

NIH awards \$2 million grant to test effectiveness of nonmedication ADHD treatments

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Florida State University researchers are seeing promising results from “video games” they created as a potential new option to treat Attention-Deficit/Hyperactivity Disorder without medication.

It’s a unique idea. There’s nothing else like it worldwide – a patent is pending – and encouraging preliminary results have captured the attention of the federal government.

The National Institutes of Health has awarded \$2 million for a new clinical trial led by Michael Kofler, an assistant professor in FSU’s Department of Psychology, to test the effectiveness of two new nonmedication treatments for children with ADHD.

A huge demand currently exists for an ADHD treatment that does not require children to take prescription drugs every day.

“Medications have side effects, and a lot of parents don’t like the idea of medicating their children,” said Dr. Kofler, a licensed psychologist who offers no-cost evaluations at FSU’s Children’s Learning Clinic. “Up to 50 percent of parents refuse medication treatment for their child with ADHD, even though scientific evidence clearly shows medication is the most effective option.”

While psychostimulant medications, such as Adderall and Ritalin, are considered the best treatments for ADHD, they are not a cure and wear off quickly. Children must take the prescription drugs daily to maintain benefits.

Kofler's research team created specialized video games intended to target underdeveloped areas in the brain linked to ADHD symptoms. By "exercising" those areas of the brain that help guide behavior and control impulses, Kofler hopes this nonmedication therapy results in long-term benefits for children with ADHD.

"We want a treatment that keeps working after children finish it, so the idea is to essentially 'train them up' to get benefits that last well beyond the end of treatment," said Kofler, who's been conducting ADHD research for about 15 years. "This new grant will allow us to test how long the beneficial effects remain after training ends."

The treatment, called Central Executive Training, uses computerized brain-training games. Children work with members of the Children's Learning Clinic video game design team, as well as "executive function coaches" who act like personal trainers to help motivate participants.

The computer programs look and feel like video games but use advanced algorithms that adapt training based on a child's performance. The games become more challenging as the child's abilities grow and, as they do, they aim to boost a player's cognitive functions in underdeveloped areas of the brain.

The games aim to boost a child's "working memory" and "inhibition" abilities. Those are the primary brain executive functions that seem to cause symptoms for most children with ADHD. Working memory is what allows a person to take in information and not only remember it, but also manipulate or rearrange it. Inhibition is the ability to stop yourself from doing a certain action.

Preliminary trials showed the computer games worked as well or better than the current gold standard for nonmedication ADHD treatment: behavioral management training. That approach requires a significant commitment from parents. They're taught

how to manage a child's behavior, how to give effective commands, how and when to praise positive behavior and how to help a child organize tasks.

"In our pilot study, our Central Executive Training program improved brain executive functions, but parent training did not," Kofler said. "CET was also associated with decreases in hyperactivity symptoms, but parent training was not."

Researchers used sophisticated devices to track hyperactivity called actigraphs. They look like wristwatches, Kofler said, and operate like high-precision Fitbits that are able to sample a child's tiniest movements 16 times a second.

The five-year NIH grant paves the way for Kofler to ramp up the size and scope of FSU's Children's Learning Clinic. Efforts are underway to hire new staff and recruit about 250 families located within driving distance. The research project will be open to boys and girls between the ages of 8 and 12. Participants will visit the clinic once a week for 12 weeks, and it's offered to families at no cost.

"I'm really excited about it, and I'm very optimistic based on our preliminary findings," Kofler said. "I think we have some very promising mechanisms to try to produce meaningful and lasting change that improves the lives of these children."

Source:

[FSU psychologist receives \\$2M NIH grant to test nonmedication treatment for ADHD](#)