

## A UNIQUE APPROACH TO STRESS REDUCTION: APPLICATION OF BIOFEEDBACK

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My work primarily deals with stress on a one-to-one basis as a counselor and psychotherapist. Biofeedback is something I have used to help in my stress management for the last five or six years. I find it an interesting and delightful method of working with people, and I think it is quite helpful in an educational sense. I am not making any claims for it as a cure-all or an electronic guru. It will not create nirvana; it will not solve ingrown toenails. But it does do some very interesting things for you in the way of learning how to monitor and regulate some of your own body functions. The term "biofeedback" is new. It was coined in 1969 by a group of biofeedback research people who met to establish a society. (You cannot have an organization without a society and you cannot have a society without a name.) We even have a California Biofeedback Society now and are giving examinations for people who learn to operate the equipment.

The easiest way to describe biofeedback is to tell you precisely what it does. Biofeedback is a technique. You use equipment, but it is a technique. "Bio," as we use it, refers to any life function of the body, whether it is the heartbeat, the breathing, the blood flow, the activity of the intestinal tract, the temperature of the skin or any other physiological or life function. Using biofeedback we monitor those functions.

The monitoring process tells us what is going on with regard to that particular function. If we take the function, for example, of the heartbeat, we have to have a way of telling us what is going on in order to monitor it. The five senses are used as monitors. So we could hear a heartbeat if we had good enough hearing. But since we usually cannot hear it on our own, we use a biofeedback device. There are all kinds of biofeedback devices and essentially these are just electronic instruments which amplify the signal we get from our own body function. In this case we use an amplified stethoscope. So with an amplified stethoscope you can hear the heartbeat. You can hear how fast it is, how slow it is, or whether it changes its rate, so you can tell what is going on. That heartbeat is fed back to you through one of your senses, your hearing, and it goes to your brain/mind and there you do something about it. In order to complete the cycle in biofeedback you take a specific life function--like the heartbeat--you monitor it, you see it, you find some way to tell what it is, and then you change it.

Now this sounds kind of strange and mysterious--to change your heart rate. But it is not really that difficult. The things we have done with biofeedback for a long time are just automatic. For example, a baby learns to eat. It does not know right away how to get the food in its mouth. He takes a handful of food

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and makes a pass at his mouth--it may get to the ear or the nose or the eye. But after a while, that feedback device--seeing the arm, seeing the hand there with the food, tasting it, perceiving it when it gets to the mouth--tells what is going on. So that baby learns how to hit his mouth with his fist after a while. Now it is really that simple in the sense of the process. The body, of course, is very complex physiologically and chemically and biologically and it is not simple in that sense. But we can sense what is going on.

For example, we can just look at our skin and tell whether it is light or red or white, whether it is rough or smooth. We can tell a lot of things just by looking. If we want to amplify that looking procedure we can, for example, hook up an electronic thermometer that has a gauge or a dial on it. We can look at that dial and we can tell what our temperature is. So we feed it back that way. We can look in a mirror, we can see what happens to our facial muscles and our expression--that is feedback. We hold the mirror up, we see we are frowning, so we change our expression--we smile. That is feedback. The muscle-maneuvering of the frown was the life function, we monitored it by looking in the mirror and then changed it with our mind, our will, and whatever devices we can find that cause these things to happen.

So we choose our body function: heart, intestinal tract, blood flow, skin temperature--whatever biological or physiological process we want to monitor. We find ways to monitor it by amplifying it, enlarging it, making it accessible to our sense organs, so we can tell what is going on immediately and continuously. Then we set about to change what is happening in our body. I would like to tell you about some of the extremes.

In some of the earlier research, for example, they were working with rats, and they could get the rat to make one ear white with no blood and one ear red, full of blood--relatively speaking. So they could train this rat with biofeedback--flushed in one ear and blanched in the other. Some of the swamis have been doing things that are quite remarkable with human temperature. For example, Swami Ramma could take probes on the palm of his hand and get a ten degree temperature difference in an area two inches apart, and then he could reverse it. He could warm one hand and make the other one cold and switch. These are things that can be done with the body by people who have had a lot of practice. We do not expect to do all that. But we do expect to do some things that are very helpful in our problem of dealing with stress.

We use biofeedback in my office primarily to deal with psychosomatic disorders. Now there are two fundamentals we keep in mind in biofeedback. One is that any body function that we can monitor, we can change. The second thing we keep in mind is that any physiological change in our body is accompanied by some emotional or mental change. And, conversely, any emotional or mental change is accompanied by a physiological change. We talked about some of those things this morning. So when we deal with what we call psychosomatic disorders, we are dealing with both the mental and physiological manifestations. It has been said that at least three-fourths of all patients that go to the doctor's office have what we call a psychosomatic disorder. This does not necessarily mean that there is something inherently wrong with the body; it means it is out of balance and there are symptoms. These physiological changes in the body have been created at least in part by changes in the thinking--worry, fear, anxiety, tension. The muscles get uptight, you get ulcers, you get high blood pressure, you get neurodermatitis, colitis, migraine headaches and tension headaches. All of these things are what

we call psychosomatic disorders, as we are using it here. These are the kinds of thing I treat with biofeedback in my office.

What we do first is identify what the symptoms are. We talk a little bit about what the emotional concomitants are and how the emotions are related to what is happening in the physical body. Then we show the patients how they can change that. Our usual procedure is to have the patient sit in a relaxed way in a comfortable chair, in a room that is quiet and fairly dark, where there are not many outside stimuli. We give him different relaxation methods, such as the Jacobson Progressive Relaxation Autogenic Training, to help get total body relaxation. Then we use the biofeedback equipment to focus on a particular part of the body. This is one of the differences between biofeedback training and general relaxation techniques.

You can get some generalized relaxation with biofeedback but it is primarily a specific modality, it deals with a specific body function. For example, a person comes in with high blood pressure. We can put on the blood pressure cuff and measure the blood pressure. If you have a sophisticated enough cuff it gives you a retrogressive reading. The patient can tell as he is going through different relaxation procedures what is happening to his blood pressure. Many times just generalized relaxation is not enough. We can get people quite relaxed. It relieves a lot of tensions and balances out a lot of their physiology and their autonomic nervous system, but it does not necessarily relieve some of these target organ symptoms such as blood pressure and ulcers.

As an example, let's use colitis where the intestinal tract is working too fast, too hard and the patient has cramps, diarrhea, discomfort; a body imbalance. So we use our generalized relaxation methods, then we use an amplified stethoscope so the patient can hear the gurgling and the growling of his intestinal tract. As he practices the techniques that we give him, and as he develops methods of his own through his thoughts, visualization, and any other mental technique that he can find, he begins to hear that his intestinal track calms down. As it calms down, he realizes what it was that he did that caused it to calm down. This is the learning procedure in biofeedback. It sounds strange and mysterious but it really does work. You really can control anything that you can monitor. Our equipment is not sophisticated enough to monitor everything, we do not have enough techniques yet to change everything, but we have enough practice and experience to know that our mind and will are so powerful that we really can change anything that goes on in our body. So that is the basis for treating psychosomatic disorders with biofeedback.

What we are talking about here today, generally, are not psychosomatic disorders. Those come after prolonged or chronic stress. What we are talking about is the stress we experience before we get psychosomatic disorders. We are dealing with the tensions that come along before the colitis, the tensions that come along before the heart attack. So now we must translate the biofeedback application to generalized stress. This is still experimental; as a matter of fact the whole field of biofeedback is experimental. There is a lot to learn but I think there is a lot of potential for its use. However, there are still a lot of things we need to develop before biofeedback is really applicable to group modification of stress. One of the things I have done in my office, and which we have done at TRW, is have pilot programs of groups of people working together, say with a temperature monitor on migraine headaches. Each individual had his own instruments but they all worked together. We used relaxation methods, biofeedback

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March 1978

For sale by the Superintendent of Documents, U.S. Government  
Printing Office, Washington, D.C. 20402

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NIOSH Project Officer: M.J. Smith, Ph.D.  
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**DHEW (NIOSH) Publication No. 78-156**

methods, a little bit of group counseling and we got what we felt were excellent results in teaching people to abort or prevent their migraine headaches in a relatively short time. Migraine headaches are just one manifestation of tension and anxiety. There are lots of others. There may be an infinite number of possibilities for the application of biofeedback. We have only dealt with a few of them.

I think there is a big future for techniques like biofeedback. Essentially our educational devices help each one of us, as individuals, learn to take care of our own body tensions and symptoms.

We are not usually aware of what is going on in our body when we are having these tensions. We know a little bit about it; if we have hunched-up shoulders we might know what is going on. But we do not usually know if our blood pressure is up. We do not always know when we are having tensions in our stomach, until there is an ulcer. We really do not know a lot of things that are going on when stress is mild or moderate. One of the things that we can do with biofeedback is to teach people to recognize these stress signals. If we use an amplified stethoscope to listen to the intestinal sounds, after a while we begin to recognize what it feels like when the contractions are greater and what it feels like when they are lesser. If we hook up a monitor to muscles, we begin to realize what is really a relaxed muscle. Most people do not know that. Most people do not have really relaxed muscles. We put them on the machine, they watch the gauge and get the muscles really relaxed and they then know what that feels like. So the next time they get a tension, a pressure in those muscles, they recognize it. We are teaching people to recognize from their own body signals what is going on within them, giving them an awareness of their own physiology, an awareness of their own emotions, an awareness of their own life functions. And to me that is critical. When you are aware of a change, you can do something about it! You do not have to take pills. You are dealing with your own body, with your own life. You have a tool then that you can use to help you to recognize and do something about the tensions that are going on in your own life. It is not easy, and the technique is not perfected.

You have to practice and you have to keep doing it. But once you begin to recognize what those tensions are, and you begin to do something about it when you recognize them, it gets easier and easier. After a while, instead of taking fifteen minutes to sit down and relax, you do it almost automatically. You give yourself key words and key signals. You feel you are uptight, you notice it, you give the word and you relax. So it becomes an almost automatic regulating procedure.

Biofeedback is a learning device that helps us to recognize the clues and the signals that go on within all of us. We have the method of recognizing the signals and the method of changing those stresses. We learn how to get some relaxation, how to relieve some of those symptoms, so we can be healthier. I try to help people realize that stress is here to stay. It has always been around, it always will be around. We ourselves need to take the responsibility to deal with it. It is true--we would like to have more money, better working conditions, better interpersonal relations. All those things are fine. But we are responsible for our own life and the better we know and accept it, the better we do in life. I am firmly committed to working with and promoting any kind of a method or device or system that will help people to become aware of their own problems and help them do something about them.