

**Medical Biofeedback
and
Pain Control Center**

**Biofeedback Home
Program**

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Thank you for your interest in the biofeedback program. The thermal electronic device contained within this package can be like a mirror that helps you become more aware of your psychophysiological processes. You will be given immediate information about your own biological conditions. The thermal electronic device measures and feeds back to you information about your nervous system and circulatory system.

Thermal biofeedback is controlled by the autonomic nervous system, which has two divisions: the sympathetic nervous system, which responds to stress and pain, resulting in stress-related disorders. The parasympathetic nervous system is the second division, which has an antagonistic effect to the sympathetic nervous system. The sympathetic nervous system controls the smooth muscles in your blood vessels, and therefore, the diameter or opening of the blood vessels. Stress increases the activity of the sympathetic nervous system, whose basic function is to mobilize the body to meet any situation that appears threatening. This increases the secretion of epinephrine and norepinephrine. These hormones

supplement and prolong many sympathetic responses that result in the "fight or flight" reaction. This, in turn, causes the smooth muscles lining the blood vessels, to produce vasoconstriction, just like squeezing a water hose. As a result of this constriction of the peripheral blood vessels, the blood is forced back to the heart, which increases heart rate and blood pressure. The blood is also sent to the head, causing the face to get hot, and the hands to get cold. When the person relaxes, the parasympathetic nervous system takes over, which causes vasodilation. Since the sympathetic activity decreases, the muscle relaxes and blood vessels dilate, which means the blood is able to flow through blood vessels with wider openings. This mechanism brings the body back to normal. Blood flows freely to the peripheral blood vessels and the hands feel warm again, while the heart rate and blood pressure decrease. The parasympathetic nervous system also enhances the release of the endorphines to provide emotional and physical well-being. As a result, the body returns to homeostasis, plus maintaining a balance within the system. The purpose of temperature training, is to

increase the patient's ability to discriminate between different levels of emotional activity. Low levels of temperature may be related to undesirable emotional and physical symptoms. The goal of the biofeedback program is to help patients modify inappropriate responses and regulate their physiological processes in order to achieve homeostasis. It simply is counterproductive to brace muscles, accelerate heart rate and raise blood pressure in the presence of an unchangeable stressor. I believe that my biofeedback system is the most advanced that is available. It is computerized and can provide feedback related to the stress response. By teaching the individual to regulate these responses, we are in a true sense teaching this individual to control stress. The best part of this procedure, is that it can reduce the need for medication, provided the person is compliant with the program. I believe that by changing the external factors that can be changed, and then modifying inappropriate responses to those that remain, we are doing most of what can be done with a stressed individual. Biofeedback has been proven to be effective in the control of pain due to muscle injury and headaches. Through

biofeedback of electronically monitored physiological events, patients can become aware of certain of the body's usually involuntary processes and learn to bring this under control. The emphasis is on control of physiological factors involved in the genesis of pain.

The goal of treatment is to modify or control these variables. For example, biofeedback is used to teach the patient to relax muscles involved in muscle contraction headaches or to alter blood vessel dilation in cases of migraine headaches. Muscle relaxation is taught as a means of modifying muscle tension believed to cause or exacerbate pain.

There are several reasons why biofeedback is an effective treatment and some of these I will list in just a second. Relaxation may have a direct effect in reducing pain by relaxing tense muscle groups that are involved in the etiology of some pain syndromes. It has been emphasized that heightened anxiety is associated with lower pain tolerance. Training in biofeedback, therefore, may be useful in alleviating anxiety, and hence, pain. Focusing on the biofeedback procedures may be useful in diverting

attention away from the experience of pain. Successful use of biofeedback may provide a sense of control over physiological functioning, thus increasing the patient's perception of competence and mastery. Effective biofeedback training decreases sympathetic activity and enhances the release of the endorphines to block the pathway of pain to the brain and provide pain relief. The following are some medical conditions that respond to biofeedback treatment:

- anxiety and depression
- cardiovascular problems such as Tachycardia, essential hypertension (high blood pressure)
- Gastrointestinal Disorders--Colitis
- Duodenal Ulcer (without obstruction), Ulcer of non-organic origin, Irritable Bowel Movements
- Back and neck problems--Cervicalgia (neck pain), muscle spasms in the back, low back pain syndrome
- Headaches--headache pain/source unknown, cluster headaches, migraine and tension headaches.
- Dental--Temporomandibular Joint Syndrome and Myofascial pain

- Respiratory Disorders--Asthma, Respiration, Disorders of Respiratory Distress Muscle
- Other disorders--weight problems (stress-related), Attention Deficit Disorder, Diabetes, Insomnia, Pre-obstetrical delivery anxiety, Pre-operative anxiety, Trigeminal Neuralgia, Post-operative pain, Dermatitis and Raynaud's Syndrome

Diaphragmatic breathing is a very important skill taught in successful biofeedback treatment. An individual who can voluntarily control breathing, can easily learn to calm the mind and body to relax at any time and place. To practice diaphragmatic breathing, place your right hand on your upper chest and left hand on your stomach. Since you are using the diaphragm, the tough muscle below the rib cage, every time you inhale, or breathe in your stomach muscle should rise as you expand the lungs to get in all the oxygen you need. The chest and shoulders should not be actively involved during diaphragmatic breathing. Chest breathing is very shallow and does not give you much oxygen. It just keeps the feeling of heaviness in your chest and feeling stressed. Therefore, during this process, only the left hand should rise every time you take in a deep breath. The right hand should not move up and down on your chest. You will notice when you

concentrate on your breathing and make your breath the focal point, it will help to keep all your thoughts out of your mind so you can completely calm your mind and allow your body to relax. As you focus on this deep-breathing exercise, think of your breath like a wave of relaxation rising and falling each time that you inhale and exhale. As you continue this breathing, you will begin to notice that your hands will be warming up as you allow yourself to relax, both emotionally and physically. Your goal now is to warm up your hands to 96 or 97 degrees F. Your peripheral blood vessels will be dilating as you really concentrate on this process of breathing and relaxation. So, try to visualize how the blood vessels in your arm relax and dilate as you breathe out, pushing the blood down, all the way to the tips of your fingers. Feel your hands warming up as you breathe out each time. Concentrating completely on your breath and the warmth in your hands, you will eventually help yourself to get to the optimum skin temperature of 96 degrees F or 97.

Remember this is your skin temperature, so it will be a few degrees lower than if you were to place a thermometer in your mouth. Let me give you some instructions on diaphragmatic breathing now, using the electronic digital temperature device in your package. On the lower right corner, there is a button that you need to push down, where it says "out", to record your skin temperature. With upward motion, when set at "in", it records the room temperature. If you look at the back of

this device, you will see another button that you need to push down if you wish to see your temperature displayed in degrees of Fahrenheit. Now, attach the tip of the sensor on your right hand index with adhesive tape. While sitting on a recliner or lying down, follow these instructions for focused breathing. You will need to start this way every time you listen to any of the CDs in your package.

To begin, take a long, slow, deep relaxing complete breath, in through your nose, and when you are ready, exhale as slowly and fully as you possibly can through your nose again. Place all of your conscious awareness on your breathing. Turn off all unnecessary thoughts, tune out all distracting noises, and silence your internal voice.

Continue to breathe slowly, smoothly and quietly. In your mind, picture fresh, clean oxygen-rich air flowing through your nose and passing through your throat and chest until it reaches your lungs. Picture and feel your lungs expanding to their maximum capacity and then emptying totally like large pink balloons filling completely and then collapsing totally when empty.

When you inhale, feel your stomach muscles push out and your lower ribs separate. Feel your breath filling the bottom, the middle and finally the top of your lungs. When you exhale, feel all the muscles in your body—from the top of

your head all the way down to the tip of your toes, totally relaxed. Feel loose and limp, warm and heavy, deeply...deeply relaxed.

Now, think of nothing but the movement of air within yourself. Remember that each breath is nourishing your entire body with fresh oxygen-rich blood, and each exhalation is cleansing your body. If your thoughts stray from your breathing, bring them back and focus your entire awareness on your breathing. Continue to concentrate on your breathing. Continue to concentrate until you hear my voice again...

When I count to three, you will open your eyes and feel much better than before; your eyesight will be improved, your reaction time quicker, your blood pressure lower and your heart rate slowed down. You will feel totally refreshed and relaxed.

One - Two - Three. Eyes open.

You will need to listen each one of the other CDs in your package on a daily basis. Preferably in the morning or after lunch and before bedtime. The brain needs to go through the process twice a day for two to three months to achieve an effective training with best results possible. I strongly recommend some form of cardiovascular exercise for two miles a day to accompany this program. Walking or swimming are excellent forms of exercise. All you need now is a

positive attitude, patience and
commitment to have a successful
outcome. Your health is now a priority,
so take care of your health, and I wish you
all the best.

**FAST READING STRESS
SENSOR: LARGE 3/4" DISPLAY,
6' CABLE. Model SC911**

Tension Level and Clock:

Simply tape sensor to finger to read your stress level.

Operation:

To start--Remove the Battery Door. Install the battery flat (+) side up. Replace door.

To Set Clock: (switches on back of case-see diagram)

1. Set slide switch to **CLOCK** position.
2. Set the hour by pressing the **HR** switch **ONCE** to advance number **ONCE**.
3. In similar fashion, set minutes by pressing **MIN** switch.
4. Move slide to **TEMP** position.

To **READ TIME**: Press **CLOCK** bar on front panel to display time of day.

To **Read Room Temperature**: Set **IN/OUT** switch on front panel to **IN** to display room temperature.

To **Read Stress Level**:

1. Flip out stand on back of thermometer case. Make sure that the slide on the back of the thermometer is switched to **TEMP** position. Select either Fahrenheit or Celsius. Set **IN/OUT** switch on front panel to **OUT** to display body temperature.

2. Carefully uncoil the thermometer wire. Use an 1 1/2 inch piece of office tape to tape the temperature sensor on the end of the wire to your fingertip. Tape the blue tip of the wire to the fingertip of your index finger of your right hand.

Wait 20 seconds to 1 minute for the temperature to reach your hand temperature. When finished, carefully remove the tape. Do not pull on the wire or you will break it.

DIAGRAMS:

