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## Article 47

# **Biofeedback: A Useful Tool for Professional Counselors**

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## **Introduction**

As mental health professionals, counselors are trained to provide clients with a range of mental health services, focusing on issues related to wellness, personal growth, career development, as well as more serious mental health problems (Gladding, 2004b). According to Samuel Gladding, counselors are set apart from other mental health professionals by their “wellness” orientation (2004a). Within a wellness perspective, counselors assist clients in achieving their optimal state of health and well-being through the use of preventative and remedial techniques (Gladding, 2004a).

Biofeedback interventions fit well into the counseling wellness perspective of helping clients achieve optimal health and well-being. These interventions may be used for the prevention of mental and emotional disorders, and they may also be used in the treatment of such disorders. Further, by teaching clients biofeedback techniques, clients can learn self-awareness and self-regulation skills – and this may empower them to improve their level of stress management, improve their coping strategies, and increase their level of wellness.

## **Biofeedback**

Biofeedback is a process of learning to influence one's physiological processes, with the goal of improving optimal functioning, wellness, or health (Gilbert & Moss, 2003; Sherman, 2004). Biofeedback provides information about the immediate status of an individual's physiological process, so that the individual can learn to recognize the status of that system. The goal of biofeedback is for the individual to gain increased control, or influence, over the functioning of that system (Gilbert & Moss, 2003; Sherman, 2004).

One of the unique features of biofeedback is that the process provides individuals with a link between the mind and body (Gilbert & Moss, 2003; Seaward, 2006). Very

often, individuals are unaware of the status of many of their physiological systems. Through biofeedback, individuals have the opportunity to learn how their cognitive and emotional processes impact their physiological functioning. Once the client recognizes that they are tense, then, they are able to influence that physiological system. For example, muscle tension biofeedback can be used to help a client recognize when they are tense, or stressed. Through biofeedback, the client has the opportunity to see the effect of relaxation techniques on their muscle tension.

In biofeedback, the responsibility for change lies with the client (Sherman, 2004). The ability to influence the functioning of a physiological system is called "self-regulation" (Seaward, 2006; Sherman, 2004). Learning to influence one's physiological functioning empowers individuals to take a more active role in their own health and wellness (Gilbert & Moss, 2003; Seaward, 2006).

### **The Use of Biofeedback**

Biofeedback is used in the treatment of medical and mental disorders, such as anxiety, high blood pressure, and headaches. In addition, biofeedback is also sometimes used as an adjunct in drug and alcohol treatment. Further, biofeedback techniques are used to enhance optimal functioning, as well as improving sports performance (Gilbert & Moss, 2003; Seaward, 2006). According to Sherman (2004), research supports the effectiveness of biofeedback for many medical and mental disorders. However, research is on-going.

Biofeedback techniques are used by some medical and mental health professionals, including psychologists, counselors, social workers, nurses, physical therapists, occupational therapists, physicians, etc. (Gilbert & Moss, 2003; Sherman, 2004).

The biofeedback practitioner instructs the client in the use of techniques intended to influence the targeted physiological system. For example, relaxation techniques may be used to decrease blood pressure. A variety of techniques may be used, such as: relaxation, meditation, diaphragmatic breathing, other breathing techniques, progressive muscle relaxation, guided imagery, and autogenic training (Gilbert & Moss, 2003; Seaward, 2006; Sherman, 2004).

#### **Example: Use of a Biofeedback Device in the Treatment of Hypertension**

For example, Resperate ([www.resperate.com](http://www.resperate.com)) is a device that uses biofeedback to assist individuals with high blood pressure to lower their respiration to the target rate. This device uses a number readout to display the user's respiration rate, and utilizes verbal instructions, as well as music, to assist the user in reducing their respiration rate to the target rate (i.e., less than 10 breaths per minute). Note that just as increased respiration can be a symptom of stress, a decrease in respiration can lead to relaxation, which can reduce constriction of blood vessels, which can reduce blood pressure ([www.resperate.com](http://www.resperate.com)).

Clinical trials have demonstrated the effectiveness of the Resperate system, and this device is FDA-approved for use in managing blood pressure levels ([www.resperate.com](http://www.resperate.com)).

## **Types of Biofeedback**

There are many different biofeedback modalities, with each modality focusing on a particular physiological system (or systems) and utilizing different types of equipment (Gilbert & Moss, 2003; Seaward, 2006). Some of the major modalities that counselors are most likely to use include:

- Electromyograph (EMG) feedback measures muscle tension. Electrodes are placed on the surface of the skin above the muscle of focus. When an individual's level of stress increases, the tension of some muscle groups (e.g., the forehead) may also increase (Gilbert & Moss, 2003; Seaward, 2006; Sherman, 2004).
- Temperature biofeedback measures finger temperature by attaching a sensor (called a thermister) to the fingertip. When an individual is stressed, blood flow to the extremities is reduced, resulting in lower hand temperature. Finger temperature can be measured using computer-based systems, or small hand-held thermometers costing less than a dollar (Gilbert & Moss, 2003; Sherman, 2004).
- Electrodermal (EDR) biofeedback measures the electrical conductivity of the skin. When an individual is stressed or nervous, sweat production often increases, and electrical conductivity also increases. Electrodes placed on the hands/fingers measure changes in skin conductivity. EDR is also called skin conductance or Galvanic skin response (GSR). EDR can be measured using computer-based systems, or inexpensive stand-alone systems (Gilbert & Moss, 2003; Seaward, 2006; Sherman, 2004).
- Heart rate and blood pressure biofeedback measures heart rate and blood pressure. Increased heart rate and blood pressure can be associated with increased stress (Gilbert & Moss, 2003; Seaward, 2006).
- Heart Rate Variability biofeedback measures the variability of an individual's heart rate. The heart rate normally increases or decreases according to demands. Reduced variability of the heart rate can be associated with decreased vitality, as well as increased stress (Servan-Schreiber, 2004).
- Respiration biofeedback measures respiration rate and related data. A band containing a sensor is placed around the abdomen or chest, in order to measure respiration rate and related data. Increased respiration rate may reflect increased stress, anxiety, and tension (Gilbert & Moss, 2003; Seaward, 2006; Sherman, 2004).
- Electroencephalographic (EEG) biofeedback measures the electrical activity near the surface of the brain. Brainwaves vary during different states of consciousness (Gilbert & Moss, 2003; Seaward, 2006).

## **Biofeedback Certification**

Medical and mental health professionals can earn certification as a biofeedback practitioner through The Biofeedback Certification Institute of America (BCIA; [www.bcia.org](http://www.bcia.org)). BCIA offers certification in general biofeedback, EEG biofeedback, as well as pelvic muscle dysfunction biofeedback.

General biofeedback certification includes training in general techniques, including: EMG, temperature, skin conductance, heart rate variability, respiration training, as well as receiving an introduction to EEG biofeedback (BCIA, n.d.). EEG biofeedback certification focuses on EEG biofeedback (i.e., brainwave training). Pelvic muscle dysfunction biofeedback focuses on the treatment of pelvic pain, as well as elimination disorders (www.bcia.org).

Certification in any of the areas (i.e., general biofeedback, EEG biofeedback, and pelvic muscle dysfunction biofeedback), demonstrates that the professional has met the standards developed by BCIA. Certification in each of the areas requires appropriate undergraduate or graduate degrees, completion of required coursework, passing the certification exam, as well as developing competence in using biofeedback with clients during the mentoring process. Further, the practitioner must agree to adhere to the BCIA code of ethics, as well as the code of ethics of their profession. Finally, when treating medical or psychological disorders, the practitioner must have a license/credential in their field to practice independently, or be willing to work under the supervision of an appropriately licensed/credentialed professional (www.bcia.org).

### **Professional Biofeedback Organization**

The American Association of Biofeedback and Psychophysiology (AAPB) was founded to advance the use of biofeedback techniques, as well as increase understanding of the use of biofeedback to improve health and functioning (“About AAPB”, 2008). Membership is open to interested professionals. The AAPB has several sections, including allied professionals, respiratory biofeedback, education, international biofeedback, stress management, mind-body medicine optimal functioning, and performing arts. In addition, AAPB has two divisions: neurofeedback (EEG), and Surface EMG (SESNA). Further, AAPB has international, state and regional chapters, as well.

### **Summary**

In this article, biofeedback was presented as a useful adjunct to the counseling wellness perspective. Biofeedback interventions can demonstrate a link between the mind and body, and can provide clients with the opportunity to increase their self-awareness and self-regulation skills. Further, counselors may incorporate biofeedback interventions into their counseling practice in order to empower clients to utilize self-awareness and self-regulation skills to achieve their optimal level of health and well-being.

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