Identifying the Motivational Factors for Adults with Intellectual Disabilities for Participating in Sport

A Senior Honors Thesis

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ABSTRACT

Opportunities for physical activity participation are limited in adults with disabilities. The purpose of this study was to identify the motivational factors for sports participation in 25 adults with intellectual disabilities (ID). This study also analyzed potential gender differences in the sample (18 males and 7 females). A pictorial measure was created, featuring a statement and a corresponding illustration that was then provided to the sample. Participant responses to each statement were recorded as “like me,” “a little like me” or “not like me.” The results showed the pictorial measure had acceptable reliability estimates using a test retest procedure. Most participants responded with agreement to the questionnaire indicating “like me” for the motivational items. Further, adults with ID are motivated by feeling good, practice, playing games, spending time with friends and more. Participation in sport due to parental influence was not as prominent in the sample as a motivating factor for adults with ID. Adults with ID participate in sport due to their own intrinsic motivators, or external motivators such as winning.

Chapter I

Introduction

Participation in sport is critical for individuals with intellectual disabilities (ID). However, many individuals with ID live a sedentary lifestyle. A sedentary lifestyle entails that an individual is not meeting the standards of 30 minutes of moderate to vigorous exercise for at least three days per week. Exercise is defined as planned, structured, repetitive and intentional bodily movement intended to improve or maintain physical fitness (ACSM). Sport has been defined as "a human activity of achieving a result requiring physical exertion and/or physical skill which, by its nature and organization, is competitive and generally accepted as being a sport" (Eime et al., 2013). Sedentary lifestyles usually include excess physical inactivity. Physical activity differs from sport because it is defined as any movement that results in energy expenditure. This study will focus on participants in sport as a form of physical activity. Chapter two will address the impact of physical activity on self-systems, the health-related benefits of physical activity, barriers to participation in physical activity, motivational factors for physical activity participation and caregivers and support for physical activity participation.

Statement of the Problem

Lack of engagement in physical activity and sport in adults with disabilities is a major concern for individuals with ID. One reason is that habitual inactivity leads to hypokinetic disease (Kozub & Frey, 2006). Further, individuals with ID have an overabundance of free time, so the opportunity and desire to participate in health enhancing activities such as sport is important.

Rationale of the Problem

Barriers to physical activity are an important concern for individuals with disabilities (Kozub & Frey, 2006). If the motivational factors for individuals with ID are identified, programs are then constructed that match the needs of the target population. This in turn has the potential to increase physical activity and sport throughout the lifespan for individuals with ID. Further, this helps program providers and caregivers to support participation in physical activity.

Research Questions

There are three main research questions for the current study. These include:

- What are the reliability estimates for a pictorial scale measuring physical activity motivation for adults with ID?
- What are the motivational factors in individuals with ID to participate in sport in adulthood?
- To what extent does gender of participants with ID have an impact on motivational factors?

Delimitations

In this study, only active participants of an adult disability sport program were included. Inactive individuals who do not participate in sport were not studied. Further, each participant

recruited to take part in the study was labelled as having ID either through the educational or medical systems. The population recruited were adults over the age of 21. The participants recruited in this study only came from one agency. The motivational factors measured were identified by the principal investigator and therefore may not represent all the factors that motivate the participants to engage in sport.

Limitations

A major limitation of this study is that the participants were not gathered through a random sample. The participants were recruited using a convenience sampling method through an adult assistance program in Western New York. These individuals were gathered at their recreational sporting event. Another limitation is there is not an equal proportion of men and women in the sample. Most participants in this study were male and all the reliability estimates of the measure were completed using male participants. Finally, a major limitation of this study is that the participants may not have answered truthfully. Individuals with ID tend to favor the response they think others will favor (Matikka & Hannu, 1997).

Definitions

Motivational Factors. The things that drive/guide/initiate human behaviors. Motivational factors (operational) regarding the statements listed in the measure: fun, improves mood, getting better, being inside or outside, parents tell them to, parents tell them it is good for them, to feel good, look good, get stronger, to practice, to win, to spend time with friends, being on a team, to feel healthy, to play games, because they are good at it (Modified from Oladunni, Lyoka & Goon, 2015). For the purpose of the current research, motivational factors will be operationalized as scores on the scale developed by the researcher and found in Appendix A.

Intellectual Disability. Deficits in intellectual functioning— "reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience"— confirmed by clinical evaluation and individualized standard IQ testing (two or more standard deviations from the mean IQ), deficits in adaptive functioning that significantly hamper conforming to developmental and sociocultural standards for the individual's independence and ability to meet their social responsibility; and the onset of these deficits is during childhood (before the age of 18). An individual with ID that may be comorbid with another learning disability or physical impairment.

Physical activity. The activities/sports the participants participate in that is planned, structured, repetitive and intentional bodily movement intended to improve or maintain physical fitness (Eime et al., 2013). Further, physical activity includes any movement that results in energy expenditure (Eime et al., 2013).

Sport Participation. A human activity of achieving a result requiring physical exertion and/or physical skill which, by its nature and organization, is competitive and generally accepted as being a sport (Eime et al., 2013). For the current study sport participation is operationalized by individuals with ID who participated in powerlifting, basketball, softball/baseball, soccer, bocce ball, golf, swimming, bowling, track and field, hockey, and/or floor hockey through a state Special Olympics sponsored program in the North East.

Summary

The purpose of this study is to measure motivational factors for sport participation in adults with ID. Although there has been some research on the topic, there are few studies that identify motivational factors for adults with ID. The next section outlines known research on the topic.

Chapter II

Review of Literature

Previous research has evaluated benefits of participating in sport and physical activity. Studies have focused on the sedentary lifestyles lived by many individuals with ID as well as on the barriers that facilitate sport participation for individuals with ID. This section reviews known findings related to the impact of physical activity on self-systems, the health-related benefits of physical activity, and barriers to participation for adults with ID. Finally, motivational factors and caregiver support are reviewed in the target population.

Impact of Physical Activity on Self Systems

There is great value in participating in sport because it has been reported that sport participation increases overall well-being, self-confidence, quality of life, better physical fitness and builds social relationships with family members, peers and classmates. Daily physical activity may also lead to the prevention or delay of chronic disease (Taliaferro & Hammond, 2016). Participation in sport is shown to decrease levels of stress and provide a sense of accomplishment as well (Oladunni et al., 2015). Intellectual disability is often coupled with anxiety, depression or lack of anger management which is also shown to be reduced through

sport activities (Edington, Hudson, Dieser & Edington, 2004). Approximately 3.5% of the population has been diagnosed with ID in 2009. Of that 3.5%, 12-14% also have been diagnosed with an anxiety disorder that has been present for at least six months (Carmeli et al., 2009). Carmeli et al.'s study reported a significant decrease in the severity of anxiety symptoms in the experimental and leisure groups when compared to the control group. The participants in the experimental group participated in and aerobic training program while the leisure group performed warm-up activities that focused on flexibility, stability and dynamic balance (Carmeli et al., 2009). The control group did not participate in any physical activity program. This shows that exercise decreases the anxiety symptoms of an anxious mood, tension, fears, depression, muscle complaints, and sensation complaints. Although exercise is presumed to be the factor that decreased anxiety symptoms, the author alludes that the enhancement in overall well-being of the participants could be due to the positive, mutually supportive environment that was created where positive social interactions took place (Carmeli et al., 2009). The sense of accomplishment and responsibility of the participants to execute the exercise routine may have decreased their anxiety symptoms. Therefore, further research is warranted to decipher whether the social impact of exercise improves the mental well-being of individuals or the actual exercise programming followed.

In another study that was completed by Heller et al., participants above the age of thirty with Down Syndrome engaged in a training program for three days a week over twelve weeks. The training group showed significant improvements in attitude towards exercise, increased self-efficacy, more positive outcomes, fewer emotional barriers, improved satisfaction with life and lower rates of depression compared to the control group. Therefore, it is imperative to continue to increase equal opportunities for individuals with ID to participate in sport as well as other

exercise programs. Reducing the comorbidity of ID with mood disorders would not only increase quality of life, but could potentially elongate the lifespan of individuals with ID as well (Bossink, Putten, & Vlaskamp, 2017).

Health Related Benefits of Physical Activity

Elongating the lifespan of individuals with ID is important because cardiovascular disease is the leading cause of death in the United States. There are eight major risk factors that lead to cardiovascular disease, including a sedentary lifestyle and obesity, which are growing issues in the population of individuals with ID. Individuals with ID are nearly three times as likely to be sedentary than individuals without ID. Approximately 56% of individuals with ID do not participate in any physical activity (Taliaferro & Hammond, 2016). Individuals with ID are at a high risk of obesity due to their lack of exercise. The prevalence of obesity in individuals with ID has increased by 58% compared to the general population. Since obesity and a sedentary lifestyle are modifiable risk factors, meaning they are changeable and can be improved upon, it is imperative to find ways to decrease these substantial risks in this population. Other modifiable risk factors include dyslipidemia, smoking, hypertension and diabetes. Such risk factors are commonly comorbid with one another. Dyslipidemia and hypertension are also more prevalent in individuals with ID because they are associated with inactivity (Bodde & Seo, 2009). Participation in physical activity will reduce the risk of chronic diseases that are associated with obesity.

Barriers to Physical Activity Participation

There are countless barriers to sport participation for individuals with disabilities. Therefore, it is hard to combat a sedentary lifestyle and obesity. Barriers to exercise and sport can be found in various forms. There are countless personal, social, economic and environmental

barriers. There is a general lack of organized sports programs for this population as well as early recreational sports experiences (DePauw & Gavron, 1995). Other barriers include lack of adequate coaches, training programs, sports facilities, equipment and limiting psychological and sociological factors (DePauw & Gavron, 1995). A study was conducted to analyze the availability of sports equipment among adults with ID based on their housing situations in Georgia, North Carolina and South Carolina (Howie et al., 2012). The study found that group homes are more likely to have access to sport and exercise equipment compared to individuals with ID who live in a home environment. In a group home, individuals with ID were significantly more likely to have access to sports equipment (49.2% vs. 20.6%), public parks (69% vs. 42%), recreation centers (69.6% vs. 35.3%), sports or playing fields (68.1% vs. 23.5%), and basketball hoops and/or courts (60.9% vs. 23.5%) (Howie et al., 2012). Overall, about 50% of individuals with ID have access to recreational equipment and facilities. However, only 10.68% of individuals with ID have access to organized sports or recreational physical activities (Howie et al., 2012). Accessibility to physical activity opportunities has been reported countless times as the largest barrier for the least active adults with ID.

Transportation is another largely reported barrier to participation in sport and physical activity. Taliaferro conducted a study to look at organizational barriers, individual constraints and external influences as to why there is a lack in participation in sport among individuals with ID. Under organizational barriers, the surveyed participants reported lack of transportation to physical activity programs meant for individuals with ID, age restraints, limited resources (i.e. funding, spots available in programs), and a lack of information on where to find a trainer or program suitable for individuals with ID. Many individuals with ID cannot drive themselves to events and need transportation to be provided either publicly, by a legal guardian or group home

staff. Facilities may not be in walking distance and few individuals with ID have learned how to ride a bike. To improve independence for individuals with ID programs have begun to teach this population how to ride bikes to increase their freedom (i.e. I Can Ride Bike Camp). Even with the ability to transport themselves to the facility by walking or riding a bike, a study found that only 20.6% of people living with a family or in an apartment and 53.6% of people living in group homes have access to sidewalks (Howie et al., 2012). Therefore, the safety of said transportation is in question. These factors further emphasize the importance of social support and influence of caregivers because they are needed to simply get the individual with ID to the facility where they can be active. Even if individuals with ID wish to participate in physical activity more regularly, they depend on others time and resources to attend recreational events.

Motivational Factors for Participation in Physical Activity

Taliaferro and Hammond's study in 2016 identified a lack of interest in sport by individuals with disabilities, further providing evidence that it is imperative to find ways to get this population of individuals physically active. The reported individual constraints include a lack of motivation or skill, reliance on others for transportation or help while participating in sport and time constraints. Along with motivation as a barrier to sports participation, Shields and Synnot found that in 2015, children with ID feel that they are not as physically capable as their peers who do not have ID. Individuals with ID often lack the understanding of the benefits associated with physical activity. They often quit because they feel that it is difficult. An individual reported that other individuals "play tough," alluding that certain activities involve the need to be more aggressive or competitive, turning the participant away form that form of exercise (Shields & Synnot, 2015). Many children with ID lacked confidence when they compare their skills and abilities to those of their peers (Shields & Synnot, 2015).

Various external influences were reported as barriers. Such barriers include the lack of motivation in caregivers to promote physical activity/participation in sport, discomfort with the environment various exercise programs provide and imposed choice of activity on the individuals with ID by their caregiver. Many individuals with ID live in group homes or institutions where they lack volitional control or choice over their daily activities (Bodde & Seo, 2009). In a study conducted by Bodde and Seo, it was found that proxy reporters found the barriers to participation in physical activity to be individualized to the individual with ID. Proxy reporters stated that individuals with ID lacked motivation while individuals with ID self-reported environmental and social factors as barriers to sport participation (Bodde & Seo, 2009). Individuals with ID reported that coaches or mentors who used cues such as “be careful” and “don’t overdo it" were not helpful or encouraging. Although many barriers to participation to sport were highlighted in these studies, facilitators of participation were also noted.

Caregivers Support for Participation in Physical Activity

The greatest facilitators determined to increase sport participation are the influences of caregivers, family members, coworkers and friends to seek out programs and to make the programs fun and enjoyable for the participants. Participants reported that having fun with friends was an essential motivating factor to continue exercising. Shields and Synnot conducted a study on children determining the greatest facilitators to participation in physical activity as the desire to be fit and active, skills practice, spending time with their peers, family support, close and accessible facilities and staff that is sensitive and knowledgeable in the special needs of the individual with ID (Shields & Synnot, 2015).

Sparking an interest in physical activity and participation in sport in children with ID is not enough. There needs to be continuing motivation and recruitment into sport in individuals

with ID throughout adulthood. As children, individuals with ID may participate in sport through school or organized recreational programs, but there is a lack in such programs when this population reaches adulthood (Kozub & Samalot, 2020). This continuation is imperative because many individuals with ID are excused from recreational programs when they turn 21 and are no longer in school. Many studies have been conducted analyzing the motivational factors and perceived benefits that children with disabilities find in sport and physical education class.

Wieczorek, Sadziak and Karásková conducted a study in 2018 to analyze the emotions of students with ID participating in physical education classes. The positive and negative emotions of the students were analyzed, as well as the response variability by gender and the difference between emotions of the students with ID compared to the emotions experienced by their peers who lack ID. The most frequently experienced emotions for individuals with ID during physical education lessons are relaxation, self-confidence and a positive attitude (Wieczorek et al., 2018). This study showed that males tend to report more positive emotions than females during physical education classes. The most frequently reported negative emotions were fatigue, fear and tension, unhappiness and anger (Wieczorek et al., 2018). Females tended to report these negative emotions more frequently than their male peers. This study also found that girls without ID report fewer negative emotions toward participation in physical education lessons than the female students with ID. Females with ID reported more dissatisfaction, fatigue and general negative emotion towards class (Wieczorek et al., 2018). The results align with past research that discerns that boys show a stronger desire to master and win in sports, which may account for the significantly higher reported feeling of self-confidence in boys than the girls in class. Although negative emotions are frequently experienced in physical education classes among individuals with ID, the physical activity and sport performed reduce tension and stress, therefore

intensifying the positive emotions while reducing the negative emotions felt. This study concluded that positive emotions predominate over negative emotions during physical education lessons and that gender is a dominating factor as to whether positive or negative emotions are felt in physical education classes.

A study by Reid in 2009 assessed the intrinsic and extrinsic motivating factors in both adolescents and adults with moderate ID using a pictorial scale. In this study, Special Olympic athletes with a mean age of 32 were asked about why they participate in sport and how they feel about it (Reid et al., 2009). The scale of the pictorial was measured through a rating of how "like" the statement they were. The participants would choose "like me", "a little like me" or "not like me" to distinguish how much they related to each statement and picture (Reid et al., 2009). In this study, the questions asked more about their thoughts on their participation rather than why they choose to participate. Each statement was put in a category of intrinsic motivation, self-determined extrinsic motivation, non-self-determined extrinsic motivation or amotivation.

Researchers have not fully looked into what motivates adults with disabilities to continue in sports participation or join exercise programs later in life. Motivational factors observed to impact the participation in sport among 10 to 27-year-old individuals with disabilities in school include parental influence, enjoyment, competency, socializing, health and psychological benefits (Oladunni et al., 2015). Combining the scale from Reid's study in 2007 and the motivational factors observed in the study by Oladunni et al. (2015), a pictorial questionnaire given to adult athletes with ID could better describe their motivational factors. Understanding the underlying motivational factors of adult individuals with ID potentially prompts further inclusion and increase participation in physical activity.

Summary

For the current study the objective is to explore and describe the current status of motivational factors for sport participation in a group of adults with ID. Further, gender interactions are explored in the sample. Described in the next section are the procedures as well as the steps taken to estimate reliability in the motivational scale developed for the current study.

Chapter III

Methods

This study first examined the reliability of a pictorial measure to determine the motivational factors in the target sample. This was followed by an examination of gender differences in adults with ID. This section describes the methods used to answer the research questions of interest. Chapter three includes a description of participants, instrumentation, procedures for data collection, and data analyses. A final summary is also provided.

Participants

The participants of the study were 18 adult men and 7 women with varying ID ages 34-50, with a mean age of 44.78 ± 10.69 years. Each participant participated in a powerlifting program. Most participants also participate in other Special Olympic sports including basketball, softball, hockey, soccer, swimming, bowling and more. The participants have been involved in sport for 3-30 years.

Instrumentation

A pictorial measure was created and illustrated by the principal investigator of this study (Appendix A). The measure involves 17 items that contain simple statements regarding

motivational factors for sports participation. The scale of the measure is based on Reid's pictorial survey where the responses are listed as "like me, a little like me and not like me" (Reid et al., 2009). The item content is found in Table 1. This measure was subjected to a test retest procedure using a one-week interval.

Table 1

Item content and descriptive statistics ($N = 25$).

Item	Content	Reliability (%)	Mean	St. Dev.
1	I participate in sport because it is fun.	100	1.08	0.28
2	I participate in sport because I like to spend time with friends.	100	1.08	0.28
3	I participate in sport because I like being on a team.	100	1.08	0.28
4	I participate in sport because l like being inside.	75	1.36	0.64
5	I participate in sport because I like being outside.	87.5	1.20	0.50
6	I participate in sport because I like winning.	87.5	1.20	0.41
7	I participate in sport because I like improving – getting better.	100	1.20	0.50
8	I participate in sport because it improves my mood.	100	1.16	0.37
9	I participate in sport because it makes me feel good.	100	1.00	0.00
10	I participate in sport because it makes me stronger.	100	1.20	0.50
11	I participate in sport because it makes me feel healthy.	87.5	1.08	0.28
12	I participate in sport because it makes me feel like I look good.	75	1.20	0.50
13	I participate in sport because I like to practice.	100	1.04	0.20
14	I participate in sport because I like playing games.	100	1.00	0.00
15	I participate in sport because my parents tell me to.	100	1.52	0.87
16	I participate in sport because my parents say it is good for me.	62.5	1.28	0.61
17	I participate in sport because I am good at it.	87.5	1.12	0.44

Procedures

Ethical approval was obtained from the International Review Board (IRB) at The College of Brockport to ensure the rights of the participants are protected. The participants were recruited through an adult assistance program from February 13th to March 3rd, 2020. The study was conducted in the Athletic Weight Room at the College of Brockport. An office was located with a desk and two chairs, separate from the weight room to conduct the study. The pictorial survey administration was practiced on various individuals without ID before it was administered to participants. Prior to gaining assent from the participants, consent was obtained from their primary caregivers.

Participant data was collected in a quiet University office. Each response was recorded on a data collection sheet that included the item content, the response, the age of the participant, and the sports participated in. The principal investigator attended the recreational event and one by one pulled the participants aside. While the participants were not completing the study, they continued their regular exercise programming. The principal investigator read and explained the informed consent to the participant. If the participant gave assent, the investigator read each statement in the survey measure to the participant and prompted a response. Statements were repeated when necessary or asked as a question. The responses were “like me,” “a little like me,” or “not like me.” Each response was cut out on a piece of paper with “like me” on the left, “a little like me” in the center and “not like me” to the right. Each response was recorded on paper. The survey took up to 15 minutes. Some participants took part in the survey twice, utilizing the same procedure to test the reliability of the measure. Therefore, the maximal time cost was about 30 minutes. The investigator also asked each participant their age, gender, the Special Olympics sport(s) they participate in and for how long they have been participating in sport. No

compensation was given for participating in this study and the only known risk of this study was the time used.

Data Analyses

General descriptive statistics were used. The reliability estimates of the measure were calculated form the test re-test values of the nine individuals that took the survey twice using percent agreement. Further, for all 17 items Cronbach's Alpha was calculated for total scale internal consistency. The mean response to each item was calculated as well as the standard deviation. The mean and standard deviation were calculated overall for each item, as well as for each gender. Data were then displayed graphically for the males and females studied.

Summary

The objective of this study was to identify the motivational factors for sport participation in adults with ID and how the differ by gender. The research questions of interest included determining the current status of motivational factors found in a group of adults with ID. Further, gender differences were examined in chapter four.

Chapter IV

Results/Discussion

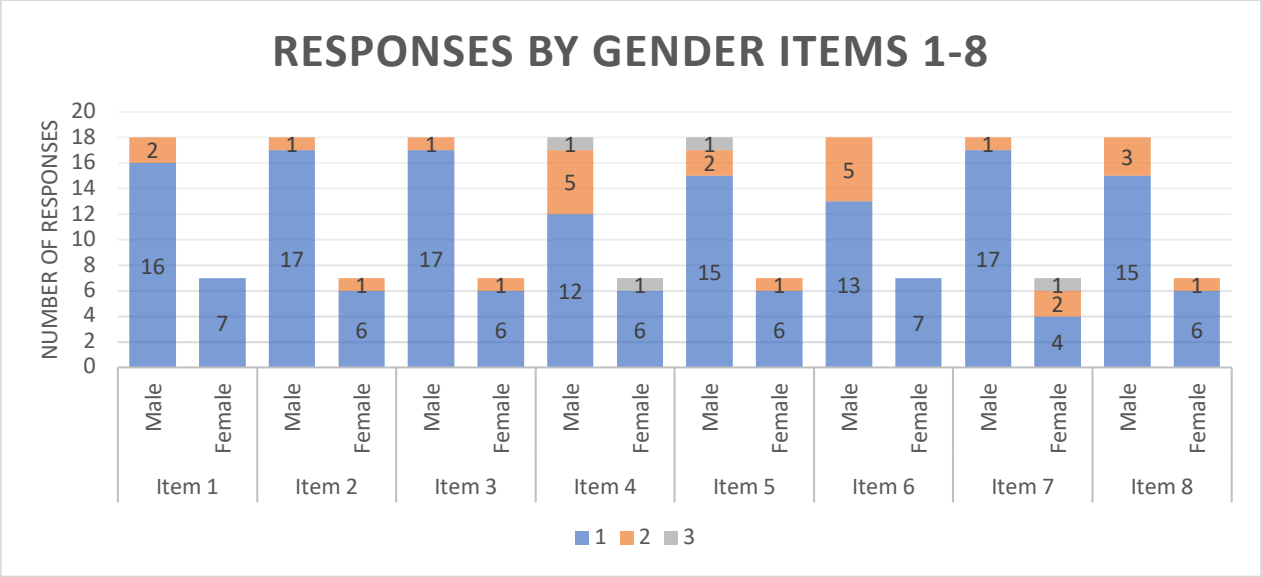
The current study identified the motivational factors of adult individuals with ID for sports participation and examines gender differences in the sample. First, results are provided regarding the reliability estimates of the measure. This is followed by a presentation of data results and a discussion of the key study findings. The discussion section provides answers to key study questions. This is then followed by recommendations for future studies and conclusions.

Results

Table 1 shows the statement that accompanied each item and provides descriptive statistics for the sample. The pictures for each item are found in Appendix A. The items all have acceptable estimates of reliability. Of the 17 items, 14 resulted in 87.5%-100% agreement between test one and test two. Further, 3 items resulted in 62.7%-75% agreement between testing sessions. The Cronbach's Alpha is 0.64, which indicated questionable internal credibility of the

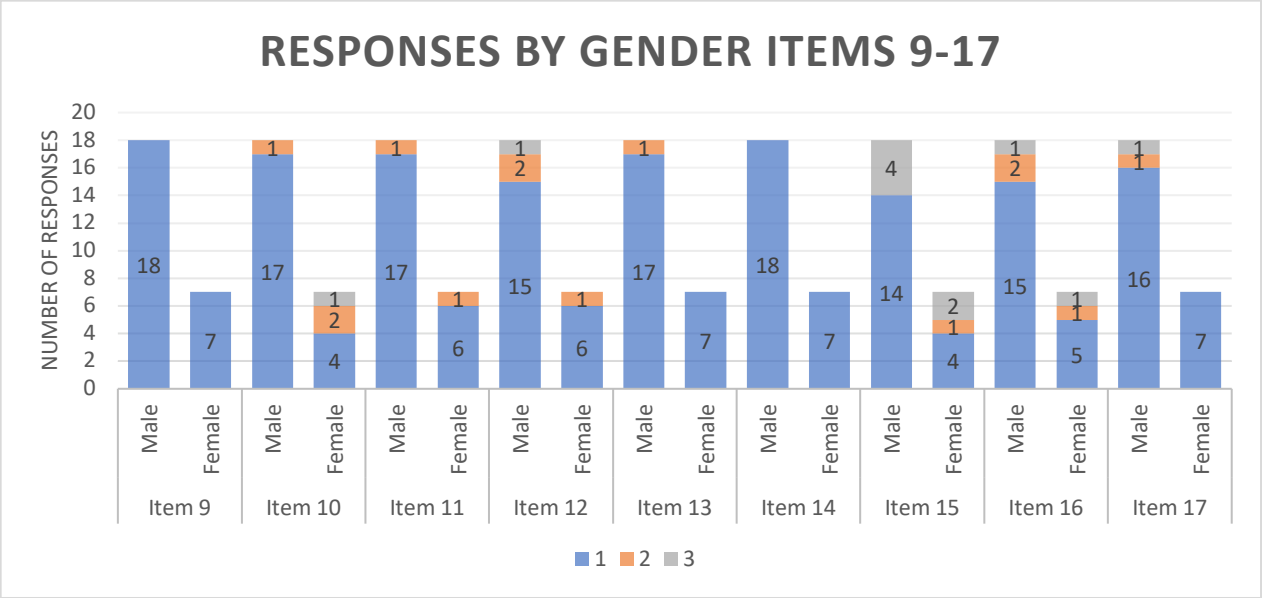
measure. Eliminating any item from the measure would not significantly increase the Cronbach's Alpha value. The mean response to each item is listed as well as the standard deviation.

Figures 1 and 2 depict the responses by gender to each item of the measure (male $n = 18$, female $n = 7$). Each item number represents a statement listed in Table 1. The majority of participant responses indicated that each statement was like them. The mean response to each item was close to one, which means that most responses were "like me."



Responses: 1 = "like me," 2 = "a little like me," 3 = "not like me"

Figure 1. Item frequencies by gender for the sample ($N = 25$).



Responses: 1 = “like me,” 2 = “a little like me,” 3 = “not like me”

Figure 2. Item frequencies by gender ($N = 25$).

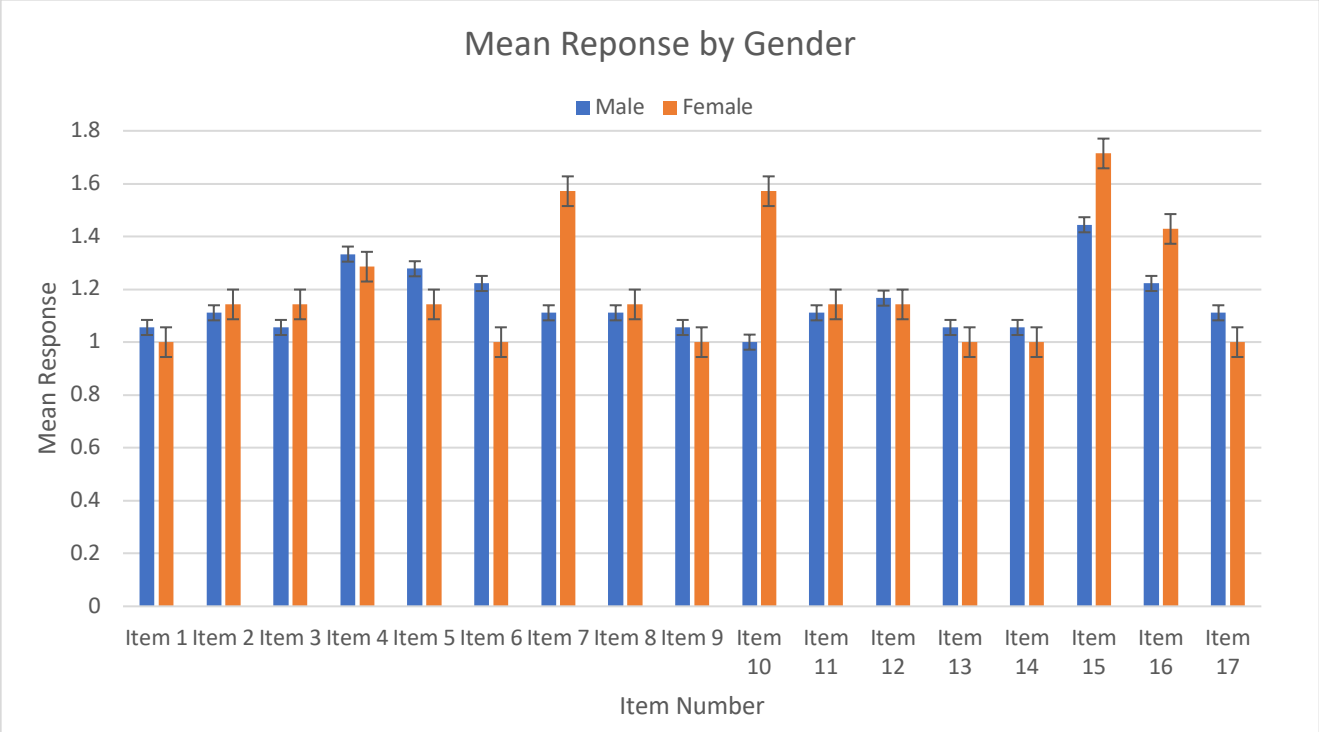


Figure 3. Mean values by gender for the sample ($N = 25$).

Figure 3 depicts the mean response per item by gender and the grey error bars represent the standard deviation of each mean. Most of the error bars overlap, indicating there is no significant difference in response by the male and female participants. The error bars do not overlap for items 5, 6, 7, 10, 15, 16, and 17, indicating a difference in mean responses in male and females.

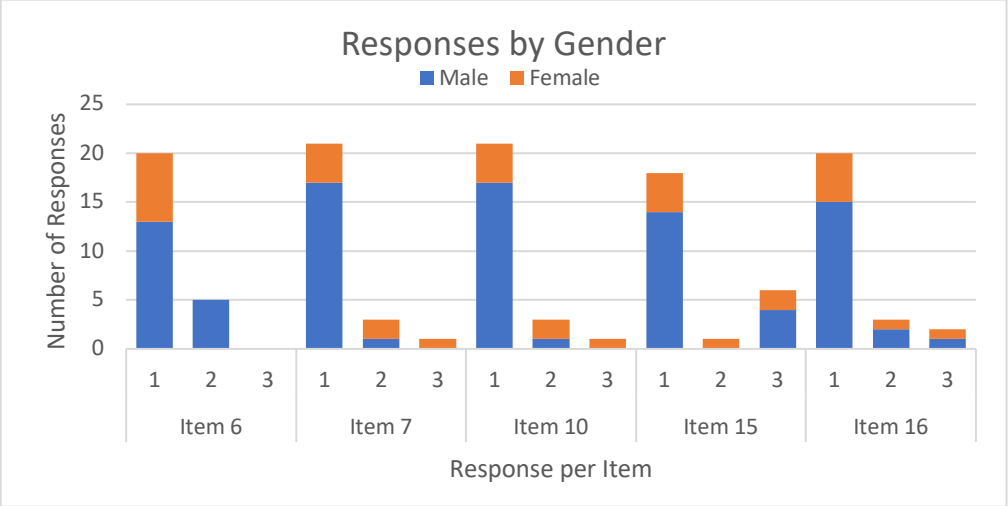


Figure 4. Items with greatest differences ($N = 25$).

Figure 4 breaks down the responses by gender for the items with the greatest differences in responses. The females had a greater range of responses. They chose "a little like me" and "not like me" more than the male participants. The mean responses for both genders differed by 0.2 or greater. The participants' responses differed the most when they were asked if they participate in sport because they like winning, improving – getting better, that sport makes them feel stronger, their parents tell them to or because their parents say it is good for them.

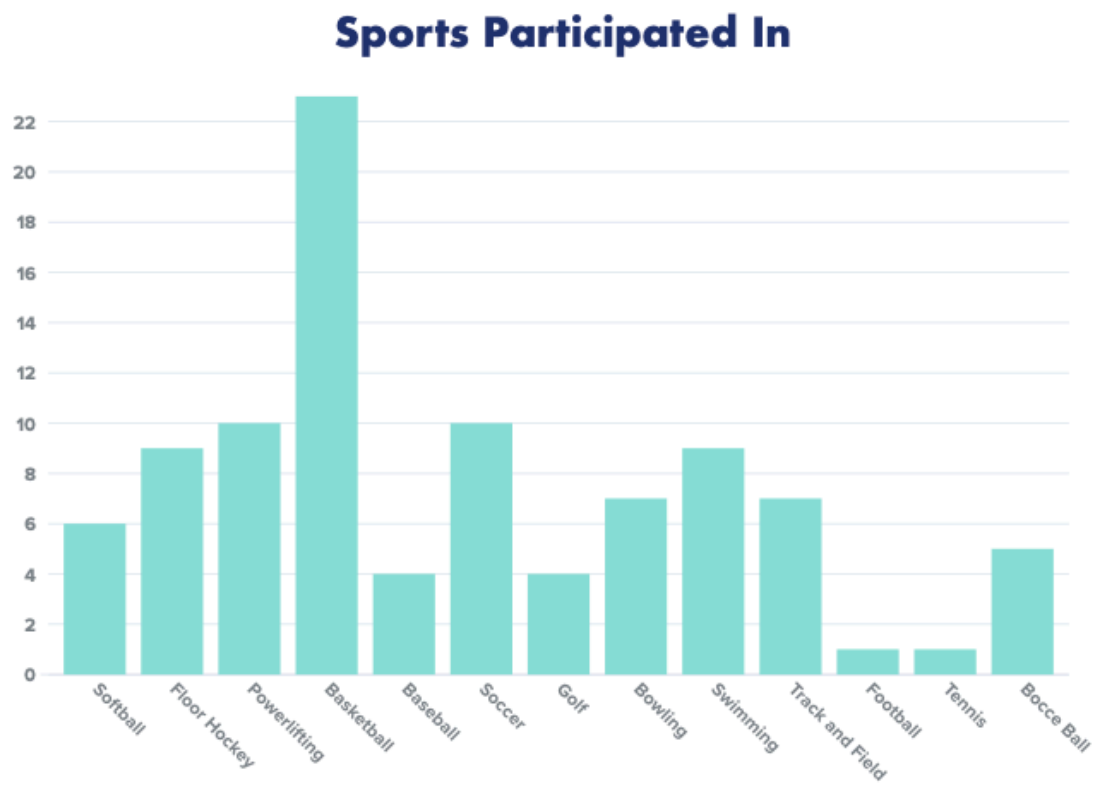


Figure 5. Sports participated in by the sample ($N = 25$).

This figure 5 shows the sports participated in by the participants of this study, as well as how many participate in each sport. Most of the participants engage in multiple sports activities. Basketball, powerlifting and soccer are the most played sports among the participants recruited in this study.

Discussion

The purpose of this study was to identify the motivational factors for adult individuals with ID for participating in sport by first developing a measure to study the target sample. This was followed by examination of gender differences in the sample. Acceptable measures of percent agreement were found in the measure used for study when analyzing individual items (Davis, 1971). Table 1 also breaks down the reliability estimates of the measure created for this study using total scale estimates. Cronbach's alpha was calculated at .64 which indicates questionable reliability for the overall scale (Davis, 1971). This alpha estimate was not affected

by deleting any items. Although the Cronbach's alpha indicates questionable internal validity of the measure, the reliability estimates for individual items were found acceptable. This was considered acceptable given the small sample size and the differences in motivational factors for items. It is likely that items studied with a larger sample might reflect subscales rather than a scale that is summed. The majority of items resulted in100% agreement from the test re-test scores. An additional limitation of this study is that the reliability estimates were calculated based on the test re-test scores of male participants only. The reliability of this study could be variable due to the fact that individuals with ID have cognitive deficits and may not have understood all of the statements (Matikka, & Hannu,1997). Participants may not have been able to read the statements or understand the pictures. Some participants struggled to focus, lacked interest in participating in the study, could only think about returning to their sport, or were not listening intently. These factors may have led to rushing responses or choosing "like me" to speed up the study.

The results show that most participants agreed with each item of the measure and that responses only differed slightly by gender for a few items. Figure 1 and Figure 2 show the breakdown of responses to each item by gender. Table 1 shows the mean response of all participants to each item listed. The mean of most items would round down to 1.00 while item 15 would round up to 2.0. This indicates that the response of 1 (like me) predominated for each item except for item 15. This indicates an increase in responses of 2 (a little like me) and 3 (not like me) for item 15. Since most responses to the measure were "a little like me," it shows that the participants generally agreed with the statements in the measure. However, individuals with ID are likely to favor responses they believe others would favor (Matikka & Hannu, 1997).

Two items were responded to unanimously among both genders. The mean for items 9 and 14 were one, with a standard deviation of zero. This indicates that all participants engage in sport because it makes them feel good and they like playing games. The varying standard deviations for the other items indicate deviations in responses. Figure 3 shows where the mean responses differ by gender. When the standard deviation lines overlap, the responses do not differ significantly. The error bars do not overlap for items 5, 6, 7, 10, 15, 16, and 17, indicating a difference in mean responses in male and females. Males and females responded differently to the statements that claim they participate in sport because they like being outside, winning, improving – getting better, because it makes them stronger, because their parents tell them to, because their parents say it is good for them and because they are good at it. This shows that the participants of this study were more likely to claim that these statements only relate to them a little bit, or not at all. Females were more likely to disagree with participating in sport to improve, to get stronger, or because their parents tell them to than the male participants. Males were more likely to disagree with statements such as they participate in sport because they like being outside, winning, and because they are good at it than the females in this study.

Figure 4 depicts the difference in responses by gender to the most disagreed upon items. The female participants tended to vary in response more than the males. In other words, female participants were more likely to respond with "a little like me" or "not like me." Figure 4 shows the items where the mean response gender differs by ±0.2 or greater. For item 6, the figure shows that all female participants unanimously stated that they participate in sport because they like winning while 5 out of 18 male participants said the statement was a little like them. For item 17, 17 out of 18 male participants agreed with the statement while 3 out of the 7 female participants did not agree they participated in sport because they like improving. The responses fell in the

same pattern for item 10 as well. Overall, responses were similar for both genders, but there were notable variations for some items.

The current study found the motivational factors of adults participating in sport to be similar to those of children and adolescence with ID. Shields and Synnot (2015) conducted a study on the facilitators of physical activity in children with ID. The greatest facilitators identified by Shields and Synnot were skills practice, spending time with friends, family support and accessible facilities. The motivational factors identified in this study correspond with the facilitators to sports participation in children. In this study most participants engage in sport because they like to practice, spend time with friends and are influenced by their parents. Having fun with friends has been deemed an essential motivating factor (Shields & Synnot, 2015). Out of the 25 participants in this study, 23 agreed that they participate in sport because they enjoy spending time with friends while 2 individuals stated it was a little like them. Therefore, no one disagreed that spending time with friends is a reason they participate in sport.

Another study reported parental influence, enjoyment, health and psychological benefits as motivational factors to sports participation (Oladunni et al., 2015). 100% of participants in this study stated that participating in sport makes them feel good, and 21 out of 25 participants claim it improves their mood. Enjoyment was noted as a motivational factor in children with ID and our current study found that having fun is also a motivational factor in adults with ID. Parental influence was found to be more prevalent as a motivational factor in the male participants than female participants.

Previous research claims that females report more negative emotions towards physical education classes than males (Wieczorek et al., 2018). The study also found that boys show a stronger desire to master, and win in sports (Wieczorek et al., 2018). The current study found

that male participants engage in sport to improve and get better more than the female participants. There is no significant difference in practice driving sports participation between gender in this study. However, more females claim they participate in sport because they like winning than males. Our study agrees that males may have a greater desire to improve in sports, yet female participants are more motivated through winning than the male participants.

The current study only focused on 17 motivational factors for participation in sport. Future research could be conducted analyzing other motivational factors, or social supports and links to performance. Future studies should be conducted analyzing whether tangible rewards affect sport participation in adults with ID. Throughout this study, participants tended to respond to various statements with comments, or explanations of why they chose to respond the way they did. One participant stated they enjoyed being inside when the weather is bad and another claimed they participate in sport to spend time with friends, but that sometimes people make fun of her. Multiple participants expressed that even though winning drives their participation in sport, they will keep playing even if they do not win. Future research should utilize mixed methods combining a scale and qualitative measures where comments are included in analyzing the collected data. The current study only used individuals with ID as the participants and did not gather information from their caregivers, coaches or close outside sources to better understand the motivational factors. The scale utilized in this study to rank agreement to statements could also be used to further look into barriers to participation in sport. Instead of framing questions as to why individuals with ID participate in sport, one could frame the questions as to why they do not participate in sport. Most research on the barriers to participation focus on the responses of parents, caregivers and coaches, and may differ from the ideas of adults with ID.

Recommendation for Future Studies

Future research is necessary to further identify motivational factors and barriers for sports participation. The current study did not differentiate types of ID and how it may impact the difference in motivational factors. Various studies could be conducted analyzing motivational factors based on the type of ID to see if they differ based on whether the participant has down syndrome, fetal alcohol spectrum disorder, Fragile X syndrome, Prader-Willi syndrome or developed ID another way. Future research could be conducted to identify facilitators to participation in physical activity when individuals with ID reach adulthood instead of focusing on sport. Another topic that could be explored to a greater extent is how participation in sport or physical activity can decrease symptoms of anxiety, depression or self-harming behaviors that are often comorbid with ID. Research could also look at demotivators for sports participations in adults with ID. Factors that may demotivate or deter individuals with ID from sports participation likely differ from barriers previously researched. Individuals with ID may stop participating sport as a result of disliking coaching styles, feeling pressure to succeed, feeling forced to participate by outside sources or feeling discouraged by peers. Overcoming barriers and demotivators are essential to promote sports participation. Research should look further into what is currently being done to overcome established barriers and best practices of implementing motivation tactics.

Conclusion

The present study investigated the motivational factors for sports participation in adults with ID. The results showed that most participants agreed with the motivational factors listed. The only item that was generally disagreed with by all participants was that they participate in sport because their parents tell them to. Gender only impacted the responses to a few items of the measure. Females collectively disagreed with items 7, 10, 15 and 16 more than the male

participants. Male participants disagreed with items 5, 6 and 17 more than females. This study found the measure to be within acceptable estimates of reliability, investigated the differences in motivation factors by gender, and identified 16 motivational factors for sports participation in adults with ID.

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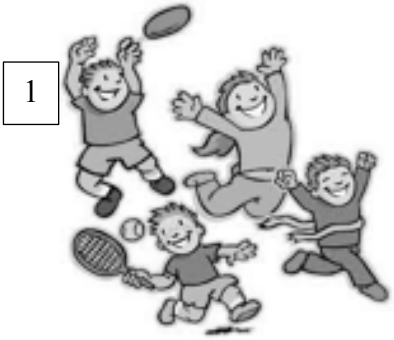
APPENDICES

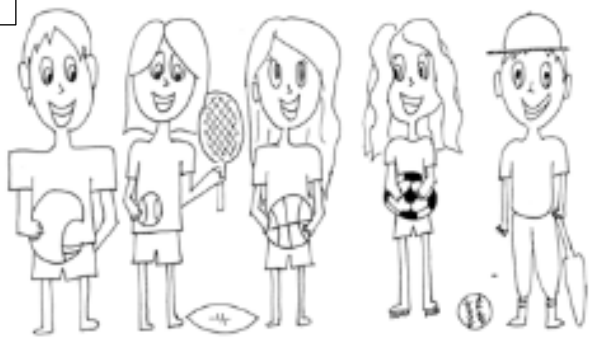
Appendix A

1



I participate in sport because it is fun.

2



I participate in sport because I like to spend time with friends.

3

I participate in sport because I like being on a team.

4

I participate in sport because I like being inside.

5

I participate in sport because I like being outside.

6

I participate in sport because I like winning.

7

I participate in sport because I like improving – getting better.

8

I participate in sport because it improves my mood.

9

I participate in sport because it makes me feel good.

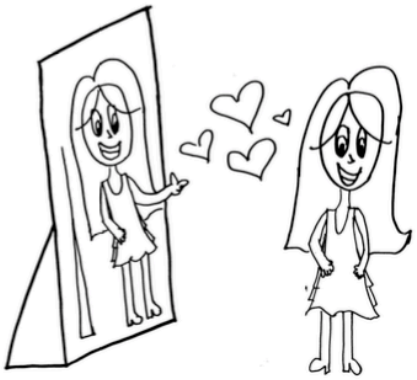
10

I participate in sport because it makes me stronger.

11

I participate in sport because it makes me feel healthy.

12

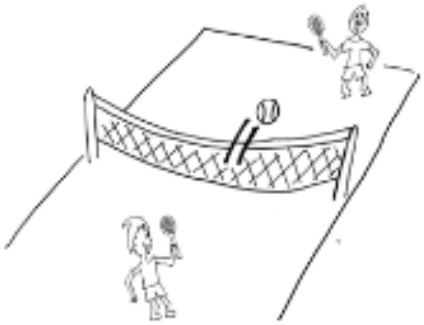


I participate in sport because it makes me feel like I look good.

13

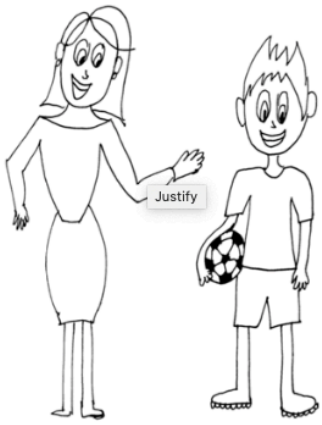
I participate in sport because I like to practice.

14



I participate in sport because I like playing games.

15



I participate in sport because my parents tell me to.

16

I participate in sport because my parents say it is good for me.

17

I participate in sport because I am good at it.

Responses:

1. Like me
2. A little like me
3. Not like me

Appendix B

The College at
BROCKPORT
STATE UNIVERSITY OF NEW YORK

Institutional Review Board

EXPEDITED

December 19, 2019

Alyssa Williams

On 12/19/2019**,** the IRB reviewed the following submission:

Type of Review:	Expedited
Title of Study:	Identifying the Motivational Factors of Adults with Intellectual Disabilities Participating in Sport
Investigator:	Alyssa Williams
IRB ID:	STUDY00001925
Funding:	None
Grant ID:	None
Documents Reviewed:	• Small Version of Pictorial Measure, Category: Surveys/Questionnaires; • CITI Certification - PI, Category: IRB Protocol; • Informed Consent for Participants, Category: Consent Form; • Informed Consent for Parents, Category: Consent Form; • Form M.docx, Category: Recruitment Materials; • CITI Certification - Francis Kozub, Category: Other; • IRB Protocol, Category: IRB Protocol; • Form J.pdf, Category: Other; • Email Support.png, Category: Site Permission Letter; • Sample of Instrument Adapted From.docx, Category: Surveys/Questionnaires; • Form H - Letter of Support, Category: Site Permission Letter;
Annual Review Date:	12/18/2020

The above-referenced protocol has been approved by the IRB by Expedited Review.

The IRB approved the study from 12/19/2019 to 12/18/2020. Before 12/18/2020 or within 30 days of study closure, whichever is earlier, you are to submit a continuing review with required explanations.

You can submit a continuing review by navigating to the active study and clicking Create Modification / CR. If continuing review approval is not granted before the expiration date of ., approval of this study expires on that date.

The approval permits you to recruit subjects up to the number indicated on the proposal application and to conduct the research as it is approved. The IRB-approved consent, assent, information form(s) and/or other documents approved for this protocol are considered the final versions and must be used with participants.

As principal investigator for this study involving human participants, you have responsibilities to the IRB as outlined below:

Overall Responsibilities: Ensure that the study is conducted in compliance with all IRB decisions, conditions, and requirements; bear responsibility for all actions of the staff and sub-investigators with regard to the protocol; and bear responsibility for securing any other required approvals before research begins.

Changes to the approved protocol: A change to any aspect of this protocol must be approved by the IRB before it is implemented, except when necessary to eliminate apparent immediate hazards to subjects. In such cases, the IRB should be informed immediately. To request a change, submit a Continuing Review/Modification/Study Closure Smart Form in the PACS system.

Reportable New Information: Unanticipated problems involving risks to subjects or others, serious adverse events, and serious noncompliance with the approved protocol must be reported to the IRB within 5 business days by using the Reportable New Information Smart Form in the PACS system. All other adverse events and minor protocol deviations should be reported at the time of the annual review.

Record Keeping: The PI is responsible for keeping all regulated documents, including IRB correspondence such as this letter, approved study documents, and signed consent forms for at least three (3) years following protocol closure.

Change of Institutions: If the PI leaves The College at Brockport, the study must be closed or the PI must be replaced on the study through the Modification/Amendment process. If the PI wants to transfer the study to another institution, please contact the IRB to make arrangements for the transfer.

Study Closure: Once research has been completed, please close your study by submitting a Continuing Review/Modification/Study Closure Smart Form in the PACS system.

You are required to retain a copy of this letter for your records. We appreciate your commitment toward ensuring the ethical conduct of human subjects research and wish you luck with your study.

Appendix C

The College at BROCKPORT
STATE UNIVERSITY OF NEW YORK

Institutional Review Board

Form A—Statement of Informed Consent For Parents/Guardians of Adults with Intellectual Disabilities

Identifying the Motivational Factors for Adults with Intellectual Disabilities Participating in Sport

KEY INFORMATION:

- Your family member is being asked to be in a research study. I want to know why he likes to participate in sport. As with all research studies, participation is voluntary.
- The purpose of this study is to explore the motivational factors of adult individuals with intellectual disabilities.
- A maximum of 50 people will take part in this study. The results will be used for a Senior Honor's Thesis project.
- If you give permission for your family member to take part in this study, they will be involved in this study for one to two sessions, totaling 20-40 minutes.
- The study involves having the researcher sit down with the participant and ask questions. If the participant agrees to take part, the investigator will begin reading the questions to the participant. The participant will be asked questions about their participation in sport. The participant will respond by saying the statement like them, a little like them, or not like them. This will take about 20 minutes. The study will take place in the place where the athletes train. I will ask the to take part while they are not participating in their activity. For some individuals, I will ask them to respond to the questions on two occasions.
- There are no known risks associated with this research.
- Researchers have not fully looked into why adults with disabilities play sports or join exercise programs later in life. Many individuals with intellectual disability live sedentary lifestyles. Sport has been reported to increase overall well-being, self- confidence, quality of life, better physical fitness. It also builds social relationships with family, peers and classmates. The participant may not personally benefit from being a part of this study. However, it is hoped that understanding the motivation of adult individuals with intellectual disabilities will help others increase participation for other in physical activity.

Your family member is being asked to be in a research study. I want to examine why adults with ID participate in sport. This study is being conducted at Tuttle North Gym at The College of Brockport. This study is being conducted by: Alyssa Williams in the KSSPE at The College at Brockport.

Your family member was selected as a possible participant because she is part of lifetime assistance and participates in sports.

Please read this consent form and ask any questions you have before providing consent for your family member to be in the study.

PROCEDURES:

If you give permission for your family member to be in this study, they will be asked to do the following:
The principal investigator will attend the recreational event and one by one pull the participants aside. While the participants are not completing the study, they will continue with their regular exercise programming. The principal investigator will read and explain the informed consent to the participant. If the participant consented to participate, the investigator will read each statement in the survey measure to the participate and prompt a response. The response of like me, a little like me or not like me will be recorded in excel. The survey should only take up to 20 minutes. Some participants will take part in the survey twice, using the same procedure, taking up another 20 minutes of their time. This will be used to test the reliability of the measure.

COMPENSATION/INCENTIVES:

Your family member will not receive compensation.

CONFIDENTIALITY:

The records of this study will be kept private and your family member's confidentiality will be protected. In any sort of report the researcher(s) might publish, no identifying information will be included. After the data are collected, participant names will be removed. I will then use participant ID numbers. All names of the participants will be permanently removed from the information once data are collected. Data will be maintained at all times. It will be stored and locked in the cabinet of a professor's office at The College of Brockport.

Research records will be stored securely and only the researcher(s) will have access to the records. All data will be kept in a locked file cabinet of a faculty supervisor in Tuttle North at The College of Brockport by the investigator(s). All study records, including approved IRB documents, tapes, transcripts, and consent forms, will be destroyed by shredding and/or deleting after three years. Click or tap here to enter text.

VOLUNTARY NATURE OF THE STUDY:
Participation in this study is voluntary and requires your informed consent. Your decision whether or not to have your family member participate will not affect your current or future relations with The College at Brockport or with the director of lifetime assistance . If you decide to have your family member participate, they are free to skip any question that is asked. They may also withdraw from this study at any time without penalty.

CONTACTS AND QUESTIONS:
The researchers(s) conducting this study: Alyssa Williams. If you have questions, **you are encouraged** to contact the researcher(s) at (518)577-8865 or awill19@brockoport.edu. The faculty advisor is Dr. Francis M. Kozub who is easily reached in his office located in Tuttle North, Office B329 and his e-mail address is fkozub@brockport.edu.

If you would like to talk to someone other than the researchers, please contact The College at Brockport IRB compliance officer at (585) 395-2779 or IRB@brockport.edu.

STATEMENT OF CONSENT:
I am 18 years of age or older. I have read and understood the above information. I give consent for my family member to participate in the study.

Signature:_____ Date: _____

Signature of Investigator:_____ Date: _____

Please keep the second copy of this informed consent for your records.

The College at BROCKPORT
STATE UNIVERSITY OF NEW YORK

Institutional Review Board

Form C—Statement of Individuals with Intellectual Disability Assent

Identifying the Motivational Factors for Adults with Intellectual Disabilities Participating in Sport

Can be read aloud if necessary.

IF PRIMARY INVESTIGATOR (RESEARCHER) IS CONDUCTING ASSENT:

My name is Alyssa Williams and I am a student at The College at Brockport. I am asking you to HELP ME WITH MY STUDY. I WANT TO KNOW what makes you excited ABOUT PLAYING SPORT. I WANT TO TALK TO YOU ABOUT THIS ONE OR TWO TIMES IN THE FUTURE. You may see me writing in a notebook what you say BUT THIS INFORMATION IS IMPORTANT TO ME AND I DON'T WANT TO FORGET WHAT YOU TELL ME.

If you decide that you want to participate, you will answer questions about participating in sport. You will tell me if the statement is like you, a little like you or not like you. It will take you about 20 minutes to answer all of the questions.

If you decide to take the survey but do not want to answer certain questions, that is okay. If you decide to start answering questions and then decide to stop, that is okay, too. None of the responses you give will have your name on them and you will not be identified in any written materials.

If you do not want to participate, no one will treat you differently, and no one will know unless you tell them.

You can ask questions now or while you are doing the questionnaire. If you have questions after completing the study, your parents or guardians have your teacher's contact information.

STATEMENT OF ASSENT:

You can ask questions now or during the study. If you have questions after completing the study, your parents or guardians have my contact information.

_____ _____

Signature of participant Date

_____

Printed name

_____

Birthdate

_____ _____

Signature of witness (18 years of age or older) Date