

JACOB J. ELLIOTT & ASSOCIATES, INC.

Mental Health Services

5600 MONROE STREET
SYLVANIA, OHIO 43560

PHONE 419-885-1910
FAX 419-885-5060

**WHAT IS BIOFEEDBACK?
HOW DOES IT WORK?
HOW IS IT USED?**

BIOFEEDBACK

The term "biofeedback" was created in 1969 for the unique process described in this pamphlet. The term "biofeedback training" came into use as biofeedback was demonstrated to be a helpful tool in teaching and learning self-regulation skills that involve training. Gradually biofeedback training evolved into a powerful therapeutic procedure and when it is incorporated into a treatment program in a clinical setting, the term "biofeedback therapy" is often used.

In educational and business settings, biofeedback training is a tool for developing deep relaxation and stress management skills that are important in the prevention of stress related disorders. In clinical settings these and other self-regulation skills gained through biofeedback training may be used for reducing or eliminating symptoms of stress related and organic disorders, and for regaining muscle function and reducing pain following injury or illness. In the clinic, biofeedback training may be the primary therapeutic modality, or it may be used with other therapeutic interventions such as lifestyle counseling, desensitization training, cognitive restructuring or psychotherapy.

In all applications, the goal of biofeedback training is self-regulation-learning how to regulate both mental and physical processes for health and improved functioning.

PROCEDURES AND PROCESS

Biofeedback training begins with a sensitive instrument designed to measure a specific physiological process, for example, the electrical activity of skeletal muscles. The biofeedback instrument is connected to the muscle with sensors placed on the skin; it amplifies and converts the physiological response into meaningful information, usually a tone or visual display which is "fed back" to the person. The person uses the information as a guide while practicing a variety of procedures to achieve reduced muscle tension. A biofeedback instrument is like a special mirror that provides information about a process inside the body which the person may not be aware of, or may find difficult to regulate.

Typically, deep breathing, relaxation and visualization procedures are used with feedback of information, although the specific training procedures vary according to the purpose of the training or therapy.

Learning to change physiologic functions is a skill, and like all skills, practice and knowledge are essential.

Self-regulation of body processes is possible because mind and body interact. To understand how powerful the connection of mind and body is, imagine what happens inside the body when you step on a slithering black snake. The first response is body arousal as adrenaline is released and other responses prepare the body for fight or flight - and then you discover that it was only the garden hose! Or remember what happens to mind and body when you are rushing to an important meeting and you get stuck in a snarl of traffic that isn't moving. The mind perceives a stressor and the body responds.

Well known brain processes govern the physiological response to mental activity such as stress. When stress continues, physical symptoms might develop. Through relaxation and stress management, however, other brain processes are triggered that reduce the stress response and enable the body to recover. Because mind and body interact, we can guide the body toward health when stress, disease processes or injury have hindered the body's natural tendency to remain healthy. Biofeedback instruments are important while learning self-regulation because, like feedback from a mirror, the feedback from the instrument helps the trainee gain control of mental and physiological processes that enhance optimal functioning. Biofeedback instrumentation is not longer needed when self-regulation skills are mastered, just as the dance studio mirror is no longer needed when the dancer has mastered the dance.

The key elements in biofeedback training that make self-regulation possible are mind/body interaction, feedback of information, increased awareness and practice. In many applications the skill of deep relaxation is also essential because relaxation promotes health and is helpful in treating and preventing many disorders. In other applications, such as recovery of muscle function after injury, the primary tool is feedback, with a therapist functioning as a coach, and teaching skills for improved performance. The seemingly simple process of feedback facilitates learning and acquisition of self-regulation skills that become life-long habits.

BIOFEEDBACK INSTRUMENTS AND APPLICATIONS

Biofeedback instruments are highly sensitive, safe electronic devices that monitor physiologic processes. Physiologic signals from the body are amplified by the feedback instrument and converted into useful information. The biofeedback instrument may

have a meter, light, computer display or tone that presents this information to the trainee.

Muscle Tension Feedback

The electromyograph (EMG) measures the electrical activity of skeletal muscles monitored with sensors placed on the skin over appropriate muscles. EMG feedback is used for general relaxation training and is the primary modality for treatment of tension headache, bruxism and temporomandibular joint problems, chronic pain, muscle spasm, and partial paralysis or other muscular dysfunction due to injury, stroke or congenital disorders. Physical rehabilitation through neuromuscular re-education is an important application of EMG feedback.

Thermal (blood flow) Feedback

Thermal feedback instruments measure blood flow in the skin. When the small vessels in the skin dilate, blood flow and temperature increase, and when these vessels constrict, blood flow and temperature decrease. The vessels in the fingers are particularly sensitive to stress (vasoconstriction) and relaxation (vasodilation) and therefore feedback of finger temperature is a useful tool in relaxation training. Blood flow feedback is also used in the treatment of specific vascular disorders including migraine headache, Raynaud's disease, essential hypertension and vascular complications of other diseases such as diabetes.

Electrodermal Feedback

The electrodermal response (EDR) feedback instrument measures skin conductivity from the fingers and palms. The EDR is highly sensitive to emotions in some people. EDR feedback has been used in the treatment of excessive sweating (hyperhidrosis) and related dermatological conditions, and for relaxation and desensitization training.

Brainwave Feedback

The electroencephalograph (EEG) monitors brainwave activity from sensors placed on the scalp. Applications for EEG feedback are currently being developed; these include: epilepsy, hyperactivity and attention deficit disorder in children, alcohol/chemical dependency and other addictive disorders, traumatic brain injury, sleep onset disorders and insomnia.

Special Applications

Specialized biofeedback instruments have been developed to facilitate self-regulation in a variety of stress-related and organic disorders such as heart arrhythmias, fecal and urinary incontinence including bedwetting, respiratory problems and irritable bowel syndrome.

Biofeedback therapy evolves as new applications and training procedures are developed through research and clinical practice.

Among self-regulation techniques, biofeedback training is unique because the instrumentation provides instant information that is not normally available simultaneously verifies the success of the procedure being used for self-regulation.

Adults and children who participate in biofeedback training and therapy often achieve significant symptom reduction and are able to reduce or eliminate medications while experiencing a renewed sense of physical and mental well-being.

QUESTIONS AND ANSWERS

Who is a biofeedback therapist?

Biofeedback therapists are health professionals who use biofeedback training in their work. Many psychologists, psychiatrists, social workers, nurses and physical therapists have been trained in the clinical use of biofeedback training. Health care workers who do not have a professional degree may be trained and work under the supervision of a licensed practitioner.

Like other practitioners, biofeedback therapists have differing therapeutic styles and professional experience although all have basic knowledge of the psychophysiology of stress, mind/body interaction, symptom formation and applications of biofeedback training. In addition, the therapist will know a variety of techniques and procedures that facilitate treatment.

If I am interested in receiving biofeedback therapy, how do I proceed?

To locate a biofeedback therapist, begin with the yellow pages in the telephone book, under "Biofeedback" or "Psychologists" or other health professionals.

How long will treatment last, and how much will it cost?

The length of biofeedback therapy depends upon the type and severity of symptoms being treated and on the motivation of the patient. Some disorders are treated quickly in 8-10 sessions. Long-term or severe symptoms may necessitate longer therapy. Because relaxation and stress management are learned skills that are practiced with continued improvement, treatment may end before symptoms are completely manageable or eliminated. Follow-up sessions may be recommended to insure that self-regulation skills and symptom reduction are maintained.

The cost of biofeedback therapy varies with clinic and therapist, and compares to professional services such as psychotherapy.

Biofeedback therapy is covered by many health insurance companies, although policies differ. Consult your insurance company regarding coverage before starting a treatment program.

Will I continue to see my physician?

When a medical condition is being treated, you will continue medical treatment. With your permission, the biofeedback therapist will consult with your physician regarding your diagnosis and progress. If you are self-referred and medical records are not available, the therapist may request that you have a medical examination prior to biofeedback training to insure proper diagnosis and treatment.