Neurofeedback: Retraining the brain
The neurofeedback lab at CSUSB is improving lives.

Play a part in a fresh start.

To learn more about neurofeedback and to donate to the program, email or call Ricki McManuis, director of development at CSUSB. She can be reached at mcmanuis@csusb.edu or (909) 537-5659.

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Building a Culture of Philanthropy
How can lives change so much just by playing what amounts to a simple video game? The amazing work of neurofeedback
It looks like a simple computer game. A player wearing a headset tries to blow up barrels or float balls. It has no elaborate computer-generated graphics. Compared to games available online or at gamer shops, it looks rather tame. But for 18-year-old Isaac Rodriguez, 8-year-old Bethany Stringer, 22-year-old Matthew Jones and 16-year-old Jose Luis Nuñez, the “game” is training them to beat the mental maladies that have plagued their young lives and those of their families.

The “game” is actually a session of neurofeedback, a groundbreaking and powerful technique that challenges the brain to function better. A non-invasive process that has had dramatic results for

From young children to veterans, many have battled maladies and disorders that have made day-to-day tasks difficult, if not impossible. But at a CSUSB institute, clients are moving forward with their lives by moving objects with their minds.

by Joe Gutierrez
many symptoms, clients “can train their attention, decrease anxiety or depression, alleviate chronic pain and lessen behaviors that interfere with living their best life,” said Connie McReynolds, a licensed psychologist and the director of the Institute for Research, Assessment and Professional Development at Cal State San Bernardino.

The neurofeedback sessions have paid off for Isaac Rodriguez. He doesn’t oversleep and is able to get to school on time, not to mention that his grandmother doesn’t have to tell him to wake up anymore. But what Rodriguez, who was diagnosed with Attention Deficit Disorder, or ADD, at the age of 8, leaves out is that he doesn’t oversleep because he gets his homework done and so gets to sleep sooner. Now, he can focus his attention on doing his homework instead of being easily distracted by almost anything. It’s something he has also been able to do in school, said his grandmother Shelley Rodriguez.

As a child, Isaac was unable to focus and concentrate on his studies. He was put on medication, but it had side effects.

“He was taking more and more, and the medicine left him angry all the time. He was unable to concentrate in school,” she said.

A segment of a video Isaac and several classmates are working on for a school project shows how far Isaac has come. The two-minute video is newscast clips of cars, trains and machines from the early 20th century. He and his classmates still have two to four minutes of clips to add along with sound and voice over, but Isaac is pleased with the work so far. “It took five

What is neurofeedback, and who is it for?

Neurofeedback works by training the brain to function at its maximum potential, which is similar to the way the body is exercised, toned and maintained. The technology is safe and effective for children and adults ages 5 to 95.

The training is not a quick cure. It can take anywhere from 40 to 50 sessions of treatment. In private institutes, the sessions can typically cost thousands of dollars. The Institute for Research, Assessment and Professional Development at Cal State San Bernardino charges fees on a sliding scale so that it’s available for more people.

The institute is also seeking to work with agencies and other institutions to help in funding. Recently, Southern California Edison, through its Edison International Program, contributed $25,000 to the institute to increase the number of scholarships for CSUSB students to be trained to use and do research in neuroscience.

Now in its fourth year of operation, the institute has helped individuals ranging from children with serious attention disorders to people with phobias to military veterans suffering from post-traumatic stress disorder.

For information on the neurofeedback program, contact the institute at http://coe.csusb.edu/resources/coeinstitute.
hours to edit, cut and place the clips. I was so surprised it came together so quickly,” Isaac said. “Before (neurofeedback) it would have taken me two days to get the editing done for the clip,” because he would forget file names and just how to do the video. At one time, he would have to work very hard to get D-pluses in school. Now the grades are getting better with B’s and a few A’s, because Isaac can focus on the subjects at hand.

“Since he was a little guy, we tried diets, medication and occupational therapy. They worked at times, but this is really unbelievable,” said his grandmother. “This has really been his salvation.”

A neurofeedback session is pretty low key. The patient sits facing a computer screen and puts on a headset, which has a clip that attaches to an ear and a sensor that lightly presses against the forehead, or a string of wires is used with one wire taped to the ear and another wire taped to the forehead. The headset or wires send readings of the beta and theta brain waves to the computer, which shows them on the screen. Typically, the patient plays a “game” of blowing up a barrel or floating a ball. A session lasts about 20 to 30 minutes. The program’s structure requires a lot of concentration and focus to burn the barrel, but what the patients may not realize is that in concentrating they are training their brains. As they get higher scores or last the longest, their brains learn how to better deal with a certain behavior.

Children, being younger and still maturing, typically respond to the sessions sooner than adults. A child will start to see results by the 10th session, while an adult is likely to see results at 30 sessions. Still, not everyone is the same.

The change is also gradual. Often the patient doesn’t notice it, but their family members do.

Take Michael (not his real name), a military veteran in his mid-50s with some physical disabilities, who had trouble sleeping, was irritable, suffered from depression and had significant anger management issues. He was so concerned that his inability to stay focused might cause a traffic accident that he had been unable to drive anywhere. For 10 years, Michael relied on his wife to take him places.

So he began doing neurofeedback training. By the tenth session, Michael, who lived near campus, was able to ride his bike to these appointments. By session 15, he began taking public transportation to get himself around. And by session 40, Michael’s wife noticed something.

She saw “significant differences,” said McReynolds. “He did not get as angry and he calmed down quicker.”

Michael’s treatments were done pro bono as he was part of a research study on veterans. Studies have shown that veterans who have used neurofeedback report substantial improvements in reducing sleeping problems, anger management, stress management and other conditions. The institute develops individualized plans tailored specifically to each veteran’s needs.

Bethany Stringer is a typical 8-year-old. A little nervous about being interviewed, she squirms in her chair a little, but says she’s not acting as “crazy” as she used to and is not misbehaving at home or at school.

“I’m being more respectful,” she said. She remembers fidgeting in class and would drive her teacher crazy. “I used to climb the whiteboard. The teacher didn’t like that,” the tiny blonde said.

Bethany’s grandmother, Lori Adkins McCarver, said Bethany’s attention span was poor. She could not focus on any one thing, constantly fidgeting, being a distraction in class. In kindergarten, Bethany’s teacher told her she would quit her job because of Bethany’s actions and attitude. To help Bethany, doctors prescribed medications for her ADHD.

The medications worked well at school, but “at home when the meds wear off she has a lot of behavior problems and she’s easily agitated. When she’s off her meds, she couldn’t sit still and have a conversation,” McCarver said. It was frustrating for the two of them because Bethany “is an incredible child. When she is learning something, she will ask how to do it, then she will figure it out and then figure out how she can do it better and get it done.”

It’s been tough for Bethany, said McCarver, who gained custody of her granddaughter when Bethany was 3-and-half years old. The little girl was being raised in a drug environment, and had a family history of ADHD.

McCarver learned of the neurofeedback program when she brought Bethany to a special fair of activities for children at Cal State San Bernardino. She signed her granddaughter up for sessions. “Gradu-
ally we could see a calming effect. Doctors had said that the medications would work, but that Bethany might have to increase or strengthen the dosages as she got older, as patients can develop a resistance to them. But since the neurofeedback the dosage has remained the same.

The biggest test on the effectiveness of the neurofeedback came when the family went with friends on a day-long outing. McCarver doesn’t remember where they went. But what she does remember is that when they arrived at their destination, she realized she had forgotten Bethany’s medications. “That was our adventure for the day,” said McCarver. Without her medications Bethany would be unable to sit still, her attention span would be short and she could be easily upset, argumentative and difficult to handle. But her fears were unfounded. The day turned out very well. There was no meltdown. Bethany stayed with the group and close to her grandmother. “It was a milestone,” said McCarver. “I think we’re going to have a lot more of those days.”

At the age of 8, Matthew Jones was diagnosed with ADD. He was later diagnosed with Frontal Lobe syndrome. He had problems paying attention in school. Easily frustrated, behavioral issues increased as he got older.

“In the fourth to sixth grades I messed around in class. I couldn’t sit still,” Matthew said. “I was the class clown. I didn’t know how to control myself.” Matthew, now 22, wanted to go to college and the “brain-training” looked to be a way to help him prepare for it and deal with any potential problems. And with that he has learned to stay calm and cool in college and he doesn’t argue as much, especially with his mother.

“We used to argue all the time, like two lawyers,” Matthew said. “Now I breathe, relax and then I’m ready to talk to her. She’s my pal and I’m going to school and taking care of business.”

One of the keys to the neurofeedback sessions is to determine what is causing the problem and how to treat it. Then clients can go on to other issues, such as learning challenges or low self-esteem.

Jose Luis Nuñez said his key moment of the work of neurofeedback came when he was riding a school bus and a classmate kept making annoying noises. He ignored the boy, but a fight broke out with another student that turned into a brawl involving nearly everyone on the bus. The bus driver ended up calling the police. But Jose Luis, 16, stayed in his seat reading a book.

“I looked over at what was happening and just went back to my book,” Jose Luis said. “It was more interesting.”

That wasn’t always the case.

When he was 7, Jose Luis was diagnosed with clinical depression and later with ADHD. Though he would test high, his grades were bad because he couldn’t focus in class. “It was like being in a tunnel and there’s no light at the end,” Jose Luis said. “I got an F in algebra, but in testing I had one of the highest scores in school.”

Robert Nuñez believed there had to be something to help his son.

“If a computer program allows me to train my brain and relax,” said Jose Luis, “I’m willing to try it.” He took the state high school exit exam and received a perfect score in mathematics, which was the highest score in the sophomore class. “I’m the poster child for special ed kids,” Jose Luis said. “I did better than other kids and the other special ed kids like raving about it.”
From young adults to veterans, the neurofeedback lab at CSUSB is improving lives.

Neurofeedback can help address the following conditions:

- Academic-Cognitive Enhancement
- ADD
- Addictive Disorders
- ADHD
- Anger
- Anxiety
- Autism (mild-moderate) and Asperger’s
- Autoimmune Dysfunction
- Brain Injury
- Cerebral Palsy
- Chronic Fatigue Syndrome
- Cognitive Decline with Aging
- Conduct Disorder
- Creativity & Optimal Functioning
- Depression
- Epilepsy
- Fibromyalgia
- Learning & Developmental Disabilities
- Obsessive Compulsive Disorder
- Pain & Headache
- Pre-Menstrual Syndrome
- Post-Traumatic Stress Disorder (PTSD)
- Sleep Disorders
- Stroke
- Tinnitus
- Tourette Syndrome

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