

Road Bikes, Not Ritalin: How Cycling Could Help Kids with ADHD | Outside Online

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Inside Specialized and Stanford University's new alliance to research cycling's effects on kids with ADHD

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Specialized bikes founder Mike Sinyard has suffered from ADHD since childhood. Cycling, however, always seemed to ease his inability to stay focused. From what he's noticed, it's also improved his son's ADHD symptoms.

In the past few years, Sinyard has embarked on a quest to see if science can back his observations. If the evidence is there, the ultimate goal is to get doctors to prescribe bike rides over drugs to kids diagnosed with ADHD. His most exciting effort to date: funding a new study at Stanford University's Lucile Packard Foundation for Children's Health that could not only prove his bike theory, but also vastly improve our knowledge about the effects of exercise on the disorder.

ADHD is a tricky disease, says Dr. Allan Reiss, a professor at Stanford's School of Medicine whose research focuses on brain development and disorders that affect children. He'll be overseeing the study backed by the [Specialized Foundation](#), a nonprofit Sinyard launched last year to fund research and childrens' cycling programs.

The disorder is currently diagnosed based on doctors' observations and behaviors reported to them, typically from parents and teachers, and "at this point, we're still primarily treating symptoms," Reiss says. For example, if you have

pneumonia, a doctor will tell you to take Tylenol to reduce your fever and cough medicine to ease your hacking, but treating the specific type of pneumonia itself is tougher than treating the symptoms. “ADHD is more complicated than pneumonia,” Reiss says. “There could be 10 to 100 different pathways that can lead to the same ADHD symptoms.”

Past studies, including [one Specialized did](#) with a neuroscience consulting group, have basically looked at exercise, and cycling in particular, as an alternative to drugs—another blanket way to treat a variety of symptoms. And those studies have shown exercise has promise as a treatment. But assuming there are several different causes and mechanisms behind each kid’s ADHD, Reiss says, researchers need to start at the beginning and figure out how cycling as a form of exercise affects the brain. “There’s basically no information on the things we’re going to concentrate on” in the Stanford study, Reiss says. “Frequency, duration, intensity, brain function, how long do the effects last, what you need to do to maintain those effects over time.”

Once he knows those things, he’ll be able to treat kids with ADHD with much more specificity than hoping, say, a simple morning ride will be a magic cure-all.

Here’s how he envisions the study working. To start, Reiss’ team will use a technology called NIRS, or near-infrared light spectroscopy, to examine adolescents and adults without ADHD. NIRS uses infrared light to measure blood flow within the brain in real time, so researchers can watch what’s going on in subjects’ heads as they ride stationary bikes. (Subjects will have little probes attached to their scalps.) As his team figures out how cycling and different cycling programs affect the brain, they’ll look at how any changes observed in the brain affect behavior—including behaviors typically seen in people with ADHD, like issues with concentration, attention, and inhibition.

Those results will lead Reiss’s team to the final phase of the study: finding people with ADHD whose behaviors mirror those that cycling affects. “We hope we’ll find a subgroup of people who have ADHD who are particularly likely to respond to respond to cycling exercise,” he says. If Reiss’s team finds a daily 20-minute HIIT session best improves concentration, for instance, they’ll try that routine on kids whose ADHD symptoms are primarily issues of concentration.

Ideally, the study’s results will help doctors better tailor ADHD treatment to their patients. No more vaguely prescribing everyone with ADHD to exercise more: now

they can develop a cycling program specifically designed to alleviate certain ADHD symptoms. Or perhaps doctors will rule out cycling from the start—it's possible not all symptoms will respond to a cycling regimen.

As for the timeline of all this, the Stanford study is in its infancy. Reiss is currently looking for a qualified post-doctoral scholar to helm the program. The gift from the Specialized Foundation will fund that position—as well as the materials needed for the research—for at least two years. Once Reiss finds that person, he expects we'll start to see the results of some small-scale studies at the end of the first year.

“There's all this interest in exercise and fitness as a method to improve brain function, and as a means of improving attention and concentration in children,” Reiss says. Perhaps in a few years, doctors will be using his research to tell parents of children with ADHD to buy their kid a bike. Specialized, of course.