

PRINCETON BIOFEEDBACK CENTER, LLC

2008

WHAT IS BIOFEEDBACK?

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Biofeedback is a treatment technique in which people are trained to improve their health by using signals from their own bodies. Physical therapists use biofeedback to help stroke victims regain movement in paralyzed muscles. Psychologists use it to help tense and anxious clients learn to relax. Specialists in many different fields use biofeedback to help their patients cope with and dissolve pain.

Chances are you have used biofeedback yourself. You've used it if you have ever taken your temperature or stepped on a scale. The thermometer tells you whether you're running a fever, the scale whether you've gained weight. Both devices "feed back" information about your body's condition. Armed with this information, you can take steps you've learned to improve your condition. When you're running a fever, you go to bed and drink plenty of fluids. When you've gained weight, you resolve to

diet and sometimes you do.

Clinicians rely on complicated biofeedback instruments in somewhat the same way that you rely on your scale or thermometer. These instruments can detect a person's internal bodily functions with far greater sensitivity and precision than a person can alone. This information may be valuable. Both patients and therapists use it to gauge and direct the progress of treatment.

For patients, the biofeedback machine acts as a kind of sixth sense which allows them to "see", "hear" or "feel" activity inside their bodies. One commonly used type of instrument, for example, picks up electrical signals from the brain and converts them into a form that patients can detect: It triggers a flashing light or, perhaps activates a beeper every time muscles

grow more tense. If patients want to relax tense muscles, they learn to slow down the flashing or beeping.

Like a pitcher learning to throw a ball across home plate, the biofeedback trainee, in an attempt to improve a skill, monitors his/her performance. When a pitch is off the mark, the ballplayer adjusts delivery so that he performs better the next time he tries. When the light flashes or the beeper beeps too often, the biofeedback trainee makes internal adjustments which alter the signals. The biofeedback therapist acts as a coach, standing at the sidelines setting goals and limits on what to expect and giving hints on how to improve performance.

THE BEGINNINGS OF BIOFEEDBACK

The biofeedback techniques used to treat patients were developed only recently. The word "biofeedback" is itself so new that it can't be found in most dictionaries. It was coined in the late 1960s to describe laboratory procedures then being used to train experimental research subjects to alter brain activity, blood pressure, heart rate, and other bodily functions that normally are not controlled voluntarily.

At the time, many scientists looked forward to the day when biofeedback would give us a major degree of control over our bodies. They thought, for instance, that we might be able to "will" ourselves to be more creative by changing the patterns of our brainwaves. Some believed that biofeedback would one day make it possible to do away with drug treatments that often cause uncomfortable side effects in patients with high blood pressure and other serious conditions.

Today, most scientists agree that such high hopes were not unrealistic. Research has demonstrated that biofeedback can help in the treatment of many diseases and painful conditions. It has shown that we have more control over so-called involuntary bodily functions than we once thought possible. But it has also shown that nature limits the extent of such control. Scientists are now trying to determine just how much voluntary control we can exert.

HOW DOES BIOFEEDBACK WORK?

Scientists explain how biofeedback works. Most patients who benefit from biofeedback are trained to relax and thus modify their behaviors. Most scientists believe that relaxation is a key component in biofeedback treatment of many disorders, particularly those brought on or made worse by stress.

Their reasoning is based on what is known about the effects of stress on the body. In brief, the argument goes like this: Stressful events produce strong emotions, which arouse certain physical responses. Many of these responses are controlled by the sympathetic nervous system, the network of nerves which prepare the body to meet emergencies by “fight or flight”.

The typical pattern of response to emergencies probably emerged during the time when humans faced mostly physical threats. Although the “threats” we now live with are seldom physical, the body reacts as if they were: The pupils dilate to let in more light. Sweat pours out, reducing the chance of skin cuts. Blood vessels near the skin contract to reduce bleeding, while those in the brain and muscles dilate to increase oxygen supply. The gastrointestinal tract, including the stomach and intestines, slows down to reduce the energy expended in digestion. The heart beats faster, and the blood pressure rises.

Normally, people calm down when a stressful event is over—especially if they have done something to cope with it. For instance, imagine your own reactions if you’re walking down a dark street and hear someone running toward you. You get scared. Your body prepares you to ward off an attacker or run fast enough to get away. When you escape, you gradually relax.

If you get angry at your boss, it’s a different matter. Your body may prepare to fight. But since you want to keep your job, you try to ignore the angry feelings. Similarly, if on the way home you get stalled in traffic, there’s nothing you can do to get away. These situations can literally make you sick. Your body has prepared for action, but you cannot act.

Individuals differ in the way they respond to stress. In some, one function, such as blood pressure, becomes more active while others remain normal. Many experts believe that these individual physical responses to stress can become habitual. When the body is repeatedly aroused, one or more functions may become permanently overactive. Actual damage to bodily tissues may eventually result. Biofeedback is often aimed at changing habitual reactions to stress that can cause pain or disease. Many clinicians believe that some of their patients and clients have forgotten how to relax. Feedback of physical responses such as skin temperature and muscle tension provides information to help patients recognize a relaxed state. The feedback signal may also act as a kind of reward for reducing tension. It’s like a piano teacher whose frown turns to a smile when a young musician finally plays a piece properly.

The value of a feedback signal as information and reward may even be greater in the treatment of patients with paralyzed or spastic muscles. With these patients, biofeedback seems to be primarily a form of skill training—like learning to pitch a ball. Instead of watching the ball, the patient watched the machine, which monitors activity in the affected muscle. Stroke victims with paralyzed arms and legs, for example, see that some of their affected limbs remains active. The signal from the biofeedback machine proves it. This signal can guide the exercises that help patients regain use of their limbs. Perhaps, just as important, the feedback convinces patients that the limbs are still alive. This reassurance often encourages them to continue their efforts.

“Many clinicians believe that some of their patients have forgotten how to relax.”

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HOW IS BIOFEEDBACK USED TODAY?

Specialists who provide biofeedback training range from psychiatrists and psychologists to dentists, internists, nurses, and physical therapists. Most rely on many other techniques in addition to biofeedback. Patients usually are taught some form of relaxation exercise. Some learn to identify the circumstances that trigger their symptoms. They may also be taught how to avoid or cope with these stressful

events. Most are encouraged to change their habits, and some are trained in special techniques for gaining such self-control. Biofeedback is not magic. It is a tool, one of many available to health care professional. It reminds physicians that behavior, thoughts and feelings profoundly influence physical health. And it helps both patients and doctors understand that they must work together as a team.



Dr. Fehmi is seen here providing Neurofeedback training to an 8 year old child.

WHO CAN USE THIS DRUGLESS APPROACH?

We have effectively treated people afflicted with neuromuscular, cardiovascular, gastrointestinal, respiratory, and attentional and other stress related disorders such as:

- Allergies
- Anxiety
- Asthma
- Attention Deficit Disorder (ADD)
- Attention Deficit Disorder (ADHD)
- Autism
- Burnout
- Cardiac Disorders
- Chronic Pain
- Cold Extremities
- Colitis
- Depression
- Depression Muscle Spasms
- Eating Disorders
- Fatigue
- G.I. Ulcers
- Headaches
- High Blood Pressure
- Hyperactivity
- Hyperventilation
- Insomnia
- Irritable Bowel Syndrome
- Learning Disabilities
- Manic Depression
- Mild Closed Head Brain Injury
- Muscular Pain
- Panic
- Phobias
- PMS
- PTSD
- Raynaud's
- Skin Disorders
- Stuttering
- Substance Abuse
- Teeth Grinding
- Tinnitus
- TMJ Syndrome

WHAT IS STRESS?

Stress is our body's response to ever present stimulation (stressors) in the internal and external environment. The reduction of stress requires normalization of our body's response to stressors.

Excessive stress often causes symptoms such as: headaches, body pain, insomnia, anxiety, hypertension, and many other physical and emotional disorders.

WHAT CAUSES STRESS?

Stressors are everywhere. Some stressors facilitate human growth by preparing our physiology for situations that require action. However, excessive or prolonged stress or poor ability to cope with stressors can negatively affect health and performance.

We are awash in a sea of stressors. Frequent normalization of our stress responses is vital to avoid drowning.

HOW CAN I REDUCE STRESSES WITHOUT AVOIDING LIFE?

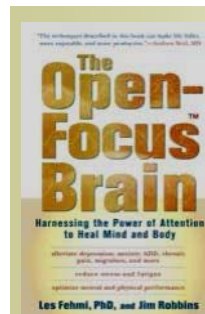
There is a proven effective method for reducing stress. The method is an attention training technique called OPEN FOCUS™, which allows you to reduce stress in the heat of battle. OPEN FOCUS™ Training was developed during 20 years of hands on experience and research using biofeedback instruments. The method is practical and can be learned by anyone, including children, in one-hour weekly sessions. It has been effective in both research and clinical settings to alleviate stress and to dissolve physical and emotional pain. Learning to integrate attention skills into daily life is an important aspect of the OPEN FOCUS™ training program.

Your attention habits determine your stress reaction more than the nature of the situation itself. It is not what you do, but how you do it that determines your level of stress and your sense of well being

WHAT CAN YOU DO TO REDUCE STRESS?

Stress is cumulative. As the number and intensity of stressors increase, the impact of stress on our health also increases, typically without our awareness. We are first made aware of stress through our physical and emotional symptoms. We then have option to use these symptoms as feedback to teach us which techniques are effective in reducing stress.

Efficient stress reduction techniques enable you to release tension and to dissolve physical and emotional pain, as they encourage peak performance and creativity.



This breakthrough book presents a disarmingly simple idea: The way we pay attention in daily life can play a critical role in our health and wellbeing. According to Dr. Les Fehmi, a clinical psychologist and researcher, many of us have become stuck in “narrow-focus attention”: a tense, constricted, survival mode that leaves us in a state of chronic stress— and that lies at the root of common ailments including anxiety, depression, ADD, stress-related migraines, and more. To improve these conditions, Dr. Fehmi explains that we must learn to return to an engaged and diffuse form of attention , which he calls “Open Focus.”

The Open Focus Brain offers straightforward explanations and simple exercises on how to shift into a more open style of attention that reduces stress, improves health, and optimizes performance. The book features eight essential attention exercises along with an audio CD in which the author guides readers through fundamental Open-Focus exercises that can be used on a regular basis to enhance our health and wellbeing.

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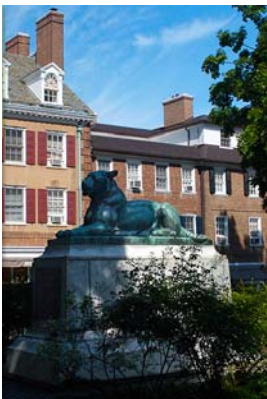


Our Centre, in Princeton New Jersey, is located at 317 Mount Lucas Road at the intersection of Ewing Street. We are centrally located in Mercer County, minutes from Princeton University, downtown attractions, restaurants and major hotels.

Our office hours are Tuesday through Thursday 10am to 5pm, Saturday and Sunday 9am to 4pm. The Centre is closed on Mondays and Fridays.

To schedule an appointment, please call our office at 609-924-0782.

Visit our website at www.openfocus.com



Susan Shor Fehmi, MSW

Susan Shor Fehmi is the Executive Director of the Princeton Biofeedback Center, LLC located in Princeton, New Jersey. She received her Master's Degree from Columbia University in 1977. She is a licensed social worker in New Jersey and New York and has received certification as a biofeedback provider by the Biofeedback Certification Institute of America, the National Registry of Neurofeedback Providers and the Academy of Certified Neurotherapists. She is a recent recipient of the Joel Lubar Award for contributions to the International Society for Neurofeedback and Research and the Advancement of Neurofeedback.

Ms. Shor Fehmi has been practicing since 1977. Her previous experience has been as a Director of Psychological Services at The Behavioral Institute & Clinic of Princeton, Director of The Biofeedback & Stress Management Clinic of Manhattan in NYC, a Psychotherapist in Private Practice, a Consulting Psychotherapist for the New York Commission for the Blind and Visually Handicapped, a Field Instructor at Hunter College's Graduate School of Social Work, an Adjunct Faculty Member at Hunter College's Center for Lifelong Learning, Director of Social Services & Clinical Supervision at the DiMele Center for Psychotherapy, a Community Worker for the Department of Probation, and a leader of family therapy groups for Family Court in New York.



Lester G. Fehmi, Ph.D.

Dr. Fehmi is the Director of the Princeton Biofeedback Centre, LLC, located in Princeton, New Jersey. He received his Ph.D. in Physiological Psychology at U.C.L.A. in 1966 and he served as post-doctoral fellow at the Brain Research Institute at UCAL. He was an Assistant Professor at the State University of New York at Stony Brook for six years, where he conducted research in the area of attention and EEG biofeedback training.

Since 1973, Dr. Fehmi has been in private practice in Princeton, New Jersey, putting into practical application the knowledge derived from his years of research in the field of biofeedback. He originated the OPEN FOCUS™ Attention Training techniques in 1973.

Dr. Fehmi chaired the first national meeting of biofeedback researchers in 1968 in Aspen, Colorado. He was a founding member of the Executive Board of the Biofeedback Society of America and the first President of the Biofeedback Society of New Jersey. Dr. Fehmi served as a Chairman of the Applications Standards Sub-Committee and President of the Council of State Societies of the Biofeedback Society of America. The author of many publications in the field of biofeedback, he is the co-author of the Application Standards and Guidelines for Biofeedback Providers, a publication of the Biofeedback Society of America, and the newly published book, [The Open Focus Brain, Harnessing the Power of Attention to Heal Mind and Body](#), released in August 2007.

Dr. Fehmi is a past consultant to the Veterans Administration, Massachusetts General Hospital, Harvard Medical School, and a researcher at NASA-AMES Stanford University, UCLA's Brain Research Institute and Lockheed Aircraft Company. He has developed and patented phase-sensitive EEG biofeedback instrumentation and training programs. Dr. Fehmi was invited by the U.S. Olympic Development Committee to train "World Class" athletes in Open Focus and biofeedback and is also a consultant for Coach Bob Ward of the Dallas Cowboys (NFL) and a certified speed specialist under the auspices of a national coaching association.

Our Staff

The professional staff specializes in various areas of health care:

Attention Training

Stress Management

Alleviation of Emotional and Physical Pain

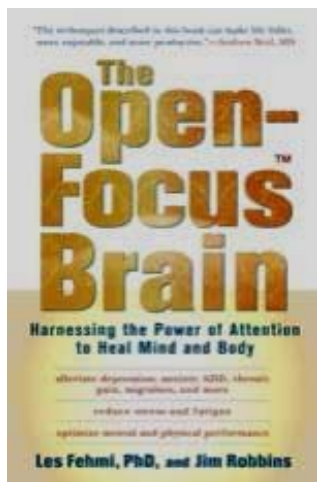
Peak Performance in sports and in the arts

Hyperactivity and leaning disorders in children

**PRINCETON BIOFEEDBACK
CENTER, LLC**

Recently Published

The Open Focus Brain: Harnessing the Power of Attention to Heal
Mind and Body



*"The techniques described in this book
can make life fuller, more enjoyable,
and more productive."*

-- Andrew Weil, MD

Dr. Fehmi and Jim Robbins's book is now available through
www.amazon.com or by calling The Princeton Biofeedback Centre
at 609-924-0782

The Open Focus Attention Training CD Series

Join Dr. Fehmi in a series of exercises developed to help relax, and broaden your awareness until you're simultaneously conscious of your whole body, of all your senses even the space surrounding you.



Our CDs are sold individually or in sets.

To order our CDs, please visit our website www.openfocus.com or www.openfocus.biz.

You may also phone or fax your order to 609-924-0782.