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*School of Occupational Therapy*

Physical and Psychosocial Effects of a Fitness Program for Individuals with Disabilities: A Health Promotional Approach

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A capstone project submitted in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree from the University of Indianapolis, School of Occupational Therapy.

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# A Capstone Project Entitled

Physical and Psychosocial Effects of a Fitness Program for Individuals with Disabilities: A Health Promotional Approach

Submitted to the School of Occupational Therapy at University of Indianapolis in partial fulfillment for the requirements of the Doctor of Occupational Therapy degree.

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### Abstract

The level of physical activity participation among individuals with disabilities is substantially lower than individuals without disabilities, which is largely attributed to attitudinal, environmental, and programmatic barriers. There is a pressing societal need for tailored physical activity programs that promote healthy behaviors, habits, and routines for individuals with disabilities. The purpose of this Doctoral Capstone Experience project, in collaboration with Empower Sports, was to develop a fitness program for individuals with disabilities to increase physical activity and develop psychosocial skills. A physical fitness program was developed for 15 individuals with varying disabilities ranging from 13-33 years old at an adventure sports center. Data obtained from activity action tracker watches revealed a positive trend of the participant group's average steps, calories, and distance traveled per session over eight weeks. Additionally, overall positive feedback was received during a focus group from parents of the participants related to the impact of the program on their child, most notably in the areas of self-confidence, social skills, and volition. These findings suggest that participation in non-traditional forms of physical activity for individuals with disabilities can have physical and psychosocial benefits that may contribute to improved occupational performance and enhanced quality of life.

*Keywords:* physical activity, disabilities, fitness program, adventure sports center

## Physical and Psychosocial Effects of an Eight-Week Structured Fitness Program for Individuals with Disabilities: A Health Promotional Approach

According to the Developmental Disabilities Assistance and Bill of Rights Act of 2000, a developmental disability is defined as “a severe, chronic, disability that is attributable to a physical or mental impairment that is likely to continue throughout the person’s life and results in functional limitation in three or more areas of life activities” (p.106-402). Approximately one in six children have a developmental disability or a developmental delay (Centers for Disease Control, 2015). Individuals with disabilities in select populations have a higher prevalence of being overweight, are more prone to live a sedentary lifestyle, and experience additional barriers that interfere with physical activity as compared to their peers without disabilities (Heath & Fentem, 1997; Rimmer, Rowland, & Yamaki, 2007; Shields, Synnot, & Barr, 2012). Individuals with disabilities have an increased susceptibility for developing chronic secondary health conditions including fatigue, pain, deconditioning, social isolation, obesity, depression, difficulty performing activities of daily living (ADL), and other adverse health conditions (Rimmer, Rowland, & Yamaki, 2007). These aforementioned factors can significantly interfere with functional independence and autonomy and limit opportunities in desired occupations, thus negatively impacting quality of life (Sardinha et al., 2015).

### **Literature Review**

#### **Benefits of Physical Activity**

Extensive research supports the physical and psychosocial benefits of physical activity for individuals with disabilities (Johnson, 2009). Documented physiological benefits include improvements in cardiovascular endurance, gross motor function, flexibility, balance, agility, muscular strength, bone density, and blood pressure (Burgeson, Wechsler, Brener, Young &

Spain, 2001; Johnson, 2009). Physical activity has also been found to have positive effects on psychosocial well-being by providing an opportunity to form new friendships, express creativity, develop a self-identity, and improve self-esteem (Dykens, Rosner, & Butterbaugh, 1998; Kliziene, Klizas, Cizauskas, & Saule, 2018). Six research studies investigated the effects of group fitness programs for individuals with disabilities for children and/or adolescents that incorporated progressive warm-up, strengthening, aerobic activity, structured gross motor games, and cool-down. The results demonstrated improvement in cardiovascular function, strength, gait speed, functional mobility, self-perception, and high levels of satisfaction of the participants (Johnson, 2009). Despite these well-researched benefits, approximately 56% of individuals with disabilities do not participate in regular physical activity largely influenced by attitudinal, environmental, and programmatic barriers that hinder their inclusion in physical activity, fitness, sports, and recreational programs (Lakowski & Long, 2011). To entirely understand the reasons individuals with disabilities often have lower levels of physical activity, it is important to determine the factors that obstruct as well as facilitate participation in physical activity for this population.

### **Barriers to Participation**

A wide range of identified barriers that impede participation in physical activity for individuals with disabilities has emerged from the literature (Shields et al., 2012). According to Mahy, Shields, Taylor, and Todd (2010), the most identified barriers include lack of support, not wanting to engage in physical activity, and medical and physiologic limitations. There is a perceived lack of physical and emotional support from others for assistance with transportation, supervision, and financial needs to support engagement in physical activity (Mahy et al., 2010). Additionally, individuals with disabilities can have a general lack of motivation and limited

attention span for exercise, and activities that involve physical exertion have been identified as a barrier (Mahy et al., 2010). Individuals with disabilities have been found to have a general dislike for physical activity, often finding it boring and having more of an interest in sedentary activities such as watching television or playing video games (Mahy et al., 2010). Furthermore, individuals with disabilities may be more guarded about engaging in physical activity for fear that it is not safe to participate due to increased health risks secondary to their primary disability (Charles & Chinaza, 2018; Mahy et al., 2010). Discovering best practices to diminish barriers to the participation of individuals with disabilities in physical activity is essential for increasing engagement.

### **Facilitators for Participation**

Although the literature has revealed many factors that hinder participation, research has also been conducted to identify the factors that enable and promote engagement in physical activity for individuals with disabilities. Having knowledge of motivating and facilitating factors is critical for parents, teachers, health professionals, and recreational and leisure coaches who have the goal of designing and implementing physical activity opportunities for this population (Shields et al., 2012). Mahy et al. (2010), identified three themes of facilitators to physical activity from the perspective of adults with down syndrome, parents of adults with Down syndrome, and employees of a day program for adults with down syndrome. The facilitation themes included support from others, physical activity was fun and had an interesting purpose, and routine and familiarity (Mahy et al., 2010). Additional facilitators identified by Shields et al. (2012) included the individual's motivation to be active, opportunity to practice skills, involvement of peers, family support, accessible facilities, proximity of location, better opportunities, and skilled staff and information. Improved health and fitness, as well as fun and

social contacts were also viewed as motivators for engagement in physical activity by a group of young adults with childhood-onset physical disabilities (Buffart, Westendorp, van den Berg-Emons, Stam, & Roebroek, 2009).

### **Promotion of Health and Well-Being Through Occupation**

According to Dr. Ann Wilcock (2005), occupational justice is the “...just and equitable distribution of power, resources, and opportunity so that all people are able to meet the needs of their occupational natures and so experience health and wellbeing” (p, 149). She strongly believes that occupational therapists play a key role as advocates, enablers, and mediators in health promotion initiatives with overarching goals “to enhance and enrich physical, social, mental, emotional, intellectual, and vocational capacities” and “to utilize wide-ranging, age-appropriate, and balanced occupations for all people” (p. 154). Using the intervention approaches, *creating* and *promoting* as outlined in the *Occupational Therapy Practice Framework* (OTPF), occupational therapists have the expertise to develop and recommend occupation-based strategies to achieve multi-dimensional benefits (American Occupational Therapy Association [AOTA], 2014). Due to the amount of evidence supporting participation in physical activity for individuals with disabilities, health professionals can confidently recommend tailored physical activity programs for this population to contribute to their occupational well-being (Johnson, 2009). Programs specifically created to provide the opportunity for individuals to engage in physical activity through recreation, sports, and fitness at a tempo that meets their functional level without the overwhelming demands, pressure, competition, or intensity provides a means to incorporate physical activity into daily habits and routines.

### **Theoretical Basis**

This Doctoral Capstone Experience (DCE) was in partnership with Empower Sports, a nonprofit organization committed to offering sports and fitness programs to individuals with physical and cognitive disabilities in the regional Cleveland, Ohio area. The primary area of focus for this occupational therapy student's (OTS) Doctoral Capstone Experience (DCE) project was program development with a secondary focus of research skills. The two components of this DCE project included (1) The development of the Ninja fitness class program curriculum tailored to meet the needs of the participant group with various disabilities (2) Determining the effectiveness of the program using quantifiable outcome measurements using physical and psychosocial variables. The program took place at Adrenaline Monkey, an adventure sports center in Warrensville Heights, Ohio on eight consecutive Thursday nights for a duration of 1 hour per session. The program participants included 15 individuals with varying disabilities ranging from 13 to 33 years-old.

The occupation-based model (OBM) and theory that served as the theoretical basis for this DCE project was the Model of Human Occupation (MOHO) and the Theory of Planned Behavior (TPB). The MOHO, developed by Gary Kielhofner in 1980, takes a holistic and occupation-based approach using an open systems theory as the foundation. In relation to this DCE project, the human open systems were the 15 individuals with varying disabilities that will be participating in the fitness program. The open system includes three subsystems: (a) *volition* – the motivation and voluntary involvement of a person in occupation (b) *habitation* – organizing behavior into roles, habits, and routines (c) *performance* – the action of the system exercising motor, process, and communication skills. The goal of the Ninja Fitness class program was to provide a meaningful opportunity to engage in physical activity in a fun, interactive, and challenging environment that promoted the importance of integrating healthy

habits and routines into daily life for improved occupational performance and overall quality of life. The theory selected to guide this DCE project was the Theory of Planned Behavior (TPB).

According to Ajzen (1991), there are three formative predictors of human behavior:

(1) *attitude toward behavior* refers to the degree to which a person has a favorable or unfavorable evaluation or appraisal of the behavior in question, (b) *subjective norms* refers to the perceived social pressure to perform or not to perform the behavior and © *perceived behavioral control* refers to the perceived ease or difficulty of performing the behavior and it is assumed to reflect past experiences well as anticipated impediments and obstacles (pg. 188).

Applying the TBP in relation to this DCE project means the more favorable the participants' attitude is towards the behavior of participating in physical activity, the stronger their intention, willingness, and excitement to engage in the physical fitness program, therefore yielding greater benefits. This theory aligns with the foundational concepts described in the MOHO with a main overlapping construct being the influence of perception and attitude toward a behavior as important predictors for engagement and participation in an activity. Using the MOHO and TBP as guides for this DCE project, instilling motivation and applying meaning to work toward specific goals was essential for the creation and implementation of an effective fitness program for individuals with disabilities.

## **Screening and Evaluation**

### **Needs Assessment**

A needs assessment was completed to gain an understanding of the areas needing improvement and gaps within Empower Sports as an organization. According to Bonnel and Smith (2018), conducting needs assessments “help to name and document current situations in

preparation for making improvements” (p. 49). This baseline data obtained from the needs assessment provides a foundation for taking the appropriate next steps to address the problems and gaps that are identified during this process. Different approaches used to conduct a needs assessment for Empower Sports included a strengths/weaknesses/opportunities/threats (SWOT) analysis, an informal interview with Empower Sports staff, and a thorough literature review to document and further support the need.

**Unstructured interview.** First, an informal unstructured interview was conducted with the Executive Director and Program Director of Empower Sports to gain a better understanding for the areas within the organization that require improvement from the perspective of the staff. Various topics were covered. The first area of improvement identified by the staff was a need for program evaluation and outcome measurements to demonstrate the success of the programs that Empower Sports offers to then be communicated and conveyed to the appropriate individuals such as donors and parents involved with the organization. According to Behn (2003), it is important to carefully select outcome measures that have the appropriate characteristics that will assist in achieving a certain purpose to contribute a positive change within an organization. Secondly, a need for continued fundraising and revenue growth was a pertinent area that the staff felt was essential for sustaining and growing the organization. According to the Executive Director of Empower Sports, businesses and donors account for 70% of revenue, followed by 20% from fundraising events, and lastly 10% from program registrations and miscellaneous areas. Lastly, expanding programming to offer more variety in opportunities to the target population was identified as an area of need. The organization is continuing to expand and grow therefore; there is a larger demand for more program opportunities. There is a lack of opportunities for engagement in physical activity programs,

whether for leisure, recreation, or competition for children and adolescents in the United States that have either a disability or a chronic condition (Murphy & Carbone, 2008). Because there are significantly fewer programs offered that have a pace and intensity that meet the ability level of this target population, there are fewer options in the types of programs to choose from. Offering more variety in tailored physical activity programs allows for increased autonomy of the athletes to choose a program that fits their interest.

**SWOT analysis.** Additionally, a SWOT analysis was conducted to gain a more comprehensive overview of Empower Sports. The results of the SWOT analysis can be viewed in Figure 1.

Table 1

*SWOT Analysis Summary of Empower Sports*

<p><b>Strengths</b></p> <ul style="list-style-type: none"> <li>• Holistic and inclusive experience</li> <li>• Niche activities</li> <li>• Long-term business relationships</li> <li>• Volunteer opportunity</li> <li>• Physical, social, and emotional benefits for participants</li> <li>• Frequency and structure of programs provides structure and routine</li> <li>• Variety of physical activity programs offered</li> <li>• Team-oriented</li> <li>• Offered</li> </ul>	<p><b>Weaknesses</b></p> <ul style="list-style-type: none"> <li>• Fundraising</li> <li>• Networking</li> <li>• Expanding programs</li> <li>• Program evaluation</li> </ul>
<p><b>Opportunities</b></p> <ul style="list-style-type: none"> <li>• Active board members</li> <li>• Fiscal</li> <li>• Program expansion</li> <li>• Branding</li> </ul>	<p><b>Threats</b></p> <ul style="list-style-type: none"> <li>• Competition</li> <li>• Capacity</li> <li>• Burnout</li> <li>• Financial constraints</li> </ul>

The information obtained through the use of the SWOT analysis tool highlighted the strengths of the organization to build off of as well as the areas of weakness to be improved.

The key strengths of the organization were that Empower Sports provides an inclusive experience for individuals with disabilities that offers both physical and social benefits in a motivating environment. The central weaknesses of the organization were lack of program evaluation and financial constraints that severely limit programming expansion.

**Supported literature.** Finally, a comprehensive review of the literature was completed to provide a foundation of knowledge and to further support the need for this DCE project in partnership with Empower Sports. The research revealed the many benefits of physical activity for individuals with disabilities and the ever-increasing demand for program opportunities that meets the needs of this population (Murphy & Carbone, 2008). This literature review also provided evidence-based strategies that researchers have used previously that were deemed effective in relation to this topic.

The information obtained via communication with the staff, conducting a SWOT analysis, and completing a literature review verified the increasing need for a unique physical activity program opportunity in addition to outcome measures to determine progress and program efficacy for Empower Sports. The overall goals of implementing this community-based Ninja fitness program using a health promotional approach were to instill healthy habits and routines into the daily lives of individuals with disabilities to improve occupational performance and overall quality of life.

### **Community vs Traditional Clinical Settings**

Due to the nature of the community-based setting within the context of occupational therapy, the process of completing a screening and evaluation is a much broader and larger-scale approach than traditional clinical settings. Within the community-based setting, such as Empower Sports, the client is viewed as the population or community as a whole, whereas in

more traditional clinical settings, such as an inpatient rehabilitation unit, the client is an individual patient of the hospital. Therefore, when screening and evaluating at a population and community level, different variables are taken into account such as demographics, risk factors, health behaviors, attitudes, beliefs, environmental barriers, availability of health-related services, and effective motivators for change (Petruseviciene, D., Surmaitiene, D., Baltaduoniene, D., & Lendraitiene, E., 2018). Within an inpatient rehabilitation unit, screening and evaluations are more detailed and performed on an individual level; for example, range of motion measurements (ROM) and assessments of mental status. The screening and evaluation process also vary within the community-based setting depending on the type of practice setting such as an outpatient pediatric clinic or school. Within an outpatient pediatric clinic, the focus of an evaluation is typically directed more towards a child or adolescent's ability to complete activities of daily living and developmental milestones that are foundational for performing daily occupations. In a school-based setting, the evaluation focus is more centered around skills related to an individual's performance in school such as handwriting, attention span, and cognitive processing. Despite these different approaches, the occupational therapy process as a whole remains extremely similar from setting to setting. Occupational therapists use the results of the screening and evaluation as the basis for developing a plan or treatment that will help individuals maximize their independence in occupations in which they find meaningful.

### **Implementation Phase**

#### **Determining Programmatic Needs**

The first step to implementation of this physical activity community-based program for individuals with disabilities was to develop the program curriculum. A meeting was held between Adrenaline Monkey and Empower Sports staff to collaborate on a Ninja Fitness

program curriculum. This meeting took place at Adrenaline Monkey approximately four weeks prior to the first session of the program. In attendance at this meeting were Adrenaline Monkey's general manager, program coordinator, and director of marketing & business development as well as Empower Sport's executive director and site mentor for this project, and OTS spearheading this project. The meeting agenda consisted of determining an overall goal for the program, creation of the program curriculum, and important aspects to consider when working with individuals with disabilities in this setting. Patient demographics were considered during this step in the implementation phase to tailor the program to meet the participants' ability and needs. The participant demographics are included in Table 1.

Table 1  
*Ninja Fitness Program Participant Demographics*

Participant	Gender	Age	Primary Disability	Secondary Disability
1	F	16	Cognitive delay	
2	M	24	DS	
3	M	18	ASD	Anxiety
4	F	23	DS	
5	M	25	Developmental delay Language delay Hearing impaired	
6	F	22	ASD	Diabetes
7	M	18	Epilepsy	ADHD
8	M	21	DS	
9	M	15	TBI	ADHD
10	M	16	ADHD	Asperger's Anxiety
11	M	13	ASD	ADHD
12	M	20	DS	
13	M	29	ASD	
14	M	33	DS	
15	M	22	DS	Multiple

*Note.* DS = Down syndrome; ASD = Autism Spectrum Disorder; ADHD = Attention Deficit Hyperactivity Disorder; TBI = Traumatic Brain Injury.

### **Staff Development**

Because the Adrenaline Monkey staff had little experience working with this population and assisted in the implementation phase of this program, an informal brief overview of important aspects to consider and basic skills to initiate when working with individuals with disabilities was verbally provided to the Adrenaline Monkey staff present at the meeting to then be passed on to other employees involved in the program. Each of the participant's diagnoses included an intellectual component that limited cognitive functioning to some degree, making it more difficult to complete mental tasks. Basic guidelines that were presented by the OTS included the following: (a) deliver clear instruction and demonstration while allowing time for processing, (b) offer frequent and positive motivation, (c) provide sameness, repetition, and routine, (d) encourage independence, (e) aim for just-right challenge, (f) speak to participants respectfully, (g) be patient and allow ample amount of time for task completion, and (h) embrace differences and individual desires and needs (McClain, O'Hara-Leslie, & Wade, 2018). It was emphasized that adjustments in communication and task completion may be required to allow the participants to engage as independently and successfully as possible.

Each week of the program, the Adrenaline Monkey staff was observed implementing these principles when working with the program participants. The staff provided clear verbal, visual, and tactile cues when providing instruction on how to complete each task. Each task or activity was broken down into steps and ample amount of time for processing was given for clearer understanding. The staff was able to modify components of the obstacle courses to better fit the ability level of the participants and provide them with a just-right challenge. The staff also provided motivation and encouragement to the participants that oftentimes caused the participants to push themselves further. Feedback by the OTS was provided to the staff to

continue to implement these principles for continual and effective execution of the Ninja Fitness program.

### **Leadership**

Implementing the Ninja Fitness class program provided the opportunity to develop and execute leadership skills that were essential for a successful program. To lead a group of individuals with varying ages, diagnoses, and ability levels, it required planning, communicating, and providing positive reinforcement.

Prior planning and preparation for each session was extremely important and provided organization, structure, and efficiency of time. Tasks were delegated and stations were assigned to the staff prior to the beginning of the session. Each week, an email was sent to communicate the session format and expected roles and responsibilities. All questions from staff regarding the upcoming session were answered in advance.

Due to the unique and non-traditional nature of this type of physical activity, many of the participants were hesitant and unsure about trying certain activities or tasks that were unfamiliar. Providing reassurance, using affirming words, and building rapport to increase trust were very important skills to develop as a leader of this group. Overtime, the participants as a group became more trusting of their leader which allowed for increased participation and engagement.

### **Program Format and Curriculum**

The program took place at an adventure sports center, modeled after American Ninja Warrior, on eight consecutive Thursday nights for one hour in duration in Warrensville Heights, Ohio. A total of 15 participants of varying disabilities and ability levels participated in the program ranging from 13 to 33 years old.

Name tags and Vivitar activity action tracker watches were distributed as participants arrived at the facility. Each session began with an introduction that consisted of the “Word of the Day,” plan for the session, and a warm-up. The “Word of the Day” was intentionally selected each week and provided the focus for that session. Following the introduction, the participants were divided into three groups of five based on ability levels. One Empower Sports coach served as the group leader for each group. During weeks one, two, four, five, and seven the groups rotated through three station– fitness area, climbing walls, and obstacle course. The stations consisted of physical tasks that tested strength, endurance, and agility and were tailored to meet the ability levels of the participants. During weeks three and six, the ropes course was offered as an additional option to the participants. Adrenaline Monkey guides supervised each station to provide demonstration, instruction, and safety procedures. A total of ten minutes was allotted at each station. Rest breaks and water were encouraged as needed. Each session concluded with a reflection and cool-down. The detailed program curriculum is included in Table 2.

Table 2

*Ninja Fitness Program Curriculum*

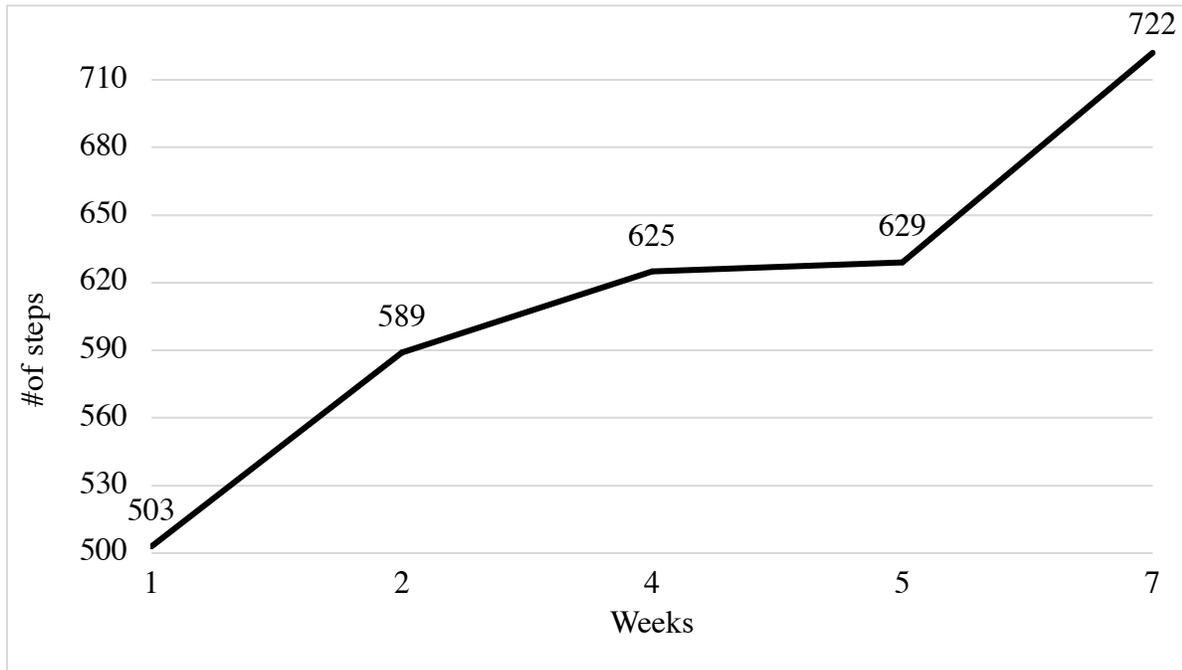
Week	Word of the Day	Stations	Task
1	Trust	Fitness Obstacle course Climbing wall	Agility ladder Battle ropes Beginner course Parkour boxes Island hops Sonic curve Up & over wall Angle run Tyres Commando ladders
2	Confidence	Fitness Obstacle course Climbing wall	Kettle bell swing Mountain climbers Beginner course Parkour boxes Island hops Sonic curve Up & over wall Angle run Volcano wall Circuit board
3	Teamwork	Ropes course	26 elements
4	Sportsmanship	Fitness Obstacle course Climbing wall	Kettle bell overhead Burpees Dips Course #2 Speed walls
5	Empower	Fitness Obstacle Course Climbing wall	Rope pull ups Jumping squats Relay race on course #1 Optional (athletes choose their wall)
6	Leadership	Ropes course	26 elements
7	Focus	Fitness Obstacle course Climbing wall	Course #3 (race)
8	Competitiveness	Competition day	Participants' choice

## **Outcomes and Discontinuation**

### **Activity Action Trackers**

Each week, all present participants wore an activity tracker watch around their wrist to track steps, calories, and distance traveled. Weeks three, six, and eight were excluded from data analysis as it was determined that the curriculum for those sessions were not representative of the program overall. The average as a group of each of the three categories (steps, distance, and calories) increased week to week. It is represented by the percentage change, the degree of change over time. For each of the three metrics, the percentage change displayed an increase of 44% due to the activity tracker's algorithm. While this measurement is not an exact or perfect representation, the overall positive trend can be used to conclude that overall the average level of fitness increased as a result of weekly participation in the Ninja Fitness class program. The results for each metric are displayed below in Figure 2, Figure 3, and Figure 4.

Figure 2. Average Number of Steps Taken Per Ninja Fitness Class of All Present Participants from Week 1 to Week 7



*Figure 2.* Line graph displays the change in the groups' average number of steps taken per Ninja Fitness Class over a 7-week period. The number of average steps taken by the group increased by 44% from week 1 to week 7 as displayed in the figure by the positive trend line.

Figure 3. Average Number of Miles Traveled Per Ninja Fitness Class of All Present Participants from Week 1 to Week 7

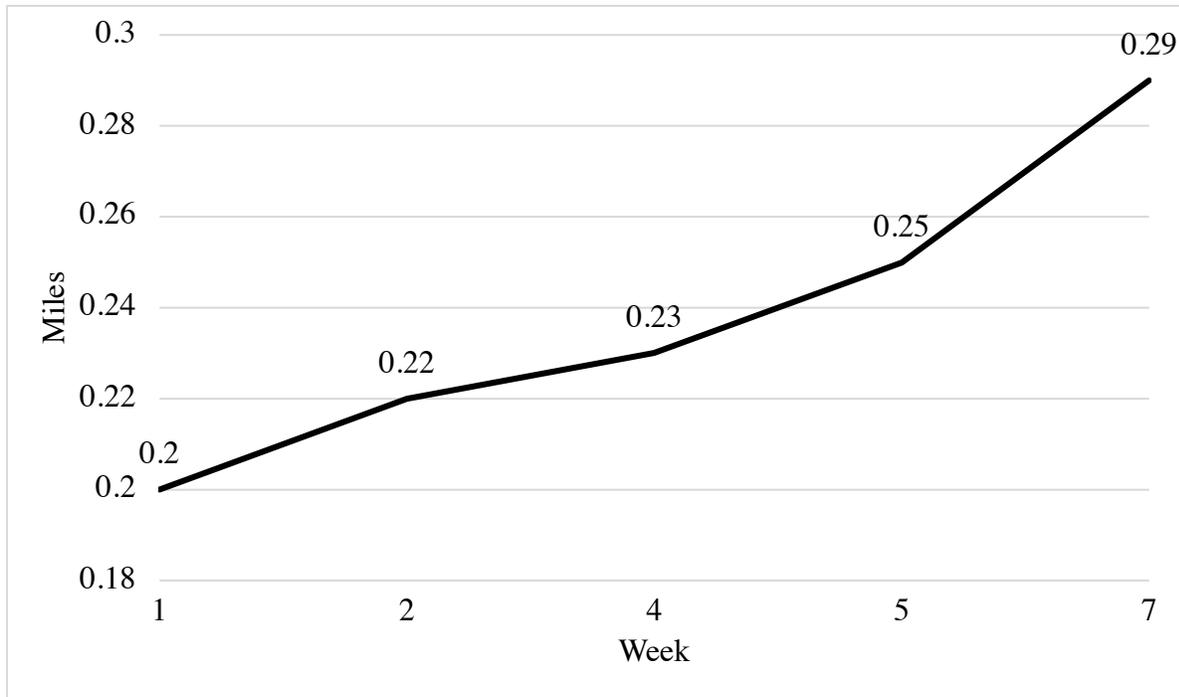
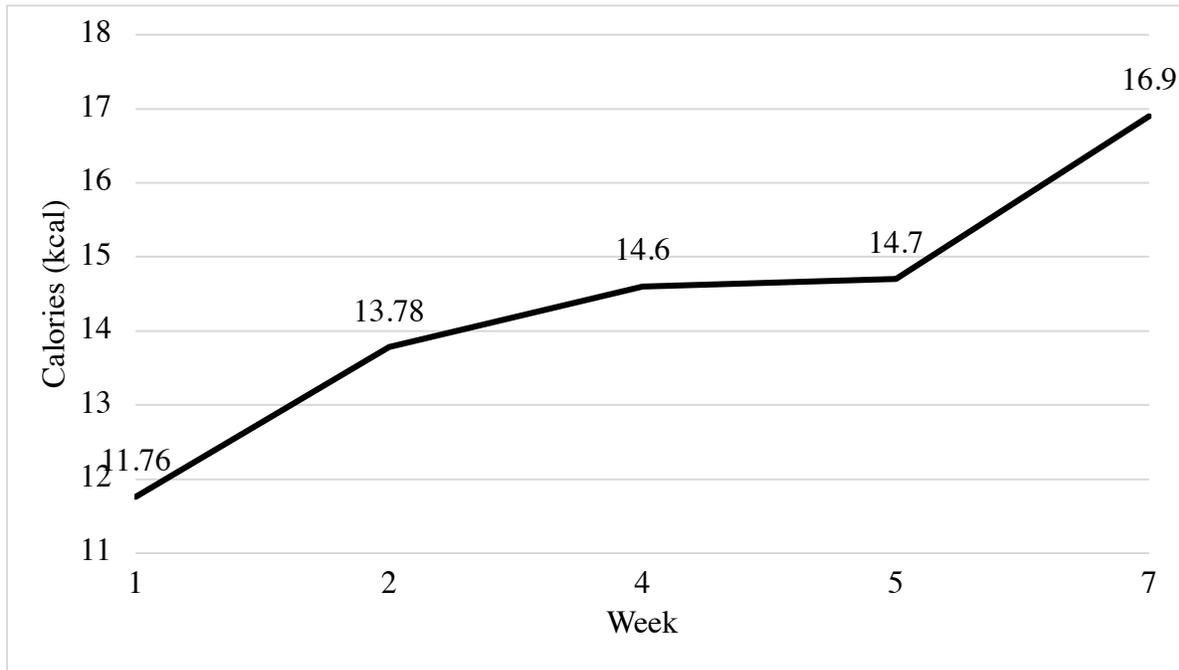


Figure 3. Line graph displays the change in the groups' average number of miles traveled per Ninja Fitness Class over a 7-week period. The number of average steps taken by the group increased by 44% from week 1 to week 7 as displayed in the figure by the positive trend line.

Figure 4. Average Number of Calories Burned Per Ninja Fitness Class of All Present Participants from Week 1 to Week 7



*Figure 4.* Line graph displays the change in the groups' average number of calories burned per Ninja Fitness Class over a 7-week period. The number of average steps taken by the group increased by 44% from week 1 to week 7 as displayed in the figure by the positive trend line.

## **Focus Group**

Each of the 15 parents of the program participants were invited via e-mail to participate in a one-hour focus group on the second to last week of the Ninja Fitness Class program to share their opinions and feedback related to the impact and value of the program on their athlete, as well as areas for program improvement. According to Krueger and Casey (2014), the recommended size of a focus group is typically between five and eight participants. Seven parents agreed to participate in this focus group. The focus group was facilitated by the OTS. A notetaker was present to record the key points. The parents participating in the focus group were informed that information they gave would be kept completely confidential and their name would not be associated with anything said in the focus group. Overall, the focus group participants provided positive feedback and useful recommendations for how the program can be improved in the future. The qualitative data obtained from the focus group was coded, then analyzed. Nine main themes were identified and fell into two main categories— program positives and program areas of improvement.

### **Program positives.**

*Unique.* Several of the parents stated that they were initially attracted to register their athlete for the program because it was such a unique and non-traditional form of physical activity that seemed fun. Many of them reported that they were familiar with the television show, American Ninja Warrior, and viewed it as an “uplifting” and “heartwarming” show which also influenced their choice to register their child for this program.

*Increased self-confidence and self-initiation.* The parents reported that they were able to observe increased self-confidence and self-initiation of their athlete as a result of participating in the Ninja Fitness class program. One of the parents explained that her son has gained much

confidence since participating in the program and observed a translation of this newly acquired confidence when he asked to try out for his school's tennis team. Another parent commented on the cognitive skills that were developed over the course of the program as many of the tasks required planning, sequencing, and initiation of the task for successful completion. The parent explained that she was able to observe her son's face and could see that it started "clicking" for him over time.

***Facilitated socialization.*** Overall, the participants of the focus group agreed that this program offered many opportunities to interact with peers and teammates. The parents commented on how their child cheered on their teammates and initiated conversations with teammates to encourage them to try a task.

***Peer modeling.*** The parents commented on how it was beneficial to have them participate and move through the stations together as group each week. They said that this gave the participants a "if they can do it, I can do it" attitude making their athlete more inclined to try something if they watched their peer doing it first. One of the parents phrased it as "peer pressure to keep up in a positive way" and a "combination of challenging themselves to be better while also being a part of a group/team." The parents felt that this gave the athletes the opportunity to work as a team while simultaneously refining their own individual skills.

***Motivating.*** The parents of the focus group reported that as a result of the Ninja Fitness Class program, they have noticed that the transition time before attending the program has become smoother and their child has become more independent in preparing to get ready for the program by putting on the appropriate clothing and gathering necessary items. They believe this is largely attributed to their child looking forward to the program each week. Many of the parents stated that their child has reminded them of the program, rather than the parent

reminding their child. The parents reported that the “Reaching New Heights Together!” t-shirt they received in the beginning of the program has become an effective motivator to attend and their child associates the t-shirt with the program. A parent said, “My son forgets to bring his pants to track practice yet remembers to wear his Ninja shirt each Thursday.” Another parent shared that his son requested a new pair of gloves to improve his grip on the climbing holds and certain components of the obstacle course. This shows that he was independently thinking about working out and ways in which he can take his performance to a different level.

***Physically challenging.*** The parents agreed that the program offered multiple fitness benefits through stations that targeted the entire body. The main area of fitness that parents believed the gains were most observable was stamina. One parent said, “It was apparent that my son’s endurance increased as he was able to make it up a little bit higher on the climbing wall each week.” Another parent shared that his son works out five times per week independently of this program and began to view the program as a way to apply his fitness gains. The parent reported, “He is now muscling across an obstacle that was once difficult in the beginning of the program.” The group of parents commented on how much they enjoyed seeing their child progress week to week by achieving new goals.

#### **Program areas of improvement.**

***Increase demonstration and instruction.*** Many of the parents suggested to incorporate a scheduled time for orientation to the facility and a walk-through around the different stations prior to the first session for the participants. The parents added that this would allow the athletes to know what exactly to expect and how to correctly accomplish it.

***Environmental modifications.*** The respondents provided suggestions for modifications of the physical environment for optimal performance and safety. The first suggestion was to turn

the facility's music volume down during the entire hour of the program to decrease extraneous stimuli and allow for increased focus and attention as many of the participants are highly sensitive to their environment. Secondly, they suggested numbering the stations so the participants have a visual aid to help them know what order they will be moving about the stations. The final suggestion was to place crash mats below the climbing walls to ensure a safer landing.

*Application and how tasks translate.* The parents also expressed that they would like there to be more explanation provided to the participants of the purpose and importance of the activities and tasks that they were completing. A parent offered the example of completing an upper body exercise will help to improve arm strength that will help to climb higher up the climbing walls. Providing take-home exercises for the participants was also suggested for increased carryover.

### **Ongoing Process for Quality Improvement**

This is the first time this type of program has been offered by Empower Sports; therefore, the data obtained from the activity trackers and the information gained from the focus group are of significant importance for future Empower Sports program development. The physical and psychosocial outcome measures are key in demonstrating the value of the Ninja Fitness Class program which further supports the need for continuation of this program and helps to establish a culture of quality within the organization. The outcome measurement results were shared and discussed with the Executive Director of Empower Sports and will soon be used to present to potential donors and sponsors in hopes of continuing to offer this program.

The honest and open feedback received from the parents of the participants in the focus group will help to determine and prioritize aspects of the program to continue as well as areas

that can be improved for the next time that this program is offered. Improvements to the program that are planned to be implemented next time this program is offered include the following: a) offer an opportunity for future potential participants that are interested in registering for the program to trial the different activities that Adrenaline Monkey offers to determine if it would be a good fit, b) modify the environment by decreasing the volume of the music, number the stations, and place crash mats underneath the climbing walls, and (c) deliver an explanation and application for each activity and task to help the participants more fully understand the purpose of what they are doing to provide meaning and significance.

### **Addressing Society's Needs**

This project is responding to the pressing societal need for specialized physical activity programs that promote healthy behaviors for individuals with disabilities. The rate of physical activity participation among individuals with disabilities is substantially lower than individuals without disabilities (Lakowski & Long, 2011) largely due to a lack of programs that offer a pace, intensity, structure, and level of fun that meet this population's needs, ability level, and interests (Murphy & Carbone, 2008). The outcomes of this carefully developed eight-week structured fitness program for individuals with disabilities demonstrate the physical and psychosocial benefits of participating. Overall, the parent and participant response to the program was that it was a fun, interactive, appropriately tailored, and physically challenging mode of achieving fitness and boosting self-confidence. Offering this diverse opportunity to individuals with special needs in the regional Cleveland community allows for added physical activity options for individuals with disabilities.

### **Overall Learning**

#### **Professional Communication**

**Colleagues.** This project was completed in partnership with the Empower Sports staff as well as the Adrenaline Monkey Staff. In the beginning stages of developing this program, developing trusting relationships with colleagues was essential for building the foundation for these professional relationships. To prevent confusion, the purpose of the DCE project and the occupational therapy student's role in this project were clearly communicated. Email and face-to-face conversations were the primary methods of communication with the staff involved in the Ninja Fitness class program. The occupational therapy student intentionally tried to avoid using occupational therapy jargon and technical terms when electronically and verbally communicating to prevent misunderstanding. If occupational therapy jargon was used, the occupational therapy student made sure to provide a definition and meaning in terms in which they could easily understand. For example, in a meeting with Adrenaline Monkey Staff and Empower Sports staff, all of those present did not have a clinical or therapy background. The OTS was explaining to them the importance of determining the 'just-right challenge', a term conceived by occupational therapist and educational psychologist Jean Ayres (Cole & Tufano, 2008), for the participants when developing the program. The OTS described this term to them as a careful balance between the challenge of the task and the skills of the person and provided them with an example. The OTS added that finding this balance may take some trial and error and will typically vary from person to person as the participants of the program were of varying ability levels.

**Client.** Communication techniques and strategies were used to increase participant engagement in the program. For example, in the beginning weeks of the program, some of the participants were tentative and appeared to have difficulty self-initiating tasks. Therefore, additional verbal, tactile, and visual cues were provided. The participants responded positively

to the cues and were able to more fully understand how to complete the task and what was expected of him/her. Overall, by the last week, significantly less cueing to complete tasks was required.

**Family.** The majority of the participants' parents were present at each session of the program and were very engaged and communicative with their child as well as the staff. When speaking with the parents the OTS found it very important to be an active listener as they best knew their child's behaviors and what they respond to. For example, a parent informed the OTS that their child had an exacerbation of their rheumatoid arthritis that may impact their ability to complete some of the tasks for that day and may lead to frustration. The OTS was then able to communicate this to the rest of the staff ahead of time to make them aware and make adjustments accordingly. When communicating with the parents of the participants the OTS also found it to be beneficial to speak about their child in a positive tone. For example, one of the parents was disappointed that their daughter was having difficulty with a specific obstacle on the obstacle course and was discouraged that she would not be able to complete it. The OTS pointed out how persistent she was as she continued attempting and how close she was to succeeding as compared to the previous weeks. The parent agreed and was then able to provide positive encouragement to his daughter.

### **Leadership and Advocacy**

In general, the OTS was able to advocate for the profession of occupational therapy by educating others on the core principles of the profession. Integrating knowledge and background in occupational therapy by the OTS made a profound impact in the development and implementation of the Ninja Fitness class program. Although occupational therapy services

were not directly administered, the OTS was able to apply strategies foundational to the profession, such as modifications and adapting activities, to the program.

The OTS was also presented with opportunities to advocate for the participants of the program. For example, during one session of the program there was an influx of people inside the facility due to school field trips. This resulted in an extremely loud, chaotic and overstimulating environment that made it challenging to carry out the program curriculum as planned. Although this situation was out of the staff's control in that moment, there were steps taken to prevent this situation from occurring again. An e-mail was composed expressing disappointment and concern regarding this situation. Included in the email was that the participants were easily distracted, and their safety was compromised. The purpose of this communication with the staff of Adrenaline Monkey was to prevent this from happening again and to request to be notified if there were scheduling conflicts in the future. The General Manager of Adrenaline Monkey was apologetic and assured the staff that this would not happen again.

Another example in which the OTS advocated for the participants was after the initial week of offering the ropes course, the question was raised whether this activity should be continued to be offered as originally planned within the curriculum since only about half of the participants attempted and completed the ropes course the first week that it was offered. The OTS stated that she was a strong proponent for continuing to offer the ropes course as it would be disappointing to those that enjoyed this activity, despite the fact that only a few chose to complete it. It was an activity that offered many physical and psychosocial benefits and the OTS felt that the participants should be given the choice. By advocating to continue to offer the

ropes course along with other choices in activities the OTS was able to foster their autonomy and uphold a participant-centered program.

This experience greatly enhanced leadership skills that served to be instrumental for planning and implementing a successful community-based program for individuals with disabilities. Over the course of this DCE the OTS gained confidence to take initiative and be verbal in situations in which she was capable of managing. The OTS learned the importance of effective communication and understanding that each individual has different learning styles and motivating agents for change. The leaderships skills acquired during this DCE extend beyond the generalist level and will be of great value in the OTS's future practice as an occupational therapist.

### **Implications for Occupational Therapy**

Several interrelated constructs outlined in the *Occupational Therapy Practice Framework: Domain and Process* (AOTA, 2014) were considered for this project to facilitate growth and change of the program participants. There are two primary *occupations*, or life activities that this group was engaging in throughout the Ninja Fitness Class program—health management and maintenance and social participation. *Client factors* of the participants that were targeted through participation in physically exerting tasks include muscle functions (power, tone, and endurance), movement functions (eye-hand and eye-foot coordination, bilateral integration, crossing the midline, and gross motor control), and cardiovascular and respiratory functions. *Performance skills*, skills that influence the ability to participate in occupations, that were developed through participation in the program include motor skills, process skills, and social interaction skills. *Performance patterns*, or habits, routines, and roles that support occupational performance were instilled by offering the Ninja Fitness Class on a

consistent weekly basis. The *context and environment*, or the physical and social conditions surrounding the participants, were considered greatly and modified accordingly in efforts to set the participants up for success. Tasks were adapted physically when possible to match the ability levels of the participants, distracting stimuli that was within the staff's control were eliminated from the environment, and smaller group sizes were intentional to promote a social environment that was not overwhelming and promoted peer interaction.

The results of this Doctoral Capstone project reinforced the importance of creating a program that is fun, purposeful, and engaging to promote regular and consistent participation in physical activity. This project demonstrates the multidimensional benefits, both physical and psychosocial, of a tailored fitness program for individuals with disabilities that support health, well-being, and occupational justice.

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