

Biofeedback Therapy: Pros, Cons, & Considerations

Does a patient's awareness of his or her body's reaction to physical, psychological, intellectual, emotional, or behavioral stimuli give them control over their reactions? Does an ability to control such fundamental aspects of our being as respiration, bloodflow, concentration, mood, and even cognition also enable us to control pain or any other affliction?

Among the many controversial treatment protocols currently offered by a wide range of practitioners and recognized by researchers, highly-regarded medical centers, and insurers, biofeedback therapy is enjoying resurgent traction among patient populations for whom traditional remedies have proved ineffectual. This recent awareness of its putative benefits, however, does not make the use of biofeedback as a curative or preventative any less controversial.

Biofeedback—the popular coinage for what is simply the use of instrumentation to translate the psychophysiological processes associated with illness, pain, and less than optimal body system functioning—is more than the mere monitoring and gauging of the body's physiological processes. It involves effort on the part of a patient to actively respond to information about bodily processes and to consciously influence them without any outside intervention. This information is the “feedback” part of the term, and it derives from measurements made of one's own biological processes—the “bio” aspect—*as they are occurring*.

Both research and practical application of the techniques of what is essentially and perhaps more accurately referred to as “neurofeedback” have established its efficacy in affecting a spectrum of symptoms and in controlling bodily functions formerly

considered as purely beyond our conscious control. The ability to visually or aurally observe the degree of one's own internal processes, including heart rate, blood pressure, brain wave activity, muscle tension, or skin temperature is promoted by practitioners as the initial step in developing the skills to control and mitigate symptoms associated with those autonomic functions.

Many physical and psychological disorders which commonly frustrate traditional medical practitioners and are unresponsive to the panoply of approved drug therapies can indeed demonstrate mitigation pursuant to structured, monitored biofeedback practices.

Those who have somatic pain and are reluctant to deal with the side effects of pharmaceuticals often find that gaining "personal control" of their pain via the cognitive tools of biofeedback can actually suppress the troubling symptoms. Biofeedback has also proved beneficial to those suffering stress-related symptoms, whether the product of psychological dysfunction, nervous system disorders, or physical disease. The list of conditions that have shown positive outcomes pursuant to biofeedback treatment runs the gamut of physical and psychological illnesses, ranging from asthma and insomnia to TMJ and knee pain.

Because the medical literature has long focused on empirical data in weighing the benefits of any particular treatment protocol, biofeedback continues to have its fair share of naysayers who prefer metric analysis of patient outcomes as opposed to anecdotal evidence. In spite of the many published studies describing the ability of patients engaged in biofeedback to control symptoms of severe headache or to reduce stress-induced muscle pain, many in the scientific community continue to regard these as placebo effects experienced by impressionable sufferers.

Given this ongoing debate between devotees and doubters, and despite evidence that neurofeedback techniques have practiced and recorded as effective among many cultures predating our own, the practice of biofeedback remains an adjunctive treatment complementary to generally accepted conventional treatments and drug regimens. Undergoing biofeedback therapy generally means that a patient is also engaged in a larger treatment strategy that involves a number of other disciplines, including nutrition, physical therapy, and various counseling approaches.

Does biofeedback actually work? The evidence points to the necessity of appraising its benefits on a truly case-by-case basis. Because every patient presents symptoms differently, and because the severity of symptoms is often a subjective self-appraisal, it's critical that patients be invested in their own treatment. This is not an arena where outcomes are certain; more commonly, they are difficult to assess. Because the results of biofeedback efforts are rarely obvious and manifest themselves over a protracted period, the process requires commitment on the part of both patients and clinicians. Even then, measurable results and concrete evidence from any purely scientific perspective can remain elusive and bring the entire course and rationale of therapy into question.

Debunkers of biofeedback as an effective medical treatment remain legion. Some point to the cause-and-effect logical conundrum questioning the presentation of certain brain wave appearances and states of mind that are reportedly concomitant with symptom mitigation. Just because a level of alpha waves are present in a patient's pain-free state, for example, there is no causal connection between the those brain waves and the

patient's relief. The argument is that the cessation of pain might just as well have been the cause of the alpha waves rather than the other way around.

In their article *Alpha Neurofeedback Training for Performance Enhancement: Reviewing the Methodology*, Vernon and Rutherford raise a number of questions, some as basic as whether or not biofeedback should be conducted with the eyes open or closed, and how symptom baselines at various stages of treatment can be ascertained. They also point out the difficulty of eliminating factors of patient expectations and desires for positive outcomes, and the fundamental lack of evidence pointing to any positive somatic or psychological outcomes following biofeedback treatment.

The fact that there is no medical literature consistently supported by formalized study results pointing toward the achievement of positive therapeutic outcomes of a lasting nature, and that a number of random double-blind placebo-controlled research efforts dealing with both children and adults have failed to clearly establish biofeedback efficacy may discourage many from offering it as a palliative measure in individual treatment plans.

But do we presume that a lack of empirical evidence disproves the value of offering biofeedback to patients who are unresponsive to traditional treatment? Do we reject as simply the product of imagination the histories of patients who exhibit apparent benefits following biofeedback treatment? Or do we offer methods unproven by data as they may do no harm and could perhaps be of perceived benefit by the most important judges of all, the patients themselves?

When we consider the various approaches for administering biofeedback to patients, the menu of techniques is varied.

Electromyography is a well-established method of visualizing and recording the neurologic electrical signals generated within muscle cells, and has been used to diagnose the spectrum of neuromuscular disorders, as well as to assess athletic performance and potential. Primarily a diagnostic tool, its value as a biofeedback tool is less certain.

Electrodermography is used to measure electrical activity of the skin, and has been used in the treatment of anxiety and stress-related disorders. Often used in helping patients become more aware of their emotional responses to stimuli, whether or not it can help them to change their responses remains an open question.

Other biofeedback options include “finger pulse” (photoplethysmography) measurements, used to provide patients with a way to control migraines and chronic pain, pneumography to help sufferers combat panic attacks and hypertension, and such esoteric treatments as capnography, rheoencephalography, and hemoencephalography, all mechanisms to bring about awareness of one’s internal functioning.

If the stated objective of biofeedback is to be able to improve health and performance through an increased awareness of bodily mechanisms, functions, and states of health or disease brought about by data delivered via instrumentation, to date there is scant evidence that such awareness leads to adaptive changes absent rigorous, consistent behavioral conditioning. But if patients experience relief of symptoms through the use of biofeedback, and if that biofeedback training does no harm, isn’t that benefit enough? In other disciplines—economics is a prime example—perceived value is the key to all value. Right or wrong, when we perceive something and act upon that perception, the literal, measurable “truth” is often moot. Our behavior speaks for the verities we embrace.

Practitioners of biofeedback would allege that re-training the mind to improve unconscious control of the body may in fact heal many ills. Notwithstanding the lack of medical data supporting this contention, the experience of a broad population of patients tells us there may well be more to medical science than mere science. If, as it surely does, the practice of biofeedback falls within the ethical precept of “first, do no harm,” there is little to argue against its use as another valuable weapon in the medical arsenal.

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