

# THE CHALLENGE OF PHYSICAL FITNESS FOR PEOPLE WITH AUTISM

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You've probably seen the headlines: studies say that children and adults with autism are at risk for an inactive lifestyle and obesity. While the reasons are subject to debate, it's clear that people with ASD often face unique challenges to physical fitness.

The core features of autism – social, communication and behavior problems – can make joining a game of kickball at recess or playing tag with neighborhood kids a struggle. What may be less well known, however, is that many people with autism spectrum disorder (ASD) also face problems with motor (muscle) skills, including balance and coordination.<sup>14</sup>

In fact, motor problems often start in infancy.<sup>5</sup> Youngsters may be late to sit, crawl or walk, or have unusual ways of accomplishing those milestones. "It is very common for children with ASD to have some motor delays that are recognized by the parents before the delays in social and communication skills are apparent," said IAN Director Paul H. Lipkin M.D., a developmental pediatrician whose research and practice has focused on the identification and treatment of young children with developmental disabilities.

Children with below-average motor skills may struggle with everyday activities such as using a spoon, toothbrush or crayon; riding a bike; or fastening their clothes. Imagine the frustration of a speech-delayed child who can't zip his jacket and can't ask for help in doing it.

A recent study used a test of motor skills to compare children with autism to both typically-developing children and to children with attention deficit hyperactivity disorder.<sup>6</sup> Children with autism scored the poorest in balance and in catching a ball. They put less emphasis on what they saw when trying to catch a ball, and more emphasis on input from their own muscles, said one of the researchers, Ericka L. Wodka, a neuropsychologist at the Center for Autism and Related Disorders at Kennedy Krieger Institute.

That tendency to discount visual feedback from the outside world when catching a ball may be linked to difficulties in learning social skills in autism, according to that study. Children often learn social skills by watching other people's movements, such as gestures. But children who place less emphasis on what they see may struggle with learning gestures and interpreting the actions of others, Dr. Wodka explained.

Motor skills also involve planning – knowing what you want your body to do and coordinating your movements to do it. Before you pick up a ball, you plan to bend down, grab the ball between your hands, bring it to your chest and straighten your body. And of course, you must maintain your balance while you do that. Some researchers have gone as far as to suggest that motor planning

problems, or dyspraxia, may be a "core deficit" of autism or a sign of the nervous system abnormalities behind autism.<sup>7</sup>

Doctors do not consider motor problems to be a symptom of autism, and some people with autism are, in fact, good athletes. However, motor deficits are common, especially an "odd gait," clumsiness and walking on tiptoes, according to the manual psychiatrists use to diagnose autism.<sup>8</sup>

## **PHYSICAL FITNESS AND OBESITY IN AUTISM**

Physical fitness is tied to another health concern in autism. Beginning in the toddler years, American youngsters with ASD have a higher risk of being overweight or obese than other children.<sup>9</sup> This pattern continues into adulthood. U.S. teenagers with autism are more than twice as likely to be obese as adolescents who don't have a developmental disability.<sup>10</sup> Adults with autism have higher rates of obesity, as well as health conditions that can be caused or aggravated by obesity, such as diabetes, high cholesterol and high blood pressure.<sup>11</sup>

Theories abound as to why obesity is more common in autism. Some people with autism take medications, particularly certain antipsychotics, that may cause weight gain. Many have extremely picky eating habits, insisting on eating only a few foods that may be high in calories.<sup>12</sup> Children and youth with autism tend to be less physically active than kids who do not have developmental disabilities.<sup>13-14</sup> According to the Centers for Disease Control and Prevention, regular physical activity is important for maintaining a healthy weight.

## **BARRIERS TO SPORTS FOR PEOPLE WITH AUTISM**

In addition to below-average motor skills, many people with autism may have other problems that keep them from getting enough exercise, joining a soccer league or playing pick-up basketball in the neighborhood. Safety can be one such barrier. According to research by the Interactive Autism Network, nearly half of children with autism spectrum disorders wander or run away, and half of those go missing.<sup>15</sup> Parents and caregivers may keep a child who wanders indoors more often to protect him or her.

Some families, in fact, go to tremendous lengths to keep their children with autism both physically active and safe.

Kimberly Kuiken's house near Myrtle Beach, South Carolina, has a six-foot fence around the yard. When her son with autism was young, he liked to run away, and she hoped the fence would keep him safe. One day she looked away for a moment and when she looked back, Jack had climbed halfway up the fence. He liked to jump from high places, she said, because he craved the sensory pressure of his feet hitting the ground.

"For years we had to keep him inside because he was such a danger to go outside. I had a lot of guilt because I couldn't chase him all the time," said Mrs. Kuiken, who participated in the Simons Simplex Collection (SSC) autism research project.

She enrolled Jack in soccer, but his desire to wander would interfere. "In wide open spaces, he was compelled to run to the limits. He wouldn't stay on field; he would go to the fence," Ms. Kuiken said. Jack was fascinated by water, so the family built a swimming pool in the yard for him. He taught himself to hold his breath underwater, and he learned to swim and surf.

## **ARE CERTAIN SOCIAL SKILLS NECESSARY FOR SPORTS?**

Safety isn't the only barrier to sports and recreation; sometimes understanding the rules and social conventions of games can keep a child with autism from participating.

Kim Martin had tried soccer and swimming programs with son Finn, now 8. Finn had crawled and walked late, and even now his physical coordination is not quite as developed as other boys his age, she said. But his physical skills were not the problem in playing sports, said Ms. Martin, a participant in the SSC project.

"If the only issue we had was motor skills, we'd be fine. He has sensory issues that sometimes preclude him from using his motor skills because it's too loud or too bright. If he's standing there with his hands over his ears, how is he going to function in a game? We also have social and emotional challenges that other people don't understand."

Many children on the spectrum find certain sports to be emotionally and socially taxing because they involve following complex rules, waiting your turn to play or get the ball, and interacting with many children all at once.

Ms. Martin found a running group tailored to children on the spectrum near her home in Atlanta, Georgia. No complicated rules to follow, and no waiting: it seemed to be a good fit. But there was one problem. Finn hit other runners in the program, which upset their parents and made Ms. Martin feel terrible. Finn had benefitted from occupational therapy and therapeutic horseback riding to address sensory challenges common to autism, but this problem was different.

She told him he couldn't go back to the group until he stopped hitting. Instead, he would run with her and follow certain rules, including no touching. While they were running together, however, "he started whacking me. I said, 'Finn, what are you doing?' And he said, 'Mom, high five!'"

"This light dawned on me. He wasn't misbehaving. He wasn't being aggressive." When he hit his fellow runners, he had been trying to give them a "high five" – only without understanding all the rules behind that one, seemingly simple gesture. He didn't realize that you first must raise your hand, say "high five," and wait for the other person to raise his hand and slap yours.

## **TEACHING PHYSICAL EDUCATION TO STUDENTS WITH AUTISM**

Most children learn the ins and outs of sports, from high-fives to the offside rule of soccer, in physical education class. But these often noisy, crowded classes may make children with sensory and social problems miserable. And it can be hard to get individual instruction with 30 or more other children in the class.

Physical education teacher Brian Wagner understands more than most the problems students with autism face in the gym. Mr. Wagner teaches at Kennedy Krieger High School, a nonpublic school for students with developmental disabilities, and has a degree in special education.

Some of his students come from schools where they did not get the attention or accommodations he provides in his smaller class. It's not uncommon for him to hear that a new student "hates" P.E. (physical education) class, he said. At a previous school, that student may have struggled to learn skills or understand the rules of a game, while his classmates became impatient. "These students think, 'I can't do this so why am I even bothering to try?'" he said.

In his class, Mr. Wagner routinely breaks down complex motor skills into small tasks and teaches them step-by-step. He also adjusts the rules of a game as necessary to accommodate students who struggle with remembering them. In this way, he hopes to make physical activity enjoyable for students with special needs.

U.S. special education law requires that students with disabilities receive physical education and, if necessary, special or adapted P.E. in which an instructor modifies the teaching, equipment or environment to help the student.<sup>16</sup> The special education team, of which parents are members, determines the need for special help in P.E. class. Parents can ask the team to consider such assistance.

To teach a child how to throw a ball, for instance, a teacher could put dots on the floor to show a child where to place his feet while throwing. The teacher could also say "step and throw" to remind him.<sup>4</sup>

Parents also can ask the child's special education team about occupational and physical therapy in school. Occupational therapists work on fine motor skills, those involving the small muscles used to grasp pencils or utensils. They also may help people adapt to sensory challenges that interfere with school or daily activities. Physical therapists address gross motor skills, which involve the large muscles used to walk, run and jump. (See below for Additional Resources).

To maintain fitness, Mr. Wagner recommends building movement into the student's day and finding activities that interest them. "The challenge is getting the kids hooked," he said.

Ms. Kuiken did just that. She got her son to exercise at home by tapping into his interest in computers. She gave him Wii interactive fitness video games, such as bowling and baseball. "That did get him some cardio exercise," she said. It was a better fit for him than competitive sports teams, she said. He also has participated in regional Special Olympics events.

Special Olympics provides sports programs for children and adults with intellectual disabilities in many countries. Its coaches are trained to work with people with autism, and understand their communication and sensory needs, said Lynn Aylward, senior manager of Global Health External Relations for the organization. "We consider ourselves a primary source of fitness opportunities."