



Addressing the Physical Fitness Needs of Adolescents with Autism Spectrum Disorders

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As our children with Autism Spectrum Disorders (ASD) move into adolescence, engaging in appropriate recreation and leisure skills becomes more and more challenging. As a result, overall physical well-being may become compromised. At the Genesis Outreach Autism Center (part of the Eden II Programs), we began our very first fitness program in the community in conjunction with Sportime Fitness Centers. This collaboration was the outgrowth of nearly a year's worth of preparation. We hope that others will find our model worth pursuing in their own programs.

Positive changes in various aspects of body composition were also noted for each of the participants.

The mission of the Genesis/Eden II Programs is to provide specialized community-based programs for people with autism. The ultimate goal of the agency is to enable participants to achieve

the highest possible quality of living across their life spans. Applied Behavior Analysis (ABA) provides the framework for all of the programs within the agency. ABA, the scientific study of human behavior and learning, focuses on the observable relationship between behavior and the environment. By assessing the relationship between a targeted behavior (such as crying) and the environment (such as school or home), ABA can be used to change that behavior in a way that is socially significant. For example, if the child cries to get out of a task, ABA can be used to teach him or her a more desirable replacement behavior such as requesting a break.

The Fitness Program at a Glance

Our fitness pilot program ran two hours per day, two days per week, for ten consecutive weeks. During this program, our center provided staff trained in the principles of applied behavior analysis, in the form of one lead teacher, two

one-to-one aides, and two staff interns, while Sportime provided three personal fitness trainers. A total of seven participants with ASD took part in the program each day. Table 1 provides the overall schedule of activities.

Time	Activity
3:00-3:30	Arrival and setup of fitness area
3:30-3:45	Whole-group warm-up activity
3:45-4:00	Small group workout (1/2 the group would do physio; the other 1/2 would do cardio)
4:00-4:15	Small-group workout
4:15-4:30	Whole-group cool-down
4:30-5:00	Healthy snack in café area followed by pick up time

Table 1. Overall Schedule of Activities

Prior to the start of the program, the fitness trainers attended a series of lectures on autism provided by an autism consultant from the Genesis Outreach Autism Center. Course content consisted of an introduction to the basic principles of ABA; a discussion of important definitions; information regarding learning styles; and what to expect from our participants.

To prepare participants for the program, we took pictures of all of the equipment and developed a PowerPoint® presentation so that the participants would know what to expect. We also implemented the following teaching strategies: observational learning; use of schedules and reinforcement systems; and video modeling.

In addition to making their exercise space and fitness trainers available, Sportime also made generous financial contributions to the program that greatly enhanced the overall experience for the participants. For example, we were able to purchase an iPod Touch® for each participant for use while on the cardio equipment and/or during "down time" in the café. Prior to the start of the program, parents were asked to send in a playlist for their child so that we could upload it onto his or her iPod Touch®. We were also able to purchase heart rate monitors for



participants and train them in how to put them on and set them. Use of these monitors not only enabled us to ensure safety during the exercise routines, but also to monitor progress.

The Data Collection Process

The Genesis Outreach Autism Center focuses on providing community-based learning while ensuring student success through data collection and analysis. Table 2 contains a sample data sheet listing some of the fitness activities for three of the participants. This is offered to illustrate both the importance of objective data and the manner in which it is collected.

Activity	Student	+ – Independent			Percentage Correct	Heart Rate	
		P	Prompted			Starting	Ending
Bicep Curls	Dominick						
	Charles						
	Justin						
Steering Wheel (with Smart Bell)	Dominick						
	Charles						
	Justin						
Leg Lift (on PhysioBall)	Dominick						
	Charles						
	Justin						
Shoulder Press with small weighted balls	Dominick						
	Charles						
	Justin						
Ball Roll (arms)	Dominick						
	Charles						
	Justin						
Ball Roll (legs)	Dominick						
	Charles						
	Justin						

Table 2. Data sheet illustrating sample activities for three participants

We supplemented the objective data collected on participants with anecdotal descriptions of their progress. The following samples are offered to illustrate some of the qualitative changes that we saw in our participants during the course of the program.

Justin: At the onset of the program, Justin was apprehensive about entering the building. Furthermore, he was not motivated to work out, and required constant prompting to remain on task. By the end of the program, Justin was able to follow along with the group with minimal prompting. His mother also reported that Justin lost seven pounds. This was attributed to his working out twice a week, since nothing else was changed in his routine. And, since increased physical fitness and weight loss were goals for Justin, everyone considered this outcome to be extremely positive!

Activity	Start of Program			End of Program		
	Elevation:	Speed:	Time:	Elevation:	Speed:	Time:
Treadmill	0	1.8-2.3	3 min	3	3.0	7 min
Shoulder Press	0% independent			100% independent		

A Sampling of Justin's Progress

Charles: Upon entering the program, Charles was able to follow along with the trainers independently from the first session. By the end of the program, he was able to execute the exercises with greater accuracy, confidence, and strength.

Activity	Start of Program	End of Program
Elliptical	0 resistance 5 minutes	10 resistance 6 minutes

A Sampling of Charles's progress

Dominick: Upon entering the program, Dominick required verbal and gestural prompting to follow along with the group instruction and directives from the fitness trainers. By the end of the program, however, he was able to follow along with the trainers and the group. He was also able to stay on the treadmill for a longer amount of time at both a higher rate of speed and a steeper incline. By the end of the program, Dominick's strength and stamina had increased, and his coordination was also noted to have improved.

Activity	Start of Program	End of Program
Overhead Tricep	40% independent	100% independent
Bent over Rows	60% independent	100% independent

A Sampling of Dominick's progress

Nick: Nick required prompting for the majority of the exercises at the beginning of the program. In addition, he was unable to lift the smartbell independently due to low muscle tone in his arms. By the end of the program, however, Nick required less prompting to use the rower and arm bike to build muscle tone. His mom was extremely surprised and very pleased when she watched a video of Nick on the rower, stating that she could not get him to do it the correct way prior to his involvement in the fitness program.

Activity	Start of Program			End of Program		
	Elevation:	Speed:	Time:	Elevation:	Speed:	Time:
Treadmill	1	2.5	5 min	2	3.0	6 min
Squat	0% independent			60% independent		

A Sampling of Nick's progress



The Sportime fitness trainers took additional data in the form of Body Composition (circumference measures of shoulders, abdomen, and hips) and Body Fat Measurements (of the chest, abdomen, and thighs in males; and triceps, illium, and thighs in females). Positive changes in various aspects of body composition were also noted for each of the participants.

Concluding Thoughts

Our collaboration with Sportime Fitness Centers gave program participants the opportunity to engage in age-appropriate fitness activities that are not typically available in many autism centers. Based upon their abilities (both physically and behaviorally), they were able to participate either as part of the whole group or in smaller groups. We are ecstatic about our preliminary outcomes and the fact that both our participants and their parents were also very pleased with the results.



An additional collateral effect that we found to be very positive is that this program fostered an increased awareness (and acceptance!) of individuals with ASD in a community-based fitness facility. In addition, we found the staff at Sportime to be warm and inviting and most willing to modify their fitness routines in order to enable our participants to become successful members of the fitness community.

What we have learned from this experience—and what we hope that readers will also take away from it—is that with an idea, some vision, hard work, and willing participants, HUGE gains are possible for individuals with ASD. We encourage other programs to follow our lead! 🏆

Acknowledgements

The authors would like to acknowledge the following individuals: Ms. Diane Cahill, whose persistence made an idea into a reality; Mrs. Catherine Hamilton, for being such an integral part of the startup of this program; and Dr. Linda Myer for her consultation in program development.



Bio

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Melisa Keane, M.Ed. obtained her undergraduate degree in childhood and special education at Suny Plattsburg. In May 2011, she received her M.Ed. in Literacy (K-6) from Hofstra University in New York. Melisa also has advanced certification in behavioral analysis (CAS ABA). Ms. Keane has worked as a Special Education Teacher in New York, and as an Intensive Resource Teacher in Alaska. She has an Interest in physical fitness.

