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**CHALLENGING
AUTISM WITH
EXERCISE: AN
OPPORTUNITY WORTH
STRETCHING FOR**

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CHALLENGING AUTISM WITH EXERCISE

An Opportunity Worth Stretching For

by David S. Geslak, B.S., ACSM EP-C, CSCS

Apply It!

By reading this article, the health and fitness professional will

- Gain a better understanding of autism — Those with autism learn differently. You will learn a successful and proven approach in teaching exercise using visuals, creating structured routines, and establishing the right goals for those with autism.
- See an opportunity to help — School systems that are challenged with limited resources are leaving those with autism both wandering and wondering in physical education classes. Parents of children with autism who are already overwhelmed with therapies, education, and difficult family dynamics need your help to introduce the proven benefits of exercise. This is important, not only because of the health benefits exercise brings, but in the autism population, exercise also helps to reduce maladaptive behaviors and improves focus and academics.

Key words: Autism, Autism Spectrum Disorders, Exercise, Asperger, Fitness

Exercise is healthy for everyone, but it can have a major positive impact on the quality of life for those on the autism spectrum. Exercise doesn't just help the child or adult with autism, it also has a profound impact on his or her family. There is a tremendous opportunity for those who want to combine their love of exercise and desire to do something exceptionally rewarding and meaningful.

Autism spectrum disorders (ASDs) are the fastest growing developmental disability in the world, and according to the U.S. Centers for Disease Control and Prevention, 1 in 68 children are diagnosed (5). ASD is approximately 4.5 times more common in boys (1 in 42) than in girls (1 in 189) (5). Currently, there is no cure for autism, although with early intervention, a child's prognosis can improve greatly (7,11).



Photo courtesy of David Geslak.

CHALLENGING AUTISM WITH EXERCISE

Although many groups, organizations, and researchers are focused on finding the underlying causes as well as a cure, parents who have a child with autism are much more focused on “what can help my child, now?”

“The increased prevalence of ASD has intensified the demand for effective educational and therapeutic services, and intervention science is now providing evidence about which practices are effective” (3). There are numerous treatments and therapies for autism, but they do not have sufficient empirical support to be considered *evidence based*. Exercise is an evidence-based practice (3), but unfortunately, it is often overlooked as a therapy. Perhaps because exercise is not perceived as a quick fix or as a magic pill. Even with all the dedicated and tireless research efforts that have shown exercise has a positive impact on autism, most parents, educators, and even autism professionals are unaware of its benefits.

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In addition to the overall health-related benefits of physical activity, decrease in repetitive behaviors is the most common behavioral improvement after physical activity for children with autism, *and* more pronounced effects were evident after vigorous bouts of physical activity, according to an article published in BioMed Central (BMC) *Research Notes* (10). In addition, vigorous physical activities, in conjunction with appropriate behavior management practices (8), can be helpful in reducing inappropriate behaviors in children with autism. Once the autism and fitness communities are aware of its benefits, exercise could very likely become an important part of each individual’s daily treatment plan.

Those interested in teaching exercise to individuals with autism will need to be taught specific skills and be equipped with the right resources to successfully create an effective exercise plan. As ACSM professionals, we are in a position to lead and improve the lives of more than 1 million diagnosed with autism *and* their families. Let’s give hope an action plan.

THE CHARACTERISTICS OF AUTISM

People who have limited exposure to the autism community may think autism is represented by Raymond, who was played by Dustin Hoffman in the movie, *Rain Man*. Raymond was considered as an autistic savant — a condition in which a person with a mental disability demonstrates certain abilities far superior to

what would be considered as *normal*. Although some individuals on the autism spectrum have savant abilities, most of them do not have these extraordinary skills. It is important to mention that autism is a *spectrum* disorder. These individuals vary greatly among one another with regard to their communication, social and cognitive abilities, and their sensory and behavioral challenges. As such, it is important to acquire an understanding of their many differences to develop an appropriate skill set for working with these individuals.

In the mid-1940s, autism was first identified as a unique disorder, and soon after, most professionals began to blame the parents, especially the mother, for emotionally neglecting their children. Since then, our understanding of autism has greatly evolved as well as the opportunities to improve their condition. Today, parents are the driving force to help their children get better.

Autism is a developmental disorder that is associated with significant social, communication, and behavioral challenges. At one time, several similar disabilities were considered as separate disorders including autistic disorder, Asperger syndrome, and pervasive developmental disorder not otherwise specified. Autism was redefined a few years ago, and these conditions now belong to the diagnostic category called ASD (2).

Autism characteristics are not physically noticeable like those of Down syndrome. Most individuals with autism look like typical individuals of their respective age. However, those with autism may at times behave differently and sometimes inappropriately. They might repeat actions over and over again (*e.g.*, hand flapping, rocking, and staring at spinning objects). They might repeat or echo words or phrases heard earlier. They also may become aggressive toward others or engage in self-injurious behaviors such as biting, hitting, and pinching themselves. The reasons for these behaviors are not understood fully, but many believe that they are related to their communication and sensory challenges.

Sensory overload and sensory integration are terms commonly used among parents and professionals in the autism field. Many of these children and adults have compromised sensory systems (tactile, taste, vision, smell, hearing, and vestibular), where one or more of their senses are underreactive or overreactive to stimulation. To reduce an overresponsive sensory system, these individuals may wear headphones to muffle or block out loud noises (auditory), chew on an object to reduce sensitivity in their mouth (taste), shield their eyes from bright or blinking lights (vision), avoid being touched by others (tactile), and/or engage in repetitive behaviors such as bouncing or spinning in circles (vestibular). If left untreated, such sensory issues can lead to behavioral challenges, which often are a reaction to discomfort and pain and can disrupt their attention and responsiveness to people in their surroundings.

Learning can look very different for these individuals. Most often, they require different, often simplified, strategies to help them process information such as understanding requests



Photo courtesy of David Gesiak.

and following directions. Supports that are commonly used, which are all evidence based, include visual supports, video modeling, and technology-aided instruction (iPad®/computer) (3). Two types of supports used to teach exercise include ExerciseBuddy® (an iPad® app) and the hard copy, Visual Exercise System®.

Those with autism prefer to follow daily routines, and when disrupted or asked to make a change, they may engage in disruptive behaviors. Consider a morning routine; you may begin the day by waking up to the sound of an alarm clock, getting out of bed, and then turning on the shower. As the shower warms up, you walk to the kitchen, start brewing coffee, and then take a shower. If this also was the routine of someone with autism, and the coffee pot was already turned on when they got to the kitchen, this *change* in their routine could cause anxiety and lead to behaviors such as hitting, biting, or having a tantrum. Most people handle unexpected events in life by *going with the flow*. But for those with autism, such events can cause confusion and uncertainty in terms of their understanding of the world around them.

AUTISM AND OBESITY

Those diagnosed with autism are at risk of obesity and other chronic disease risks. A population-based study indicated that U.S. adolescents with learning and behavioral developmental disabilities are 60% more likely to become obese. The study found that 31.8% of adolescents with autism were obese. One factor that may contribute to their obesity is their very selective food preferences (14,15,18). For example, some children with autism tend to eat only highly caloric foods such as those with high sugar content (13,20). In addition, studies indicate that many individuals with autism receive various psychotropic medications, and adverse effects often include weight gain and increased appetites (6,19).

For many parents, obesity is a low priority. Instead, they are focused on getting their children to talk, engage with others, express their feelings, and stay on task during school and other activities. Parents and professionals need to be made aware that exercise can help manage behaviors, reduce health risks, and even improve academics.

In a study published in *Psychology in the Schools*, the authors examined the impact of antecedent physical activity on academic engagement time among third-grade boys with autism. The authors concluded “participation in a physical activity intervention contributed to overall increased academic engagement for high-functioning students diagnosed with an ASD” (12). Furthermore, a meta-analysis of 16 studies suggested that on average, exercise interventions led to a 37% improvement in symptoms of autism, specifically behavioral and academic improvement (17).

Parents, professionals, and even physical education teachers struggle with ways to teach exercise in this population. There are several resources that provide advice on what type and duration of exercises are best. However, they often give conflicting information. Thus, it is no surprise that both parents and professionals are intimidated by where and how to start an effective exercise program.

DELIVERING EXERCISE REQUIRES A VISUAL PROGRAM

Just as you would conduct an evaluation and develop an action plan for people who are injured, obese, or in their senior years, the same is true for those with autism. Instead of simply asking them to walk or run on the treadmill, you may first need to show them a picture of the treadmill (a visual support) rather than simply telling them what to do. Next to the picture, you also would want to show them the amount of time you want them to be on the treadmill.

When you set the amount of time to walk or run on a treadmill, you should not expect them to be on it for the entire time. Remember, this is a new experience for their sensory system and *for their minds*. Exercising is a lot to process. If you set expectations that he or she will exercise for 60 consecutive minutes, you are setting yourself and everyone else up for failure. You need to remind the families that you are building a relationship based on success and trust. You want to make exercise a part of their lifestyle, and this takes time. Most parents will understand and appreciate this approach.

You can simply begin to introduce exercise by showing a large (8.5 inches × 11 inches) picture of the exercise you want

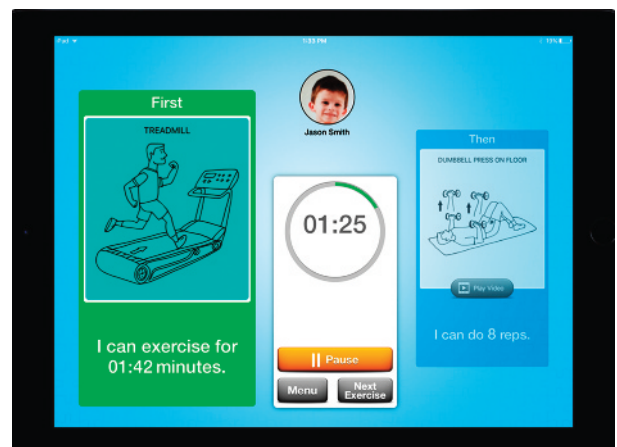


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them to perform. And do this in combination with modeling the exercise to them, to which most of you are accustomed. As they progress and their relationship with exercises builds, you can gradually add more exercises. As this happens, think of visually structuring their routine much like a daily *to-do* list. Write the name of the exercise and the amount (time/reps) you want them to perform. To the left of the written name of each exercise, you should have the picture of the exercise. In the case that you may be working with someone who has a higher cognitive ability, you may not have to use pictures. However, still having a written daily exercise routine provides expectations (beginning, middle, and end) of the exercise session and also allows for better goal setting while adhering to the principles of a qualified exercise professional.

Although the treadmill was used as an example, this is not a miracle exercise nor the only way they can exercise. For children with autism, watching spinning objects may fascinate them. So, it may be more exciting to watch the tread spin in circles rather than actually stepping on it. The bottom line: *you simply need to get their bodies moving*. Working with this population will enable you to view exercise from a new perspective, and I promise, it's definitely worth the effort. You will become a better trainer for any person you work with.

A common saying in the autism community is, "If you've met one person with autism, you've met one person with autism." Every person with autism is different. Before the first session, ask the parents what motivates or helps their child stay on task. They can be the best help on how to best engage their son or daughter.

THE FIVE COMPONENTS OF PHYSICAL FITNESS — REVISITED

For the past 50 years, the physical educational starting point has consisted of The Five Components of Physical Fitness (Body Composition, Flexibility, Muscular Strength, Muscular Endurance, and Cardiovascular Fitness). With the rise in obesity and emerging discussions of physical literacy for our youth, these components do not seem to be effective with the autism population nor their typical developing peers.



Photo courtesy of David Gesiak.



Photo courtesy of David Gesiak.

The current five components do not fulfill the unique needs of individuals with ASD. Exercise Connection (EC) has developed "The Five Components of Physical Fitness for Children with Autism Spectrum Disorders®" to help parents and professionals understand where to focus their efforts. The EC Five Components for those with ASD include:

1. Body image
2. Posture
3. Motor coordination
4. Muscular fitness
5. Cardiovascular fitness

These terms are commonly used in the autism community, and they do not contradict the recommendations put forth in the current five components.

BODY IMAGE

Body image aligns with a child's fundamental motor skills. Too often, children and adults with ASD do not know their hand from their foot or their right side from their left side. If we are



Photo courtesy of David Gesiak.



Photo courtesy of David Gestlak.

What Is an Individualized Education Plan?

A federal law called the Individuals with Disabilities Education Act requires that public schools create an individualized education plan (IEP) for every child receiving special education services. Students from age 3 to high school graduation or a maximum age of 22 years (whichever comes first) may be eligible for an IEP. If a student receives special education services, he or she must have an IEP — it's the law. The IEP is meant to address each child's unique learning issues and includes specific educational goals and how they will be measured. The IEP is a legally binding document created through a team effort that includes the parents, and it is reviewed periodically. The school must provide everything it promises in the IEP.

going to teach them how to exercise, it is critical they first know the parts of their body and what actions each part performs. The song “hands, shoulders, knees, and toes...” is a good starting point to teach them to label and move their body parts. In addition, a complete physical activity program should begin with a physical assessment and measurement of body composition, which is included in this component.

POSTURE AND MOTOR COORDINATION

Posture and motor coordination directly relate to an individual's skill-related fitness components. Balance and coordination are common terms discussed among parents, occupational therapists, physical therapists, and special education professionals during a child's IEP meeting. Thus, posture and motor coordination should be at the forefront of our children's physical education. For example, in addition to balance skills such as standing on one foot, evaluation and exercises should focus on the symmetry between both sides of the body (*e.g.*, “can the left arm throw like the right arm?”). Posture and motor coordination activities can have a significant impact on the child's gross motor development, sensory systems, and cognitive development.

MUSCULAR FITNESS

This component remains a top priority to a child's health-related physical fitness. Combining two of the current five components, muscular strength and muscular endurance, into one, lessens confusion. One definition of muscular fitness is the strength and endurance of the muscles. In this way, parents and educators can better understand that dumbbells, exercise bands, and/or bodyweight activities can be used to benefit our children. For those with autism, learning to use dumbbells, for example, also may provide an additional form of sensory integration.

CARDIOVASCULAR FITNESS

A cardiovascular routine may be one of the most challenging components to add to any child's schedule. As mentioned, the

repetitive movement of the treadmill can be a distraction, or he or she may not want to run. Using a recumbent bike or walking can be a great exercise to start with. As you know, there are ways to build the strength of the cardiovascular system without running on a treadmill, biking, or running. Setting up a circuit-training structure can gradually help increase the activity level of the child quickly through multiple exercises while developing his or her cardiovascular fitness.

EXERCISE AS A PREVENTATIVE STRATEGY

Parents of a child with autism will try almost *anything* to help their son or daughter improve. But when challenged with a disruptive behavior, they are naturally reactive, and do what they can to simply get through the moment. A better strategy is to be proactive and rely on exercise to avoid the behavior in the first place.

This is where exercise professionals can help both the child and overwhelmed parent. You may think exercise is a school's responsibility, but because of their lack of understanding regarding autism and simply not valuing exercise, many schools have left



Photo courtesy of David Gestlak.

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students with autism wandering and wondering in physical education classes. We can do better; we need to do better.

Without investing a great deal of money, we can better serve these children and their families. By having trained professionals who can deliver exercise, and gyms that are more accepting, we can transform a community desperately looking for help.

I have trained both college and professional football players to achieve their weight room goals, and I have proudly watched them succeed on the field. Many trainers strive to work with these elite athletes, and I don't take these experiences for granted. These were incredible opportunities that led me to mature as an exercise professional.

Years later, I applied the strategies that I learned as an assistant strength coach for the University of Iowa football team and taught a child with autism to skip for the first time in only 4 sessions. He and his parents had been trying to accomplish this goal for years. That day changed my life and career.

To know that because of your efforts, a child will be able to make his or her way in this difficult world with more strength, confidence, and physical abilities is just the beginning. What it does for these families may be more profound. As fitness professionals, we all aspire to change people's lives, and there is a great opportunity to do so in the autism community. The smiles I get from both the individuals and parents are like winning the Super Bowl everyday. I hope you will join me.

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BRIDGING THE GAP

By using the right approach with evidence-based strategies to teach exercise, it will become an integral part of the daily routine of those with autism. With this population, exercise not only establishes a lifelong healthy habit, but it also increases confidence, improves focus, and reduces symptoms associated with autism. The results speak for themselves, and they speak in a loud, clear voice; exercise creates life-changing opportunities for the children, adults, families, and their newfound coach.