



Biofeedback is a practical approach to diseases.
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Since the publication of the results of a study done by Dr. Eisenberg, in *The New England Journal of Medicine* on January 28th 1993, the interest on alternative medicine has increased enormously. He found that Americans spent \$17 billion dollars in medical visits to alternative medicine practitioners. These patients preferred to spend their money than to receive the free medical orthodox consultation.

In 1992, the Office of Alternative Medicine was opened as part of the NIH with a budget of \$2 million dollars. The increase of the demand to know more about these therapies has been so large that in October 21st, 1998 this OAM turned into the National Center for Complementary and Alternative Medicine whose functions are to facilitate and drive biomedical research with a budget of \$20 million dollars during that year.

Currently there are about 12 centers of the NCCAM that do research on alternative medicine in areas of specific diseases.

Then in 1994, the May issue of *Pediatrics* published for the first time in the history of the American conventional medicine a clinical study using homeopathy. Researchers of the University of Washington and Universidad de Guadalajara did it (Jacobs J., Jiménez LM, et al: "Treatment of acute childhood diarrhea with homeopathic medicine: A randomized clinical trial in Nicaragua," *Pediatrics* 93: 719-25, 1994).

The trends in alternative medicine use in the United States were reviewed and again Dr. Eisenberg found that the use of herb remedies increased in 380% and the use of high doses of vitamins rose 130% in a period of time of 7 years.

Americans now spend around \$27 billion dollars a year on this kind of therapies. Even some insurance companies pay for the alternative medicine treatments ("Trends in Alternative Medicine use in the United States," 1990-1997, *JAMA*, 1998;280:156-1575).

More attention was addressed to alternative medicine in 1998 when the whole issue of *JAMA* published on November 11th, was almost dedicated to the topic of alternative medicine.

A study done by the Office of Education Development, Harvard University, School of Medicine showed that 75 of the 125 schools of Medicine in the United States offer elective courses on alternative medicine. Thirty-eight courses of the 123 elective courses are offered by the Departments of Family Medicine and 14 courses are offered by the Departments of Internal Medicine ("Courses involving complementary and alternative medicine at US medical schools," *JAMA* 1998;(9)280:784-787, Wetzel MS, Eisenberg DM).

There is an advertisement that says: "Cancer Treatment Centers is the only group of hospitals in the country in which, the doctors of naturopathic medicine work side by side with the oncologists as an integral part of their treatment team against cancer". This statement would be incredible a few years ago.

Now I will attempt to present a clear picture of biofeedback research.

The term feedback is defined as a method of controlling a system by reinserting into it the results of its past performance. We can learn to control our performance in sport by observing and acting upon the results of our previous results.

So biofeedback is simply a special kind of feedback. In this case, it can be the feedback of different parts of the body. It can be the brain, the heart, the muscles and so on. Then we got biofeedback training, which is the procedure that allows us to tune into our body functions and eventually to control them. It is really fascinating.

In a typical biofeedback training session an individual can "see" his heartbeat and "hear" his brain waves. That means that he has the information he needs to start to control them.

Once a subject is able to recognize his brain

Medical & Legal data is for informational purposes only. You should always consult your family physician, or one of our referral physicians prior waves, he soon learns how to control them at will. Nobody knows why this thing happens, but it does. And after a little practice, he will not need any aid, that is the biofeedback machine.

In holistic medicine, we are taught that the patient has the responsibility for and power over his own health. Biofeedback puts the emphasis on training rather than certain medications or surgery.

Now that we realize that anybody has capacity to play an active role in combating his own medical conditions, we must give the patient every available assistance in making that role as effective as possible. This is where we can say that biofeedback training comes in. Nowadays some doctors consider biofeedback training that it is the best tool we have to help the patients achieve control over the nervous system activities. Using this method, patients and physicians can cooperatively fight against disease. In this particular kind of fight, the patient becomes his own prescription to keep a good and lasting health (Karlins M. and Andrews L., *Biofeedback*, 1972, Warner Books Inc.)

One of the medical indications of biofeedback training is for the treatment of anxiety. When the patient learns to keep himself on the alpha level of brain-wave pattern, he can bring down the level of anxiety at will.

The same way a patient who suffers migraine and tension headaches can regulate – through this biofeedback training – the blood flow between the head and the hand.

We know that 95 % of the people, who have been diagnosed as hypertensive, suffer the kind of hypertension known as “essential hypertension”. This means that we cannot find a physical cause for this. Biofeedback is an excellent and effective alternative treatment for all these patients.

In conventional medicine, we use hypnotic drugs for the treatment of insomnia. Some of them can suppress certain parts of the sleep cycle that may be important to psychological well-being (Pearlman, C., and Greenberg, R., “Medical-psychological implications of recent sleep research.” *Psychiatry in Medicine*, 1970, 1, 261-276).

EMG biofeedback is also useful in the treatment of many neuromuscular disorders, including spasmodic tics and muscle cramps.

Dr. Weiss and Dr. Engel did an important study with 8 heart patients to see if they could learn how to control dangerous irregularities in their heartbeat by force of mental discipline only. The premature ventricular contractions increase the possibility of sudden death. What they found is that biofeedback really works.

At Universidad de Guadalajara, some years ago, we did clinical studies with patients who suffered of stuttering and others who suffered epilepsy. In both cases, biofeedback training helped all of the individuals.

In general, biofeedback may help drug addiction, neck injuries, hysterical deafness, stroke victims, opera singers, Raynaud’s disease patients, asthma and many more clinical conditions.

One unconventional use of biofeedback is to change our inner state, that is our consciousness. After the training, we do not need dangerous drugs to explore our inner self. We are able to change our minds without losing our heads.

We can easily learn how to slow down our brain-wave frequency, reaching alpha (8 to 13 cycles per second). Alpha is a mental state most often described as relaxed, passive and pleasant. Many people are able to get both an interhemispheric hyper synchronicity and an intrahemispheric hyper synchronicity. This helps people to develop their skills, including creativity. To me, it is a kind of modern electronic scientific raja yoga.

Some years ago, dreams were regarded as fluke occurrences. Now some investigators observe that these things correlate with bursts of eye movements that are today known as REM sleep. So suddenly dreams, instead of being those subjective experiences became real. So real that they can be measured and are valid objects for study.