

THE WETC PSYCHOLOGY NEWSLETTER

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Biofeedback

In reading a variety of reports from treating psychologists and psychiatrists one often finds that they have recommended and administered what they say is “biofeedback” or “biofeedback training.” However, in interviewing patient’s who have undergone these procedures there are times when it becomes clear that biofeedback has not been administered, but only some form of “procedure” or “treatment” that may superficially look like biofeedback. As such, it is the goal of this newsletter to provide a working knowledge about the nature of biofeedback for those individuals involved in evaluating workers’ compensation and personal injury claims such as claims examiners, attorneys and judges.

To set the record straight, all biofeedback training has four common features. First, in all biofeedback procedures the subject or patient is made aware of various physiological functions that they normally might not be conscious of, such as their heartrate or brainwaves. Second, this awareness is produced by using various electronic instruments that provide measures of the activity of those systems. Third, those measurements are provided as information or feedback to the subject or patient either visually, auditorily, or possibly in the tactile modality. Fourth, the patient is instructed, asked to, or taught to control those functions under the assumption that gaining that control will alleviate psychological symptoms.

As noted above, a basic assumption of biofeedback training is that if an individual can learn to control these processes in the doctor’s office that they eventually will be able to control them outside of the doctor’s office without the use of electronic equipment, and that gaining that control will result in a

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reduction of psychological and/or physical signs and symptoms. In biofeedback training, the most frequently used physiological functions are muscle tone, heart function, breathing rate, skin temperature, brain waves, and skin conductance or what is sometimes called the galvanic skin response.

There are two crucial factors in all biofeedback training. The first is the placement of a device, like an electrode, on the person’s body that detects the physiological state that the doctor and patient are trying to bring under the patient’s control. The second is some form of auditory, visual or tactile feedback that the patient can use to determine the physiological state being measured so that they will know when they are successful in exerting control. Regardless of what is being done to the patient and how well-intentioned the “biofeedback therapist” is, without a measurement device and a feedback device they are not conducting biofeedback therapy.

In conducting interviews of many individuals claiming a psychological injury who have been undergoing treatment by “biofeedback,” I have had many patients tell me that they were placed in a dark room and listened to relaxing music for their biofeedback sessions. When subsequently interviewed, they have told me that there were no devices used to measure any underlying physiological processes, nor any methods for providing information to them

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concerning their physiological states. While listening to relaxing music in a dark room may turn out to have some psychotherapeutic benefit, it most assuredly is not biofeedback training.

In addition to the above, I have also had patients tell me that they were asked to lie on a couch while electrodes were placed on their ears for their biofeedback training. However, when I asked them what feedback they were given they looked at me like I was from Mars and told me that no one communicated anything about how they were doing, but that after about 20 minutes the therapist came into the room, removed the electrodes and told them that they had done very well. Once again, while that procedure could conceivably have some therapeutic value, it certainly is not biofeedback training.

Different Forms of Biofeedback Training

There are a great many options for measuring and teaching control of biological functions. In fact, one can classify the various types of biofeedback training that are available by the types of devices used to measure the different physiological processes or states. In this regard, at various times biofeedback therapists may use an electromyograph (EMG), which uses surface electrodes to measure muscle action potentials. Electromyographs reportedly have been shown to be useful in alleviating psychological signs and symptoms of anxiety and worry. They also have been used to treat various physical ailments outside of the realm of psychology and psychiatry such as hypertension, headaches, and incontinence.

Skin temperature is another physiological state that has been utilized in biofeedback training. In this procedure a sensitive thermometer is typically attached to a finger or toe to measure skin temperature. Learning to control temperature in the extremities has been said to be useful in treating anxiety and physical complaints of headaches and hypertension.

Electrical activity of the skin is another physiological behavior often used in biofeedback training. In this procedure an electrodermograph (EDG) measures electrical activity on the skin by placing electrodes on the fingers or the wrist. Learning to control the resistance of the skin to the passage of an electrical current, or what is called the galvanic skin response (GSR), is reported in the literature to be useful in learning to control anxiety. It is also a principle component of a lie detector test since the GSR is a measure of anxiety or emotionality.

A more esoteric, complicated and expensive form of biofeedback training uses an electroencephalograph (EEG) to measure the electrical activation of the brain from scalp sites located over the human cortex. By placing electrodes at two different sites various forms of electrical activity in the brain, or what are called rhythms, can be detected. Proponents of this technique indicate that when the individual learns to control the various types of activity they can experience reductions in anxiety, panic, worry, the symptoms and signs of a Posttraumatic Stress Disorder, and depression. There are also data that suggest that EEG feedback is useful in treating addictions, Attention Deficit/Hyperactivity Disorder, learning disabilities and migraine headaches.

Another simple procedure is to measure respiration rate. When used in biofeedback training the individual is taught to slow down their breathing rate. As you might expect, this form of training has been used to treat Panic Disorders that are characterized by rapid and uncontrolled heart rate that can be successfully treated by controlling the breathing rate.

Additionally, there is HRV or heart rate variability training. Heart rate variability refers to the heart's ability to adjust to varying levels of demand. If variability is low, the individual is not adjusting to various levels of demand. If variability is high, the individual is said to be effectively adjusting to different demands. In heart rate variability training, the goal is to teach the patient to learn to slow down their breathing rate, which will positively affect the ability of their heart to adjust to demands as well as their overall autonomic nervous system reactivity. Since high levels of variability in the heart rate seems to be associated with depression, the basic assumption of heart rate training is that decreasing that variability may produce an amelioration of depression. Unfortunately, the research in this area is not conclusive.

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Research Results on the Efficacy and Effectiveness of Biofeedback

Given recent advances in electronics and research on biofeedback training, knowledge about the efficacy and efficiency of all such forms of treatment is in a rapid state of flux. Nevertheless, the most recent comprehensive guide to understanding the data supporting the use of biofeedback appears to be the 2008 publication authored by Dr. Carolyn Yucha, who has a Ph.D. in nursing, and Dr. Doil Montgomery, who has a Ph.D. in psychology and practices in Florida. Accordingly, it would be an excellent idea for anyone who is even marginally involved in the treatment, assessment, or litigation of individuals who have undergone biofeedback training to obtain and use a copy of their work (Yucha, C., & Montgomery, D. (2008). Evidence-based practice in biofeedback and neurofeedback. Wheat Ridge, CO: AAPB).

A reading of Dr. Yucha's and Dr. Montgomery's book reveals that it contains information discriminating between "efficacy" and "effectiveness" of biofeedback. According to their book, "efficacy" refers to research that has determined the beneficial effects derived from biofeedback through the use of controlled clinical trials. The prototype for a controlled clinical trial is an experiment in which subjects or patients are randomly divided into two different groups, with one given the treatment of study, the experimental group, and the other a placebo, the control group. On the other hand, "effectiveness" is said to be an indication of how well a given treatment works in actual clinical settings or "everyday clinical practice." Thus, "effectiveness" simply refers to how well practitioners of a given treatment believe it works.

In their survey of the literature, Drs. Yucha and Montgomery discussed findings concerning the use of biofeedback training for no less than 38 disorders or conditions alphabetically ranging from Alcoholism/Substance Abuse to Vulvar Vestibulitis. They then reported on the "efficacy" and the "effectiveness" of each. Obviously, some of their reports are more relevant for our purposes than others. With regard to Alcoholism/Substance Abuse they concluded that the research indicated it was "Probably Efficacious." For Depressive Disorders they judged that biofeedback was "Possibly Efficacious." In summarizing the research on "Anxiety" they came to the conclusion that it was "Efficacious," noting clinically significant outcomes in carefully conducted studies with biofeedback producing "roughly equivalent" results to progressive relaxation

therapy and meditation. However, with respect to Posttraumatic Stress Disorder they reported their findings indicated it was "Possibly Efficacious." And finally, with regard to "Insomnia" they noted it was "Probably Efficacious." Overall, there appear to be a lack of experimental studies demonstrating that biofeedback is effective although there are many studies indicating that it is probably useful in treating various forms of psychopathology.

Licensure of Biofeedback Therapists in California

Finally, it is relevant to note that in California, using biofeedback training appears to be well within the licensure of psychologists and psychiatrists. It also may be within the licensure of various professions licensed by the Board of Behavioral Sciences, such as Marriage and Family Therapists, Licensed Clinical Social Workers, Licensed Educational Psychologists and Licensed Professional Clinical Counselors. It is also within the licensure of various other associated medical professionals such as medical doctors, chiropractors, dentists and physical therapists. However, there is no organization in the State of California that specifically licenses biofeedback therapists. Nevertheless, the Biofeedback Certification International Alliance (BCIA) certifies biofeedback therapists who meet their educational and training standards. Such certification involves the completion of a 36-hour course in a BCIA-approved training program, 25 contact hours supervised by a BCIA-approved mentor, 100 client sessions, and case conference presentations. The BCIA also requires continuing education every four years to continue a members' certification. However, there is no independent license for biofeedback trainers in the State of California. Additionally, whether or not any treatment administered by biofeedback therapists, not licensed under laws in the State of California, is compensable under laws applicable to personal injuries or work-related injuries is clearly up to the courts to determine.

This is the fortieth of a series of monthly newsletters aimed at providing information about psychological evaluations and treatment that may be of interest to attorneys and insurance adjusters working in the areas of workers' compensation and personal injury. If you have not received some or all of our past newsletters listed on the next page, and would like copies, send us an email requesting the newsletter(s) that you would like forwarded to you.

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