

# BIOFEEDBACK

Mrs.Saraswathi KN, Asst professor

Mrs.Sunitha PS, Mrs.Purohit saraswati Asst Lecturer,JSSCON

## MEANING:

Biofeedback is a technique you can use to learn to control some of your body's functions, such as your heart rate. During biofeedback, you're connected to electrical sensors that help you receive information about your body.

This feedback helps you make subtle changes in your body, such as relaxing certain muscles, to achieve the results you want, such as reducing pain. In essence, biofeedback gives you the ability to practice new ways to control your body, often to improve a health condition or physical performance.

## TYPES OF BIOFEEDBACK:

Your therapist might use a variety of biofeedback methods depending on your health problems and goals. Biofeedback types include:

- **Brain waves.** This type uses scalp sensors to monitor your brain waves using an electroencephalograph (EEG).
- **Breathing.** During respiratory biofeedback, bands are placed around your abdomen and chest to monitor your breathing patterns and respiration rate.
- **Heart rate.** This type uses finger or earlobe sensors with a device used to detect blood volume changes (photoplethysmograph). Or sensors placed on your chest, lower torso or wrists use an electrocardiograph (ECG) to measure your heart rate and how your heart rate varies.
- **Muscle contraction.** This type involves placing sensors over your skeletal muscles with an electromyograph (EMG) to monitor the electrical activity that causes muscle contraction.
- **Sweat gland activity.** Sensors attached around your fingers or on your palm or wrist with an electrodermograph (EDG) measure the activity of your sweat glands and the amount of perspiration on your skin, alerting you to anxiety.
- **Temperature.** Sensors attached to your fingers or feet measure blood flow to your skin. Because your temperature often drops when you're under stress, a low reading can prompt you to begin relaxation techniques.

## BIOFEEDBACK DEVICES:

You can receive biofeedback training in physical therapy clinics, medical centres and hospitals. A growing number of biofeedback devices and programs also are being marketed for home use, including:

- **Interactive computer programs or mobile devices.** Some types of biofeedback devices measure physiological changes in your body, such as your heart rate activity and skin changes, by using one or more sensors attached to your fingers or your ear. The sensors plug into your computer.

Using computer graphics and prompts, the devices then help you master stress by helping you to pace your breathing, relax your muscles and think positive self-statements about your ability to cope. Studies show that these types of devices might be effective in improving responses during stress and inducing feelings of calm and well-being.

Another type of biofeedback therapy involves wearing a headband that monitors your brain activity while you meditate. It uses sounds to let you know when your mind is calm and when it's active to help you learn to control your stress response. The information from each session can be stored on your computer or mobile device so that you can track your progress over time.

- **Wearable devices.** One type involves wearing a sensor on your waist that monitors your breathing and tracks your breathing patterns using a downloadable app. The app can alert you if you're having prolonged tension, and it offers guided breathing activities to help restore your calm.

#### **SEVERAL DIFFERENT RELAXATION EXERCISES ARE USED IN BIOFEEDBACK THERAPY, INCLUDING:**

- Deep breathing
- Progressive muscle relaxation -- alternately tightening and then relaxing different muscle groups
- Guided imagery -- concentrating on a specific image (such as the color and texture of an orange) to focus your mind and make you feel more relaxed
- Mindfulness meditation -- focusing your thoughts and letting go of negative emotions

#### **USED FOR PHYSICAL AND MENTAL HEALTH ISSUES, INCLUDING:**

- Anxiety or stress
- Asthma
- Attention-deficit/hyperactivity disorder (ADHD)
- Chemotherapy side effects
- Chronic pain
- Constipation
- Faecal incontinence
- Fibromyalgia
- Headache
- High blood pressure
- Irritable bowel syndrome
- Raynaud's disease

- Ringing in the ears (tinnitus)
- Stroke
- Temporomandibular joint disorder (TMJ)
- Urinary incontinence

### **BIOFEEDBACK APPEALS TO PEOPLE FOR A VARIETY OF REASONS:**

- It's non- invasive.
- It might reduce or eliminate the need for medications.
- It might enhance the benefits of medications.
- It might help women who can't take medication during pregnancy.
- It helps people feel more in control of their health.

### **DURING THE PROCEDURE:**

During a biofeedback session, a therapist attaches electrical sensors to different parts of your body. These sensors might be used to monitor your brain waves, skin temperature, muscle tension, heart rate and breathing. This information is fed back to you via cues, such as changes on a monitor, a beeping sound or a flashing light.

The feedback teaches you to change or control your body's reactions by changing your thoughts, emotions or behaviour. This can help the condition for which you sought treatment.

For instance, biofeedback can pinpoint tense muscles that are causing headaches. You then learn how to make deliberate physical changes in your body, such as relaxing specific muscles, to reduce your pain. The ultimate goal with biofeedback is to learn to use these techniques at home on your own.

A typical biofeedback session lasts 30 to 60 minutes. The length and number of sessions are determined by your condition and how quickly you learn to control your physical responses.

### **RESULTS:**

If biofeedback is successful for you, it might help you control symptoms of your condition or reduce the amount of medication you take.

### **CONCLUSION:**

Many different health care providers offer biofeedback therapy, including psychiatrists, psychologists, and general physicians. Eventually, you can practice the biofeedback techniques you learn on your own. Don't stop the medical treatment for your condition, however, without consulting your care team.

**REFERENCES:**

- 1) <https://www.mayoclinic.org/tests-procedures/biofeedback/about/pac-20384664>
- 2) <https://www.webmd.com/pain-management/biofeedback-therapy-uses-benefits>