989, 1990, 1996; Middaugh, Kee, & Nicholson, 1994).

In this commentary, I would also like to highlight two different definitions—one broad and one narrow—of the term psychophysiology. To introduce this issue, and why it is relevant, keep in mind that today's field of applied psychophysiology, in which physiological recording techniques are applied with the intent to alter physiological functioning, is based on theory, research, and clinical techniques derived from many disciplines, not only psychology. As just one example, important contributions have come from rehabilitation clinicians and investigators who recognized the value of electromyographic feedback to improve neuromuscular control, in normal individuals and in neurological patients, as soon as electromyographic recording equipment became commercially available (Basmajian, 1963; Harrison & Connolly, 1971; Marinacci & Horande, 1960; Mims, 1956). Today, the basic orientation of many clinicians who are using applied psychophysiology procedures, such as EMG biofeedback in rehabilitation settings, is that of neurophysiology and not psychology.

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With this in mind, a quick trip to a medical dictionary (Dorland, 1994) illustrates a conceptual problem that is still prevalent. The definition provided for “psychophysiology” is simply “physiological psychology.” This is a broad definition in which psychophysiology is a general term that can include a variety of interactions between psychological and physiological processes. This is in keeping with the proposed definition of applied psychophysiology as a rubric, or chapter heading term, that encompasses many different procedures, theoretical orientations, and clinical disorders. Professionals from many different disciplines, not only psychology, can be accommodated under a broad definition. The problem arises with the dictionary entry immediately above, in which psychophyslogic is defined as “pertaining to psychophysiology; psychosomatic.” Looking up psychosomatic we find “pertaining to the mind-body relationship; having bodily symptoms of psychic, emotional, or mental origin; called also psychophyslogic.” Now we have a problem. This reflects a narrow definition of psychophysiology in which there is a focus on one aspect of the mind-body relationship in which physical symptoms are produced by emotional disturbance. This definition implies that psychophysiological treatment procedures are only appropriate, and only effective, for psychosomatic disorders; a mental cure for a mental cause. In the past, a positive response to a psychophysiological intervention has even been considered evidence of a psychosomatic origin for the problem being treated. While few of us in the field of applied psychophysiology today intentionally subscribe to a narrow definition, remnants and echoes still abound in our language and our terminology. These remnants need to be recognized and eliminated. An example can be found in an information kit from the Association for Applied Psychophysiology and Biofeedback (undated, but available in the 1990s) that included the following (italics added): “Applied Psychophysiology and Biofeedback . . . also is a modality of treatment for functional disorders including headache (migraine and tension), hypertension, irritable bowel syndrome, urinary and fecal incontinence, Raynaud’s syndrome and other stress-related disorders. One more trip to the medical dictionary for “functional disorder” produces “a disorder of function having no known organic basis. In psychiatry the term is roughly equivalent to psychogenic disorder; in other branches of medicine, to ideopathic disorder.” Terminology such as this reflects an inappropriately narrow definition of psychophysiology. Such wording often goes unnoticed and unremarked by those with psychology backgrounds but is immediately noticed—and rejected—by colleagues from other disciplines, such as rehabilitation.

I am not suggesting a change in spelling, to “applied psychoand/orphysiology,” to accommodate everyone. I am pointing out that it will not be sufficient to develop an appropriately inclusive, broad definition of applied psychophysiology as Mark Schwartz has offered. It will also be necessary to vigorously defend this definition and be alert to ancillary terminology that adds nothing and primarily reflects an outmoded, narrow definition that does not include many contemporary applications. The proposed definition of applied psychophysiology can readily accommodate the rehabilitation clinician who is using EMG biofeedback for neuromuscular reeducation in patients with stroke. After all, concepts related to sensorimotor integration and motor learning are historically a part of psychology as well as physiology.

Research from the psychophysiology laboratory has provided a solid theoretical and experimental foundation for today’s clinical procedures in rehabilitation as in other fields of application. However, the rehabilitation clinician will not relate to a narrow definition that implies, intentionally or not, that applied psychophysiology procedures are primarily