

Overcoming barriers to fitness for people with intellectual disabilities

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UD Behavioral Health and Nutrition Associate Professor Iva Obrusnikova is studying ways of helping people with intellectual disabilities develop good exercise routines.

Credit: Kathy F. Atkinson

University of Delaware Behavioral Health and Nutrition (BHAN) associate professor Iva Obrusnikova is developing physical fitness training programs for people with intellectual disabilities. For anyone with at least a little experience in a gym, working out on standard exercise machines is something you probably take for granted. You sit down, glance at the machine's cartoon how-to sticker and begin.

Now imagine you're a person whose condition causes an intellectual disability like Down syndrome, Fragile X syndrome or more severe forms of autism. Understanding and performing exercises is not so easy. In addition to the challenges of learning the form, a gym atmosphere can be sensory overload—the music, the equipment and the [people](#).

Getting this population physically fit is important. Adults with intellectual disabilities are less active. They have higher rates of obesity than the general

public. Additionally, many work in physical jobs that require lifting, carrying and standing. Thus, muscle strength—particularly in their upper body and core—is important.

To overcome the wide range of barriers that people with intellectual disabilities face in the gym, Obrusnikova and her collaborators developed a program titled Progressive Resistance Training for EmPOWERment (PRT-POWER). The team is collaborating with organizations that provide day services to people with intellectual disabilities—names like YMCA of Delaware, EPIC and Chimes. The goal is to promote physical fitness and independent exercise performance in a population that struggles with it (or is dependent on assistance from caregivers or exercise professionals). Improving their knowledge of and ability to exercise translates to everyday, physical functions.

In a current clinical trial, the researchers provide participants with assessments, a personal trainer and exercise education. The participant is taken through three-week performance training, followed by a detailed goal-setting process; they progress over the course of ten weeks—measuring all along the way.

"In our qualitative research studies, we found that this population lacks the knowledge, self-efficacy, confidence and abilities to perform in a typical gym," Obrusnikova said.

But the participants aren't the only ones in need of education. Personal trainers, who seldom work with people with intellectual disabilities, need schooling on effective approaches. When some trainers were asked, 'What do you do with a person who doesn't know how to use the chest press machine,' they replied, 'We set everything for them' or 'We go to the next machine.'

"That does not help with confidence. We tell these

trainers, 'no, these people need to be given an opportunity to learn. You need to teach them. You need to have patience and use prompting until they learn. But do not overdo it to prevent dependence,'" Obrusnikova said. "So our approach is to keep on practicing the particular exercise. We never say, 'You can't do it.' We utilize strategies such as visual schedules and video prompting to help them learn and become independent."

BHAN researchers break down each exercise into steps; they do so only to the degree needed—careful not to over-prompt. In single-subject studies, participants with mild to moderate intellectual disabilities reached mastery of five machine exercises in five to ten training sessions.

"We found the independent performance of the five exercises generalized to different machine exercises and to other exercise settings."

Now Obrusnikova is working on non-machine, floor exercises, which are even more difficult for people with intellectual disabilities—who struggle with balance and coordination—to perform. Like the machine exercises, the ultimate goal is for individuals to properly exercise autonomously.

"From the very beginning, we teach our participants to perform exercises by themselves, set the equipment and clean the equipment," Obrusnikova said. "So, by the end of our training, they are not as dependent on us, which we believe will translate to improved adherence to exercise."

Technology assist

Obrusnikova and her collaborators developed a visual physical activity schedule for this project. It includes how-to videos on performing exercises and using gym equipment. Unsatisfied with existing videos and software, the UD group created its own. Available on a tablet, participants see the sequence of activities with step-by-step breakdowns of each [exercise](#). Each step has a picture, voice-over, video and capability for the BHAN team to highlight difficult steps. The visual schedules also allow the participant to check off exercises and adapt the order if a certain machine is occupied.

Training in The Tower at STAR

Public gyms prove overstimulating for some people with intellectual disabilities, so Obrusnikova will invite those participants into the new tower when it opens in late summer. The facility's third floor will feature a more intimate gym for research studies in the College of Health Sciences. This setting will help prepare people with [intellectual disabilities](#) for working out independently in a community gym. Virtual reality and other visual strategies will slowly desensitize this population to elements like noise, which they will encounter in a public fitness center.

What's to come?

"Currently, we only work with people who have intellectual impairments, but not with those who have neurological or orthopedic impairments like cerebral palsy. That's the next step," Obrusnikova said. "First, we want to perfect this program and get the proof-of-concept for one population. Then we will adapt the concept for other populations such as younger people or those with a broader spectrum of [disabilities](#)."

Provided by University of Delaware

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