

Train the brain

Experimental neurofeedback teaches some to control their brain waves

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By **BETH FRANCIS,**

Lindsay Clark is a believer.

So is Sherry Stewart.

Clark, a 21-year-old Bonita Springs resident, said her neurofeedback sessions have greatly reduced her anxiety and panic attacks.



Lindsay Clark, 21, relaxes her mind while hooked to an electroencephalograph for neurofeedback treatments at the Biofeedback Center of Florida in Bonita Springs. Clark has been receiving neurofeedback, or EEG biofeedback, for six months and says the treatments have greatly improved her anxiety and panic attacks. *Debra Small/Staff*

"I was a basket case when I first came in here," said Clark, an English major at Florida Gulf Coast University. "I'd feel claustrophobic and nauseous. I was afraid of going places and I wasn't doing well in school. Now I'm so much better. I'm not afraid to go out anymore, and I made all A's and a B on my report card."

Stewart, a North Fort Myers interior designer, said the therapy, which changes brain wave activity, has greatly improved her two sons' symptoms from attention-deficit disorder.

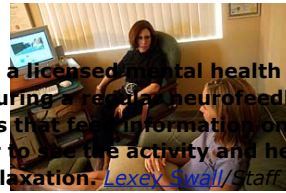
"It has definitely been amazing," she said. "Before we started the neurofeedback, I was at my wit's end. It's really helped my sons to calm down and focus. There are no more temper tantrums and my younger son really improved in school."

Neurofeedback, also called EEG Biofeedback, is used to train the brain to produce more desirable brain waves and fewer undesirable brain waves. The technology is still new, but it is emerging as a way to treat everything from attention-deficit disorder, migraines, anxiety, depression, head injuries, and sleep disorders.

JoAnn Blumenthal, a Bonita Springs licensed mental health counselor who operates the Biofeedback Center of Florida, has been performing neurofeedback for four years.

Clark goes twice a week for neurofeedback treatments with Blumenthal. During a recent visit, she sat patiently as Blumenthal attached electrodes to her earlobes and the top of her head. The electrodes don't hurt and are attached with a paste.

The electrodes are connected to a computer, which measures brain wave activity with an electroencephalograph (EEG). The computer monitor displays different colored boxes, which represent different types of brain waves.



JoAnn Blumenthal, left, a licensed mental health counselor, talks with patient Lindsay Clark during a real-time neurofeedback session. Clark is hooked up to electrodes that feed information on her brain activity to a computer. It allows her to see the activity and helps her to control her levels of anxiety and relaxation. [Lexey Swain/Staff](#)

Blumenthal encouraged Clark to reduce the size of the blue box, which represented the brain waves she wanted to diminish, and to enlarge the size of the green box, which represented the brain waves she wanted to increase.

As Clark successfully changed the sizes of the boxes, an image on the screen of her flying through the Grand Canyon moved faster and faster. The computer also made a beeping noise as she successfully changed the size of the boxes, and thus her brain waves.

The therapy is like a video game you play with your brain. Your brain serves as the control instead of buttons or a toggle stick.

As the brain gets the feedback that it is successfully changing brain waves, the new brain wave patterns become ingrained over time, said Siegfried Othmer of the EEG Institute in Los Angeles, which offers training courses in neurofeedback.

"It's like behavior modification for the brain," Othmer said.

But how does a person will his brain to produce certain patterns? Clark said when she's trying to reduce the size of the blue box, she repeats the word "blue" to herself over and over.

"You can't direct it or force it," Othmer said. "All you can do is wish it."

Othmer likened the therapy to learning how to ride a bike. When you start to fall, that is your feedback that you need to you correct your balance.

With neurofeedback, moving faster through the Grand Canyon and the beeping of the computer is the feedback that you are successfully changing your brain activity. Over time the repetition causes the brain wave to stay in place.

"It's like riding a bike. Once you learn how, you don't forget," he said. "You're giving the brain a new skill."



Andrew Stewart, 14, of Cape Coral classified himself as an unusually angry and impatient teenager until he began neurofeedback therapy two months ago. "I have improved concentration and better anger management," Stewart said during one of his weekly visits to the Biofeedback Center of Florida in Bonita Springs. [Lexey Swall/Staff](#)

Blumenthal said she thinks of the therapy as a way of training the brain.

"You get auditory and visual rewards from the computer, so that over time you are conditioning the brain," Blumenthal said.

For most clients, it takes 20 to 40 sessions for the therapy to hold. Some clients take home the equipment to continue doing the therapy at home.

It isn't cheap, either. Blumenthal charges \$100 per session. And insurance reimbursement is spotty, as the procedure is still considered experimental.

In some cases, if the patient also is coming in for supplemental psychotherapy, insurance will cover it, she said.

When looking for someone to perform neurofeedback, the most important thing to assess is experience, Othmer said. You might also ask if the person is certified by the Biofeedback Certification Institute of America and a member in the Association for Applied Psychophysiology and Biofeedback.

"Certification is certainly a good thing, but it's not essential," Othmer said. "The most important thing is that a person be trained and experienced and that they take continuing education because this is an evolving field."

For her part, Clark said she can't really explain how she changes the size of those boxes on the computer screen.

All she knows is that she leaves Blumenthal's office relaxed and in charge of her emotions.

"I still have a ways to go to achieve it on my own, but I've come a long way," she said.