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Biofeedback Therapy

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Biofeedback is a way of measuring your nervous system on computer. When I came across it for the first time in 1984, it was a very new concept in Ireland. It had begun in the US in the mid sixties when research was being done on space travel. Scientists wanted to come up with a way of measuring nervous system activity when people were away from earth. Later it became clear that biofeedback could be used in the treatment of a number of disorders. It has applications in neurology, rheumatology, psychology, psychiatry, dentistry and a number of other disciplines.

Biofeedback will be most helpful if your headaches/ migraine is stress related. When people come to see me, they will most likely have been to their GP and perhaps even a neurologist as well. The doctors will normally have decided that stress may be playing a part in their illness.

If your illness is stress related, you can undertake a number of different programmes to help control stress. People take up yoga, meditation etc, but the main problem is that you never really know if you are doing it right or not. In biofeedback, you get measurable information back from the computer, so you can see exactly what's happening.

Biofeedback measures the 'fight or flight' response in the nervous system. 'Fight or Flight' refers to your response in a stressful situation. In an emergency situation, our nervous system goes into overdrive. The *sympathetic nervous system* takes over, heart rate increases, blood pressure increases, hands and feet go cold and your stomach shuts down because their operation is not necessary in the current situation. In addition, there is a major constriction in the 'smooth muscle'.

Headache is one of the top symptoms of stress. Others include sweaty hands, racing heart, sleeplessness, panic, nausea etc. We all experience stress – all of us – but not all of us will suffer these symptoms.

Measuring the Nervous System

How do we actually measure a person's nervous system?

1. An electromyography is one way of doing it – This is a way of measuring electrical activity that comes from your muscle when it is tight. The normal rate is 2 microvolts. When we get tense or stressed, we tend to stiffen or tighten our muscles, causing the voltage to increase. When stressed, the reading might be in the region of about 18 microvolts. The more activity in the muscles, the more tension. 18 would be a typical reading from a sufferer of tension type headache. The machine measures readings from the back of the neck and is shown to the patient on screen. Of course, its not the reading that is important but how it is interpreted and acted upon that will make the difference.
2. Another way of measuring the nervous system is to measure surface skin temperature. This is not your body temperature, but the temperature of the surface of the skin, particularly in the hands and feet. When stressed, the vessels in these areas constrict, forcing blood away from the areas back towards the lungs and heart, the essential organs required to deal with an emergency situation. As a result, hands and feet go cold. Hence the term 'cold feet' meaning to back away from something in a stressful situation! If you put the back of your fingers to your face you will probably notice that your hands are colder than your face. Your face is always around the correct temperature – 90-95 degrees Fahrenheit. If your hands are colder, that may indicate some level of stress. Even when you are at home watching television, you may notice that your hands are colder. You might be perfectly relaxed physically, but habit also plays a role. If you are used to being stressed, you begin to breath in a 'stressed' manner even when relaxed. We also 'learn' to hold ourselves a certain way, remain tense after the stress has passed etc. In other words, tension levels may still be high in your body even when you are relaxing. Quite often the length of time you are stressed for indicated whether you will experience symptoms (e.g. migraine) or not. If our bodies are still on high alert long after the stressful situation has passed, then we are going to be more likely to experience symptoms such as migraine. Looking back over the 24 hours prior to an attack may reveal a lot about the possibility of stress being a trigger. In many people, it is only hours afterwards that the symptoms show up. Weekend migraine is a perfect example of this. I also often hear from migraineurs who get an attack when they go on holiday because it is 'relaxation after stress'. After all the stress involved in getting to the destination, the attack may not occur for hours

afterwards. A lot of migraineurs have cold hands, especially women. Male migraineurs tend to get clammy hands when under pressure. Prevention of stress related symptoms is possible if you can learn to control your skin temperature through biofeedback.

3. Sweat Response is another way of measuring the nervous system. We can measure the level of 'clamminess' in your hands. Sweaty hands are another sign of being on high alert. You may not even be aware you are on high alert, but physically you are.

What then does a typical session of biofeedback involve?

Well there's no need to prepare specifically – no need to fast or wear special clothing. Just come as you are. The first session is called a psycho-physiological profile. At this session, I take a history of the persons migraine – age of onset, medical history, background, family etc. For example, if migraine set in around the age of 20, I would investigate if anything major changes occurred in the sufferers life around this time. In my experience, migraine often begins around the same time in life as significant stressful situations.

Actually talking about past stressful situations can increase stress levels. Your body actually records events and simply talking about something can re-run the body's tape of the event and send these signals to the biofeedback computer through the sensors. In this way, we can effectively see the body's response to the original experience which may have triggered the original migraine.

Doing biofeedback can be very positive because once you start relaxing, you immediately see the readings on the screen come down. The slightest change in your body will show up because the sensors are very responsive.

Stress

Stress can be ANY change or adaptation in your environment. It doesn't always have to be negative. In the 18-30 age group, I find that going to college for the first time, getting a new job, entering a relationship etc – all these things can be major stresses, even though they may all be very positive experiences. At this age, people are out to prove themselves. Many young people are very goal-orientated. People are also getting used to independence, maybe living away from home for the first time. These issues can all be stressful scenarios.

Our reaction to stress is influenced by our personality and the environment we are in. It is also governed by our coping capacities and our habits. I find that there is no such thing as the 'migraine personality', but I do find certain tendencies that will make people more vulnerable to stress e.g. being a perfectionist or a high achiever. A lot of people who suffer from stress related symptoms would exhibit these kind of features. During the history taking session, I will usually ask people if they think they are perfectionistic or exhibit something similar – not taking lunch breaks, working extra hours, first in and last home etc. Even children can be 'perfectionistic'- maybe getting too worried or uptight about homework or spending hours every night fixated by getting it right.

I think that stress may make some people more vulnerable to getting more migraine attacks than they would otherwise get.

The less control we feel we have over something, the more anxiety is likely to be created. In a situation where we feel we are helpless, our stress levels tend to skyrocket. Coping with stress means our ability to make changes to the way we would normally react. How well can we adapt?

Encouraging Relaxation

An essential element of biofeedback are the physical exercises that are 'prescribed' to attempt to control stress levels. In session 1 I would normally focus on basic tightening and loosening exercises. This would be done in front of the screen and people can often see a huge reduction in tension levels almost immediately. Another very important part of relaxation exercise is abdominal breathing. Breathing with the belly rather than the chest promotes relaxation. It is very important for all of us to breath slowly and deeply from the abdomen. Breathing abdominally seems to 'push a button' in the nervous system allowing the parasympathetic nervous system back into play which is the normal relaxation mode we should be in. When you breath deeply, your hands will warm up if they are cold. The tightness in the stomach will begin to disappear and the blood pressure may drop.

As part of the therapy, I give people a relaxation tape which lasts 15 minutes each side. All you have to do is listen to it for 15 minutes a day every day. This can often be the hardest part of the therapy – finding the time! The tape concentrates on the practical aspects of relaxation – tightening, loosening, counting etc. The idea is to get into habit of relaxing properly. For many people, listening to the tape will be the first time in years that they will have lay down and literally done nothing.

It is very important to remember that life is not always about 'doing' – but about 'being'. You need to stop every so often and let your relaxation response take over.

There is some research to show that just before a migraine attack, the hands will be very cold and the forehead will be very hot. Breathing from the abdomen properly can cool down the forehead and warm up the hands and therefore, may prevent migraine to some degree. While it is unlikely that you will be able to get rid of your migraine indefinitely, many people tell me that biofeedback reduces the frequency with which they occur and also that they don't last as long when they do occur. Some people also insist that the pain isn't as bad.

Repeated visits are recommended. I would say that you would need about 8 sessions (3 months) to learn how to use the technique properly. After 6 months then there's a review. By this time, I would hope that you would have kept your good habits and be in a rhythm of relaxing.

Cutting out stressors

Some tips for migraineurs to be aware of:

1. Don't have unrealistic expectations of yourself.
2. Learn to draw the line and say NO. Don't pressurise yourself too much.
3. Take up hobbies. Even better, don't let them lapse in the first place. Music, sport, theatre etc are all really important safety nets against stress. By preventing stress, hobbies can have the effect of preventing migraine. Physical activity can also burn up adrenaline which is present during stressful periods.
4. Don't drink too much! Dehydration can be a source of headache and migraine. Even soft drinks like Cola can trigger them. I have noticed myself in history taking that a lot of young people drink a lot of cola. Caffeine and smoking are other factors that should be limited.

In summary, biofeedback is a method of giving you feedback from your body. By itself, it will not help any ailments – it is what you do with the feedback it gives you that counts. By listening to your body and by using the right techniques, you might well be able to control your migraine.

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