

EXERCISE CONNECTION

...s, Fitness & Family in the ...m Community



**EXERCISE, AUTISM,
AND NEW POSSIBILITIES**
page 32

PALAEES

EDITOR-IN-CHIEF

Martin E. Block, PhD, CAPE

University of Virginia

Founding Editor

David P. Beaver, EdD, CAPE
Western Illinois University, Emeritus

Associate Editor

Julian U. Stein, EdD, CAPE
Oliver Springs, TN

Assistant Editors

Departments

Kathleen Stanton, PhD, CAPE
Indiana University
Purdue University–Indianapolis

Physical Education

Michelle Grenier, PhD
University of New Hampshire

Recreation

Terry D. Long, PhD, CTRS
Northwest Missouri State University

Sports

Laurie Malone, PhD
Lakeshore Foundation

Field Editors

Active Aging

Lisa Olenik Dorman, PhD
Huntingdon College

Aquatics

Susan J. Grosse, MS
Aquatic Consulting & Education
Resource Services
Milwaukee, WI

Blind

James V. Mastro, PhD
Bemidji State University

Cerebral Palsy

Tom Moran, PhD, CAPE
James Madison University

Deaf

Donalda K. Ammons, EdD
Gallaudet University
Emeritus

Kathleen Ellis, PhD

West Chester University

Equipment—Facilities—Pedagogy

Cindy Combs
S. Breeze Elementary School

International (Europe)

Aija Klavina, PhD
Latvian Academy of Sport Education

Intellectual Disabilities

Rebecca Lytle, PhD, CAPE
California State University–Chico

Physical Education

Lauren Lieberman, PhD, CAPE
The College at Brockport

David Martinez, CAPE

Cherokee Public Schools, GA

Physiology of Exercise

Heidi Stanish, PhD
University of Massachusetts–Boston

Recreation

Gerald Hitzhusen, CTRS
University of Missouri

Jane Broida, EdD

Metropolitan State University of Denver

Spinal Paralysis

Abu Yilla, PhD
University of Texas–Arlington

Sports Medicine

Christine Stopka, PhD, NATA, CAPE
University of Florida

Sport Psychology

Jeff Martin, PhD
Wayne State University

PALAESTR (ISSN 8756-5811) is published quarterly by Sagamore Publishing, 1807 N. Federal Dr., Urbana, IL 61801, 217-359-5940, www.sagamorepublishing.com. Correspondence regarding editorial matters should be sent to Martin Block, meb7u@cms.mail.virginia.edu. Correspondence regarding subscriptions and advertising should be sent to journals@sagamorepub.com. Subscriptions: Institution print and online domestic, \$240.00; institution online only, \$175.00; institution print and online international, \$300.00; individual print and online domestic, \$60.00; individual online only, \$36.00; individual print and online international, \$80.00; NCPEID members online, \$10.00; NCPEID print, \$12.00; NCPEID print and online, \$15.00. Payment must be made in U.S. funds and be drawn on an American bank. Single copy: \$10.00 plus shipping/handling. Address changes: 60 days notice, in writing, is required for prompt arrival. Handling will be facilitated if both old and new addresses are sent, including old and new zip +4 codes. ©2016 by Sagamore Publishing. All rights reserved under International and Pan American Copyright Conventions. Reproduction in whole or in part without prior written permission is strictly prohibited. Views expressed herein are those of the authors and do not necessarily reflect the opinions of the ownership or management of *PALAESTR*.

Postmaster: Send address changes to *PALAESTR*, Sagamore Publishing, 1807 N. Federal Dr., Urbana, IL 61801. Periodicals postage paid at Urbana, IL 61801.

Department Editors

Accessible Golf

Bob Burns
Bob Burns Golf

Bits & Pieces

Bridget Halpin, CAPE
Springfield College

Humans, Horses, and Health

Cher Smith
Professional Association of
Therapeutic Horsemanship International

Legislative Update

Robert Arnhold, PhD, CAPE
Slippery Rock University

National Scene

Fred Schack, PhD
George Mason University

Publication Reviews

Julian U. Stein, EdD, CAPE
Oliver Springs, TN

Research Application

Ron Davis, PhD, CAPE
Texas Woman's University

Sport Nutrition

Nancy Clark, MS, RD, CSSD

Advertising

Misti Gilles
Sagamore Publishing
217-819-5991
mgilles@sagamorepub.com

Editorial

PALAESTR
Kinesiology Program
University of Virginia
2010 Emmet St. S., Box 400407
Charlottesville, VA 22904-4407
434-924-7073
meb7u@virginia.edu

Publishing

Sagamore Publishing
1807 N. Federal Dr.
Urbana, IL 61801
217-359-5940 (P) 5945 (F)
journals@sagamorepub.com

Publishers

Peter Bannon, Joseph J. Bannon
Sagamore Publishing LLC

Design

Marissa Willison
Sagamore Publishing LLC

PALAESTR is published quarterly with the National Consortium for Physical Education for Individuals with Disabilities; United States Paralympics, a division of the United States Olympic Committee and the Education Committee of the Professional Association of Therapeutic Horsemanship International.

Terminology:

Palaestra (pronounced \pə-les'-trə\) is a Greek word meaning sport school or gymnasium. The publisher of *PALAESTR*A strives to use terminology that conforms with current accepted usage. Focus is on people, not disabilities—that is, students who are blind, athletes with spinal cord injuries, participants who are intellectually disabled. Reference is to individuals with disabilities, not handicaps or impairments.



CONTENT

Departments

- 6 Editor's Corner
- 7 Research Application
The Effects of One Bout of Nordic Walking on Exercise Capacity and Intensity, Rate of Perceived Exertion, and Pain in Older Adults with Osteoarthritis in the Lower Extremities
- 11 Practical Pointer
What's In Your APE Bag?
- 50 Bits and Pieces
- 60 Resources
- 63 Guidelines for Contributors

Feature Articles

- 17 Childhood Obesity: Classification as an IDEA Disability
by Ron French, Charlotte (Barney) Sanborn, Nancy DiMarco, and Tammy L. Stephens
- 27 Disability Sports and Health; Games and Activity Modifications: Erasmus Intensive Program
by Dilara Özer and Ayşegül Aksoy
- 32 Exercise, Autism, and New Possibilities
by David S. Geslak
- 37 Paul Ritter: A Personal Story of Recovering from a Spinal Cord Injury
by Paul Ritter
- 43 Effects of an outdoor Adventure Camp Experience on Adults with Brain Injury
by Eszter Vörösvári

EXERCISE, AUTISM, AND NEW POSSIBILITIES

DAVID S. GESLAK
Exercise Connection

Abstract

There are two things we know for sure about autism: These children learn differently, and their parents are desperately looking for help. And one thing that is becoming increasingly clear is that exercise can help a lot of kids, maybe even most. With all the dedicated and tireless research efforts that prove exercise can make a positive impact on autism, it is a surprise that exercise is still not more accepted by both parents and schools. To get the parents, teachers, administrators and therapists on board, we have to adapt to their needs. Raising more awareness is not the answer. That approach begs more questions. We need to educate, teach them simple exercises, and share the success stories of what exercise can do. The results speak for themselves, and they speak in a loud, clear voice. Exercise makes things better.

Keywords: *autism, exercise*

In physical education classes across America, children with autism spectrum disorders (ASD) are often left wandering and wondering. The unsensory-friendly environment, variety of learning styles, and lack of visual supports have made the typical physical education class a missed opportunity. Instead of using exercise to increase the child's focus, self-esteem, and relationships, this well-intended attempt to exercise results in more frustration, failure, and ridicule. We can turn this all around by working with user-friendly tools and programs that can make PE class more adaptable, enjoyable, and productive. When parents, caretakers, therapists, and educators are working together, our children can achieve tremendous results.

Teachers and therapists are doing everything they can to help the students meet their individualized education plan (IEP) goals, calm their behaviors, and help the children to lead independent lifestyles. But just as parents are overwhelmed, so are the schools and teachers with the dramatic rise in children with autism. Both want answers and both want positive results. The children deserve these results and

so do the hard-working professionals and parents involved in their lives.

Where does exercise fit in? Unfortunately, it usually doesn't, even though many agree that exercise is an effective treatment for individuals with ASD. In the past 10 years, exercise has been gaining awareness in the autism community, but a majority of parents *still* don't view it as treatment. This is despite research showing that, in addition to the health-related benefits of physical activity, decreased stereotypy and self-stimulating behavior are the most common behavioral improvements following physical activity for children with autism. More pronounced effects were evident following vigorous bouts of physical activity, according to an article published in *BMC Research Notes* (MacDonald, Esposito, & Ulrich, 2011). In addition, vigorous physical activities, in conjunction with appropriate behavior management practices (Lavay, French, & Henderson, 1997), can be helpful in reducing inappropriate behaviors in children with autism. Providing parents and caregivers with the research that demonstrates exercise can increase on-task behavior (Mahar, 2007), and decrease stereotypical behaviors (Bachman & Fuqua, 1983), may be the push they need from simply being aware to taking action steps.



When parents, caretakers, therapists, and educators work together, children can achieve tremendous results.

School administrators are also conflicted on how exercise fits into a student with ASD's daily routine. Administrators and their teachers are evaluated on the progress students make in the areas of reading, writing, and arithmetic (which are included in their IEP goals), but they are not evaluated on fitness goals. If research verifies the foundation of a basic skills orientation education program can be improved with exercise, it *may* encourage administrators and teachers to change their strategies and evaluation process. In a study published in *Psychology in the Schools*, the authors looked at 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" (Nicholson, Kehle, Bray, & Van Heest, 2010). Also, 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 (Sowa & Muelenbroek, 2011).

Physical Education is a Team Effort

In the 2000 *PALAESTRA* article, *Use of Physical Activity to Improve Behaviors of Children with Autism: Two-for-One Benefits*, Allison et al. stated, "a physical activity based program is *easy* to implement and has been shown to be effective in controlling many types of inappropriate behaviors associated with autism" (Allison, Basile, & MacDonald, 1991; Elliot, Dobbin, Rose, & Soper, 1994). However, for the undergraduate PE/APE professional with little experience with children with autism, establishing a new program might prove more challenging. As a fitness coordinator at a school for children with autism, I was tasked with designing a program to get 12 students per class, who had never worked in a group that large, to participate for 45 minutes in the most efficient manner. While doing so, I found it impossible to manage the students by myself. I was dependent on the school's support staff or paraeducators to transform the students' physical activity levels. Thus, it was really a team effort.

Most APE and PE teachers do not have that luxury of support staff. The reality is, the APE/PE teacher and the students they are teaching are challenged with bright lights, echoing sounds, overcrowded classrooms, restricted prep-time, limited support staff, and in many cases, a 30-minute class. Even if a teacher has every visual support available, and the most sensory-friendly gymnasium, they still may become overwhelmed. What vital piece is missing? An exercise trained support staff! The support staff works with the



School administrators are conflicted about how exercise fits into a student with ASD's daily routine.

child six hours a day, and typically understands their children, their triggers, and their motivators. But when they walk into a physical education setting, they may be little help unless they have some exercise background.

Support staff need the guidance of the APE/PE teacher or need to have professional development in exercise. Schools provide training in Applied Behavioral Analysis, leadership and other teaching strategies to help the students succeed. Also, PE/APE teachers should be taught in their undergraduate programs how to involve and lead an adult support staff to run an effective PE/APE class. This will be beneficial for *all* involved.

Some schools have taken the lead in this approach. North Suburban Special Education District in Highland Park, IL partnered with Exercise Connection (EC) to train 80 paraeducators, special education teachers and speech language pathologists for 20 special education classrooms, supporting three APE teachers. Park School in Evanston, IL had 32 paraeducators trained by EC to support

one APE teacher. And a private special needs school in Bartlett, IL, Clearwoods Academy, had the EC train their staff of 80, including the physical therapist's (PT) and occupational therapist's (OT). Having the entire special education team trained on exercise allowed each professional to understand the unique, but familiar, strategies to begin a program and able to implement exercise in their respective lesson plans. They left inspired with newfound information and confidence.

A trained and educated support staff will help benefit the students and teachers in a PE/APE class. They can also serve as another advocate to the parents and others about the vitality of exercise in a student's life. Support staffs are typically writing the daily progress reports that go home to the parents. When PE/APE teachers have one more advocate for the valuable work they provide it helps the recognition on the benefits exercise.

Establish Trust to Get Results

To get the best results, a teacher needs to establish a true connection with a student. In schools across America, children with ASD can be treated more like subjects than children. Students are driven to meet their IEP goals set by both the parent and school staff. While we want our children to have goals and succeed, these children do not learn like typical students. However the classroom teacher evaluation process by the school administration doesn't change, which leaves the teacher just focused on getting positive outcomes. This creates different dynamics for the teacher and student. Teachers are held accountable for outcomes that we know can take much longer because of the diagnosis of autism.

Children with autism “march to a different drummer.” As a result, here is what you usually hear in the typical gymnasium.

“Johnny, get back here!”

“Rachel, are you listening to me?”

“That’s wrong. Try again.”

This type of communication is extremely frustrating for both the students and the teachers. It does not have to be this way. Words can build up or tear down. Imagine being in a student’s shoes for a moment. Each day someone you hardly know is following you around with a clipboard and tracking your every behavior. They are prompting you through your every action. They watch you, make a mark on a piece of paper, and go back to staring at you. Some would think that they are being engaging. But while “wash hands,” “pick up,” and “try again” are results-oriented, they are hardly being social.

Whether they can verbally tell you or not, they want what we *all* want—a relationship with others. Humans are innately social and shaped by their experiences with others. A child with ASD in a PE class needs to be worked with differently. When they hit or fingernail-pinch, it might be their communicating this need, some sensory challenge or simply the desire for some personal space. At the end of the day, for some children, we may never know exactly, but let’s never forget that he or she is a child with autism, not an autistic child.

And we certainly need to challenge the thinking of, “It’s okay, he has autism.” Those who have worked with children with ASD have seen how much a child can achieve. The disorder does not have to be a reason to throw in the towel. A study specific to autism, published by Dr. Gerald Mahoney states, “The facilitator (parent, other) having a visible affect of acceptance, enjoyment, expressiveness, and warmth—is significantly related to increases in the child’s language, social competence, joint attention, and self-regulation” (Mahoney & Perales, 2003). This is a powerful study that should be shared with everyone in the field of special education. It provides a missing link to achieving success for both the stu-

dents and educators. Put the clipboards down, or keep them behind the two-way mirrors, work on connecting with the student, and you may see more progress than ever before.

See the Difference: Visuals Work

Trying to engage a child into any activity or new routine can take time, creativity, and many strategies. One of the most proven strategies is visual supports. Visual supports help bring in structure, routine, and sequence that many children with autism require in order to carry out their daily activities (Rao & Gagie, 2006). Visual supports, when implemented correctly, allow students with autism the freedom to engage in life, regardless of impairment (Hodgdon, 2007). And here are Roa and Gagie’s, reasons why visual supports should be used for individuals with ASD:

- They are part of everyone’s communication system.
- They attract and hold a student’s attention.
- They enable the student to stay on task and reduce anxiety.
- They make abstract concepts more concrete for the student.
- They help the student express his or her thoughts and engage with peers.
- They are inclusive for all students, whether or not they are on the spectrum. (Roa & Gagie, 2006)

One of the problems when attempting to introduce exercise in U.S. public schools is the absence of an exercise-specific visual support system. But since introducing the Visual Exercise System (VES) in 2012, many children can now understand the requests, sports, and activities many physical educators, therapists, and special educators teach. Using evidence-based practices of the use of visual supports such as First-Then Boards and Start-Finish Schedule and Stories, VES gives the students confidence and provides educators the tools they need to introduce exercise and make a difference.

With a team comprised of an autism fitness specialist, special education teacher, and speech language pathologist, additional supports such as the Exercise Connection (exerciseconnection.com) are continuing to pioneer visual supports by bringing technology to physical activity. ExerciseBuddy, an iPad App, has visual exercise cards, peer-led video-modeling, and auditory prompting. ExerciseBuddy (exercisebuddy.com) is more cost-effective than the paper-based VES. The VES Five Components System, independently, is \$660. ExerciseBuddy will have the Five Components, Yoga and Sports, over 175 visuals and video models, and it will cost less than \$100 per user. One pressing question about technology-based interventions focuses primarily on whether the interventions are more productive, cost-effective, or enjoyable than more traditional, low-tech interventions. Although preliminary results look promising (Charlop-Christy, Le, & Freeman, 2000; Chen & Bernard Opitz, 1993; Moore & Calvert, 2000; Williams, Wright, Callaghan, & Coughlan, 2002) continued research is needed before a definitive answer can be given (Goldsmith & LeBlanc, 2004).

Video modeling interventions provides another tool that can be used in an exercise setting. Video modeling involves



One of the problems when attempting to introduce exercise in U.S. public schools is the absence of an exercise-specific visual support system.

a child watching videotapes of positive examples of adults, peers, or him- or herself engaging in a behavior that is being taught (Haring, Kennedy, Adams, & Pitts-Conway, 1987). Overall, the data in 19 studies reviewed suggest that video modeling interventions were related to positive gains in social-communicative skills, functional skills, perspective-taking skills, and problem behavior (Delano, 2007). However, more research is needed to determine the relationship between video modeling and exercise outcomes.

In a perfect world, a school or organization would have a PE/APE professional, trained and empathetic support staff, parent support, visual supports. But what if the most critical part, the PE/APE professional, was not there? The special education staff and parents need a foundation of how to teach exercise.

The Five Components of Physical Fitness

For the last 50 years, the gold standard for exercise programming has been the five components of physical fitness (body composition, flexibility, muscular strength, muscular endurance, and cardiovascular fitness). Unfortunately, these components are not proving to be effective with the autism population, or even their typical developing peers. Similar to typically developing peers, youth with ASD face increased rates of obesity (Singh & Kogan, 2010) and decreased engagement in physical activities (Chen, Kim, Houtrow, & Newacheck, 2010). As many as 30.8% of children with ASD currently suffer from obesity (Phillips et al., 2014).

The current five components do not reflect the unique needs of individuals with ASD. In 2005, there was an update made to the Food Guide Pyramid, 13 years after it was introduced, but the five components have not been reevaluated for over 50 years. Lifestyle changes and developments in exercise and health research necessitate a reevaluation of this model. For children with ASD, Exercise Connection (EC) has developed the *EC Five Components of Physical Fitness for Children with Autism Spectrum Disorders* to help parents, professionals and special education departments understand the need for daily exercise. The EC five components for those with ASD include the following:

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

These terms are easy for the autism professional and parent to understand, while not contradicting the needs of the current five components.

Body Image

Body image aligns with a child's fundamental motor skills. Too often these children (and adults) with ASD do not know their hand from their foot, or their right from left. If we are going to teach them exercise, it is critical they know the parts of their body and what actions each can perform. In addition, any complete physical activity program should begin with a physical assessment and measures of body composition, which is included in this component.

Posture and Motor Coordination

Posture and Motor Coordination directly relates to an individual's skill-related fitness components. Balance and coordination are specific terms mentioned during IEP meetings and in discussions amongst parents, OTs, and PTs. Thus, posture and motor-coordination should be at the forefront of our children's physical education. And we are not just talking about the literal balance of standing on one leg; but can the left arm throw like the right arm? The many coordination activities that children can do can have a significant impact on the child's gross motor development but also their cognitive development.

Muscular Fitness

This component remains a top priority to a child's health-related physical fitness. Combining the 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. Now parents and educators can better understand that that dumbbells, exercise bands, and/or bodyweight activities can be used to benefit our children. For a child with autism, dumbbells may also provide another form of sensory integration that they can carry with them to adulthood.

Cardiovascular Fitness

A cardiovascular routine may be one of the most challenging components to add to any child's schedule. When putting a child with ASD on a treadmill, the fascination of the rotation of the treadmill can be more appealing than actually walking on it. But there are ways to build the strength of the cardiovascular system without a treadmill, bike, or running. Setting up a circuit-training structure can gradually help to move the child quickly through multiple exercises and build their cardiovascular fitness.



The five components of physical fitness include body image, posture, motor coordination, muscular fitness, and cardiovascular fitness.

Delivering Exercise

Adapted and general physical educators know how exercise can transform the lives of students. Some parents, in and out of the autism community, do value the importance of exercise. But if physical education is going to be a tool to help children with autism, we need the parents' support in IEP meetings, and at parent-teacher organization discussions. We need the support staff to include PE, positive or negative results, in their daily progress reports. In getting parent support, changing some schools' approaches, it begins with the APE/PE professionals. Here are some ways to get the others on board.

Schools

Exercise continues to lose ground in our schools. In many cases, PE is not even a part of a child's IEP. And while physical therapy (PT) and occupational therapy (OT) are, most parents do not consider what is going to happen when the therapies end. They need to be enlightened that exercise is not just a good idea, but can be a critical part of achieving and maintaining a more focused, productive, and sustainable lifestyle.

After School

Once a child takes the bus home, he is often greeted by a personal support worker or headed into a car to go to more therapies. Alternatively, going to a community exercise class is not an option, as there are very few places that can accommodate the unique needs of a child with autism. Even if there were, many parents do not have the time or money to send them. Parents need to be taught simple exercises, not complex ones or hour-long workout routines. The same routines should also be shared with the PTs, OTs, developmental therapists, and any program supporting autism.

Exercise as a Preventative Strategy

Parents of children with autism will do just about *anything* to help their sons and daughters get better. But when it comes to maladaptive behaviors, parents are naturally reactive and just want to get through the moment. A better strategy is to become *proactive* and use exercise to avoid the behavior in the first place.

There are two things we know for sure about autism: These children learn differently and parents are desperately looking for help. And one thing that is becoming increasingly clear is that exercise can help a lot of kids, maybe even most. With all the dedicated and tireless research efforts, the pathway to exercise making a profound impact begins with visual supports, structured routines and compassionate staff. Nike's legendary line, "just do it," has inspired millions of people to exercise. In the autism community, we can also "just do it" – *together*.

References

Allison, D. B., Basile, V. C., & MacDonald, R. B. (1991). Brief report: Comparative effects of antecedent exercise and lorazepam on the aggressive behavior of an autistic man. *Journal of Autism and Developmental Disorders*, 21(3). doi:10.1007/BF02207001

- Bachman, J. E., & Fuqua, R. W. (1983). Management of inappropriate behaviors of trainable mentally impaired students using antecedent exercise. *Journal of Applied Behavior Analysis*. doi:10.1901/jaba.1983.16-477
- Charlop-Christy, M., Le, L., & Freeman, K. (2000). A comparison of video modeling with in vivo modeling for teaching children with autism. *Journal of Autism and Developmental Disorders*, 30(6).
- Chen, S., & Bernard-Optiz, V. (1993). Comparison of personal and computer-assisted instruction for children with autism. *Mental Retardation*, 31(6), 368–376.
- Chen, A., Kim, S., Houtrow, A., & Newacheck, P. (2010). Prevalence of obesity among children with chronic conditions. *Obesity*, 18(1), 210–213. doi:10.1038/oby.2009.185
- Delano, M. E. (2007). Video modeling interventions for individuals with autism. *Remedial and Special Education*, 28(1), 33–42. doi:10.1177/07419325070280010401
- Goldsmith, T. R., & LeBlanc, L. A. (2004). Use of technology in interventions for children with autism. *JEIBI*, 1(2).
- Haring, T. G., Kennedy, C. H., Adams, M. J., & Pitts-Conway, V. (1987). Teaching generalization of purchasing skills across community settings to autistic youth using videotape modeling. *Journal of Applied Behavior Analysis*, 20(1), 20–89. doi:10.1901/jaba.1987.20-89
- Hodgdon, L. A. (2007). *Cram101 textbook outlines to accompany: Visual strategies for improving communication: Practical supports for school and home*. St. Louis, MO: Academic Internet Publishers.
- Lavay, B. W., French, R. W., & Henderson, H. (1997). *Positive behavior management strategies for physical educators*. Champaign, IL: Human Kinetics.
- Mahar, M. T., Murphy, S. K., Rowe, D. A., Golden, J., Shields, A. T., & Raedeker, T. D. (2006). Effects of a classroom-based program on physical activity and on-task behavior. *Medicine and Science in Sports and Exercise*. doi:10.1249/01.mss.0000235359.16685.a3
- Mahoney, G., & Perales, F. (2003). Using relationship-focused intervention to enhance the social-emotional functioning of young children with Autism Spectrum Disorders. *Topics in Early Childhood Special Education*, 23(2), 77–89.
- McDonald, M., Esposito, P., & Ulrich, D. (2011). The physical activity patterns of children with autism. *BMC Research Notes*, 4(422). doi:10.1186/1756-0500-4-422
- Moore, M., & Calvert, S. (2000). Brief report: Vocabulary acquisition for children with autism: Teacher or computer instruction. *Journal of Autism and Developmental Disorders*, 30(4), 359–362. doi:10.1023/A:1005535602064
- Nicholson, H., Kehle, T., Bray, M., & Van Heest, J. (2010). The effects of antecedent physical activity on the academic engagement of children with autism spectrum disorder. *Psychology in the Schools*, 48(2), 198–213. doi:10.1002/pits.20537
- Phillips, K., Schieve, L., Visser, S., Boulet, S., Sharma, A., Kogan, M., . . . Boyle, C. (2014). Prevalence and impact of unhealthy weight in a national sample of U.S. adolescents with autism and other learning and behavioral disabilities. *Maternal Child Health Journal*, 18(8), 1964–1975. doi:10.1007/s10995-014-1442-y
- Rao, S., & Gagie, B. (2006). Learning through seeing and doing: Visual supports for children with Autism. *TEACHING Exceptional Children*, 38(6).
- Singh, G., & Kogan, M. (2010). *Childhood obesity in the United States, 1976-2008: Trends and current racial/ethnic, socioeconomic, and geographic disparities*. Health Resources and Services Administration, Maternal and Child Health Bureau. Retrieved from <http://www.mchb.hrsa.gov/>
- Sowa, M., & Meulenbroek, R. (2011). Effects of physical exercise on Autism Spectrum Disorders: A meta-analysis. *Research in Autism Spectrum Disorders*, 6(1), 46–57. doi:10.1016/j.rasd.2011.09.001
- Williams, C., Wright, B., Callaghan, G., & Coughlan, B. (2002). Do children with autism learn to read more readily by computer-assisted instruction or traditional book methods? *Autism*, 6(1), 71–91.

David S. Geslak is the president and founder of Exercise Connection, a fitness program specifically targeted to children with autism. David graduated from the University of Iowa with a degree in health promotion. He is a Certified Health Fitness Specialist from the American College of Sports Medicine and a Certified Strength and Conditioning Specialist from the National Strength and Conditioning Association. He was also the fitness coordinator for Giant Steps, a school for children with autism, and the former board treasurer for the Autism Society of Illinois.

Students who are deaf or hard of hearing have a multitude of hearing equipment expenses. Generous scholarships, in combination with extensive fundraising support made it possible for these students to travel. Leading the Way reaches diverse populations and has the potential to reach thousands of participants as our sponsor base grows.

For more information on the programme visit <http://www.nobarriersusa.org/youth/programs/expeditions/leading-the-way/>.

Video: Bobby has a profound hearing loss and uses cochlear implants. He has participated in No Barriers programs including the expedition in the Grand Canyon, the No Barriers Summit, and the expedition in Peru:

<http://www.nobarriersusa.org/2015/07/17/you-truly-can-do-everything-you-want/>

The Remaining Shortlisted Applicants

Exercise Buddy



ExerciseBuddy is an iPad application that helps parents and teachers to guide and inspire individuals with autism to exercise. ExerciseBuddy solves the difficult problem of introducing much needed exercise to this community. Individuals with autism have daily challenges with communication, sensory issues, staying on-task, and uncontrollable disruptive behaviours. This not only affects the individual,

but also the parent, teacher or professional working with them. Research shows that exercise can help with some or all of these issues. By using three evidence-based teaching strategies (visual supports, video modeling and technology-aided instruction) to introduce exercise, ExerciseBuddy not only gives professionals the tools they need to be successful, but also can provide confidence in an area that they would typically struggle.

Website: <http://www.exercisebuddy.com/>

Video links: ExerciseBuddy at a Chicago Public School or ExerciseBuddy in the Home

IMAGE: Indian Mixed Ability Group Events

The organization Indiability has developed IMAGE, which stands for Indian Mixed Ability Group Events, to use sport and play as a social vaccine to break down barriers that exclude disabled



people from mainstream Indian society. IMAGE originally started in Rajasthan, India, in 18 after-school sports clubs in 2005 where 750 marginalized, underprivileged, rural children with disabilities were teamed up with 750 children without disabilities, to take part in sporting activities, side-by-side, on an equal footing. This passive social education constructed a new mixed-ability world by integrating communities—creating a model for other areas of life. IMAGE is currently piloting a 4-year community outreach program, that's being delivered directly, on the doorsteps of our village beneficiaries.

Listed below is a link to short video film on the impact of IMAGE: <https://vimeo.com/87547543>

Abrazos de Agua – Water Hugs Transmedia Project



Water Hugs is a transmedia project that documents, with the collaboration of its own protagonists, the vital and common experience of an integrated swim team, Los Tiburones

del Paraná, from Arroyo Seco, a small town in the South East of Santa Fe, Argentina. Created during the 1990s by a swim teacher Patricio Hueriga, the group, Tiburones (Eng. “sharks”), integrates people with or without disabilities who train every day to reach an objective: open water swimming. This experience has been repeating for the last fifteen years. In March 2012, Tiburones increased their ambition to 140 swimmers (among them, almost 100 with a disability) who swam fifteen kilometres to cross the Uruguay River from the Argentinian city of Colon to the Uruguayan city of Paysandú. This marathon swim took four hours. Two countries bonded and Water Hugs was founded. The objective of the project is to narrate the story together with its protagonists by designing a transmedia project in present time, using digital platforms and interacting with users. In these times, it is important to stir up passions for social journalism, and so preventive journalism. It is not enough to tell the story anymore, we need to transform reality: to know the deficiencies and expectations, the context in which the story takes place, and to give the protagonists the necessary tools for developing the project.

For more information on Tiburones or Sharks visit <http://www.abrazosdeagua.com.ar/eng/>

<http://www.abrazosdeagua.com.ar>

<http://www.facebook.com/TiburonesDelParana>

[@abrazosdeagua](https://twitter.com/abrazosdeagua)

Video: <https://www.youtube.com/watch?v=-LoebDQFLNU>