Research-based exercise program turning preschoolers into 'Fit Kids'

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Preschool children at King Street Youth Center in Burlington, Vermont play Chinese Ribbons game with Savanna Salassi and other UVM students as part of a fitness program designed by Professor Betsy Hoza. Credit: Sally McCay

It's a weekday morning, and senior Reuben Brough is running around a gym at King Street Youth Center waving his hands in the air and screeching like a cheetah. A stream of children is in hot pursuit of him and four other UVM students who implore the preschoolers to "catch the cheetah."

It looks like total chaos as Brough, now a shark, yells "fishies, fishes cross my ocean," daring the children to run past him at half court. But there's a method to the madness, which is really a highly structured, research-based fitness program designed by Betsy Hoza, Bishop Joyce Chair of Human Development and professor of psychological science, called Children and Teachers (CATs) on the Move.

"We have an agenda, responsibilities, and plenty of unexpected daily obstacles with the children that we have to attend to and be ready for," says Brough, an exercise science major who manages to run, jump and dance along with the children for 30 minutes. "Overall, it's a very fulfilling experience, and the kids learn and practice important executive functioning, motor and communication skills."

The innovative program, co-developed by Alan Smith, professor and chairperson of the Department of Kinesiology at Michigan State University, is having positive physical and physiological impacts on children at five local preschools and one elementary school. It is run by teachers with the help of 31 students in Hoza's Fit Kids Applied Research service-leaning course, which covers the science and practice of promoting school readiness and performance through structured physical activity. Students engage children in aerobic activity for a half-hour using developmentally appropriate games from a manual assembled by Hoza and Smith with names like Sharks and Minnows, Monster, Inc., Chinese Ribbons, and Animal Locomotion.

Hoza, whose research focuses on evidence-based treatments for the social, academic and self-system issues faced by children with ADHD, came up with the idea for CATs while conducting studies on the effects of aerobic activity on the cognitive, social, and behavioral functioning in both ADHD-risk and typically developing children. Her articles in the *Journal of Abnormal Psychology* and the Journal of Attention Disorders showed that physical activity interventions reduced the severity of

ADHD symptoms such as inattention, moodiness and other impairments, but also showed similarly positive outcomes for typically developing children.

Hoza launched a pilot program in the fall of 2016 with an extensive manual that included directions, graphics and photos for dozens of developmentally appropriate games. "It's not rocket science, but what's different is the philosophy behind it," Hoza says. "We are trying to find ways to get young kids to do sustained aerobic activity so that it feels like fun and games to them."

The main idea behind the course, Hoza says, was to find a mechanism for working directly with community partners wanting to promote physical activity in their kids. "Teachers liked the idea, but said they were busy and would need support, which gave me the idea for Fit Kids," she says. "Everyone wins: schools get a cost-effective physical activity program; children benefit from it; and students get hands-on experience with populations they may work with down the road as well as experience collecting data and being involved in a research project."

A variety of data are collected to measure the success of CATs. Students solicit pre- and post-program teacher ratings and observations; record results of tasks that assess cognitive functioning in children; and take information from accelerometers—a device that children wear to measure levels of activity in real time. Sometimes the results are purely observational.

"When we first started the program kids couldn't last the whole time," says Leisa Halligan, a preschool and special education teacher at Flynn Elementary School. "But we had a prompt that if the kids weren't running they had to walk. The number of times that we used the prompt greatly diminished throughout the sessions. The kids are now running and running and running. Having UVM students coming in four days a

week with lots of energy and positive vibes has been an overall really positive experience for our kids who just love it."

Teachers and UVM students are required to go through a rigorous training program before they launch CATs at a school. Once implemented, they complete either five- and eight-minute stations along with the children who start a new exercise every five minutes. Most of the children, as well as the adults leading them, appear a little tired, but exhilarated and happy by the end.

"It's a truly rewarding experience building friendships with these children who are so happy to see us when we arrive and are always so excited to jump right into the day's activities," says psychological science major Shaelynn Hickey. "Disguising the intense aerobic exercise as a fun and innovative game works wonders with the children. The program is a truly ingenious approach to assisting our youth's cognitive development. I'm so excited to see where the future will lead Fit Kids."

Hoza plans to expand the program by designing developmentally appropriate curricula for older elementary, middle and high schools interested in the program. She also plans to include faculty from other disciplines including Connie Tompkins, assistant professor of exercise physiology, who runs a successful weight loss program for children and Lori Meyer, assistant professor in early childhood education and early childhood special education, to create more inclusive curriculum for kids with developmental disabilities.

Provided by University of Vermont

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