

## Eavesdropping on Events inside Your Body with EEG Biofeedback

Biological systems in the human body are constantly sending us messages. We don't usually pay attention to them until they become so loud we can't avoid them. If we run up three flights of stairs, for example, we notice we are breathing hard, sweating, and our hearts are pounding. We hear the message loud and clear, and we slow down, rest and recover.

The internal messages are always there, but unless we exaggerate them or specifically go looking for them, they generally remain unnoticed. It is only in the past few decades that technology has provided us with machines sophisticated enough to detect, amplify, and record these biological signals. Being able to do this started a revolution in medicine. We soon learned that by getting feedback on internal processes, we could change internal activity.

Biofeedback is like eavesdropping on our body's own internal conversations. When these inside-the-skin events are detected and fed back to us through electrical signals using sight, sound, or touch, we can learn to use this information to change unwanted patterns that are contributing to poor physical and/or mental health. That's because our bodies are a sea of information and communication. Every organ is talking and listening to every other organ. This seems to be important if we are to remain healthy. We are a complexity of many organ systems and some 76 trillion cells that are completely dependent on one another for life itself. If communication breaks down, or a system becomes dysregulated, it affects all other systems.

The idea that there is such a strong mind-body connection in healing has produced an entirely new field of medical study: psychoneuroimmunology. The term connects the mind (psycho), the nervous system (neuro), and the body's natural defenses (immuno). We know that these three systems carry on a constant dialogue, particularly the brain and nervous system, and this is where neurofeedback plays a major role.

Inside-the-skin events have often been ignored because they are subtle and often difficult to detect. Now, with the development of laptop computers, we are more capable than ever of listening in, amplifying, recording, and getting feedback information on biological events. This is revolutionizing the way we look at the whole body as a functioning system. The feedback may be in the form of sight, sound, or physical stimulation. With the latest advances in technology, the feedback can come in the form of sophisticated computer games. With practice, ("that which fires together, wires together"), we can begin to change inside-the-body events to make us healthier.

The quieter messages that otherwise go unnoticed until we have a medical or emotional problem, are now available for study. With biofeedback, it is a relatively simple process to teach a person to change inside-the-skin activities. We can change things such as temperature, heart rate, blood pressure, muscle tension, chemical responses, even brainwaves.

As the patient becomes more proficient in the use of a biofeedback instrument, he becomes more aware of how a particular body system is functioning. This helps the patient bring that system under more voluntary control. Until recent decades, Western medicine believed that systems under the control of the autonomic nervous system functioned involuntarily, that we had no control over them. Yet, yogis in the East had demonstrated for millennia that they could control such processes. It was only through biofeedback that we were able to change the belief system of Western medicine.

Now, routinely in biofeedback practices all over the world, we train people to change those “involuntary” processes, bring them under voluntary control. Once the patient learns to regulate a system, he no longer need the biofeedback equipment. While training, he develops a sensory image. This is not a visual image, but a feeling that physical things are changing inside him. For example, he can sense when the hands are beginning to warm, the blood pressure is going down, the muscles are relaxing, and the brain is alert.

Imagine having voluntary control over your autonomic reflexes. A few decades ago physicians would have dismissed the idea as crazy. Now, informed physicians use and prescribe biofeedback daily to patients with disorders ranging from high blood pressure to alcoholism, depression, anxiety and migraines.