

ABSTRACT

EXPLORING THE RELATIONSHIP BETWEEN ADAPTIVE SPORTS PARTICIPATION AND SELF-DETERMINATION OF ADULTS ENGAGED IN ADAPTIVE SPORTS

by

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Abstract:

This study sought to determine if there were relationships between participation in adaptive sports and supports for psychological basic needs. Framed in Self-Determination Theory, the study measured the degree to which competence, relatedness, and autonomy were supported in adapted sport and measured if these varied by the frequency and duration of participation by wheelchair athletes. Fifty-two wheelchair basketball athletes competing in two wheelchair basketball tournaments completed a Wheelchair Athlete questionnaire and the Basic Psychological Needs Scale-Adaptive Sports Instrument. Correlation analyses were performed to test relationships between the frequency, duration, and diversity of participation to the three basic needs of self-determination. The results provide no support for relationships between supports for autonomy, relatedness, competence and adaptive sports participation. Limitations due to sample size and ceiling effects in measuring basic psychological needs were cited as problematic for interpreting results. Longitudinal studies with larger samples are recommended for future studies exploring relationships between support for basic needs and wheelchair sport participation.

EXPLORING THE RELATIONSHIP BETWEEN ADAPTIVE SPORTS PARTICIPATION
AND SELF-DETERMINATION OF ADULTS ENGAGED IN ADAPTIVE SPORTS

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Introduction

Self-Determination Theory (SDT) is defined as an “approach to human motivation and personality that...highlights the importance of humans’ evolved inner resources for personality development and behavioral self-regulation” (Ryan & Deci, 2000, p. 68). Adaptive sports are those sporting activities that integrate populations with disabling conditions. These sports can be tailored to meet the needs of almost any participant whether their disability is cognitive, emotional, or physical. Adaptive sports provide an outlet for populations with disabilities to focus on those abilities that they possess versus the abilities that they do not possess. Motivation plays a significant role in how populations with disabling conditions participate in adaptive sports and the outcomes of the sports determine whether the participant decides to continue to partake in the activity. Self-Determination Theory and its positive effects are a key component in determining overall satisfaction and continuation in adaptive sports programs. The following sections will review the components of SDT, the benefits of participating in adaptive sports, and the importance of facilitating SDT in adaptive sports in an effort to introduce the purpose of this study.

Self-Determination Theory

Ryan and Deci (2000) posited that there are three essential innate psychological needs for optimal functioning: (a) competence, (b) relatedness, and (c) autonomy. Competence is defined as the ability of an individual to perform a task properly. Relatedness is a sense of belonging and connectedness to others. Autonomy is defined as freedom and independence that is self-directing. The combination of these three facets within an individual often leads to the “natural propensities for growth and integration, as well as for constructive social development and personal well-being” (Ryan & Deci, p. 68).

Wehmeyer and Gamer (2003) stated that there are two contributors to examine when determining degree of self-determination within a person: “one is the capacity of the person to act in a self-determined manner” and the second is “the degree to which the environments in which people live, learn, work, and play provide opportunities for them to exert control in their lives, make choices and so forth” (p. 255). Wehmeyer and Gamer suggested that “being self-determined is not a function of what you can do for yourself, behaviorally, but instead is a function of how much you can make or cause things to happen in your life” (p. 263). Wehmeyer and Gamer concluded their article with advice for practitioners who work with people with disabilities: “we would emphasize the importance of promoting choice opportunities both as a means to provide more chances to exert control, but also to enhance personal beliefs about one’s capacity and opportunity to exert control and make choices in one’s life” (p. 264).

Deci and Ryan (2008) concluded that conditions accommodating autonomy, competence, and relatedness promote “greater conceptual understanding, better grades, more creativity, enhanced persistence at school and sporting activities, better productivity and less burnout at work, healthier lifestyles and behaviors, greater involvement and better outcomes from psychotherapy, and higher levels of psychological well-being, among other positive outcomes” (p. 17). Ryan and Deci (2000) observed that social conditions that are supportive of autonomy, competence, and relatedness are critical to facilitating human growth tendency, internalization, and integration.

Organismic Integration Theory

Organismic Integration Theory (OIT) is an approach to the development of internalization and integration of values and regulations to the self. Deci and Ryan (1985) coined the term organismic integration as the process by which one develops a pattern of

distinguishing “specific elements of one’s internal and external environments and then brings those elements into harmony with one’s existing structures, thereby elaborating and refining the structures” (p. 114). Organismic integration is presented on a continuum in which one participating in an activity moves from a starting point of amotivation (a state of nonself-determination), through extrinsic motivation, and forward to intrinsic motivation (a state of self-determination). However, it is important to note that the process is fluid and that this development requires “more than just structural concepts; it requires the concept of activity” (Deci & Ryan, 1985, p. 114). Deci and Ryan (1985) state that one develops their abilities and constructs increasingly intricate and refined internal structures by “acting on their surroundings, by exploring, testing, succeeding, and failing” (p. 114).

Within the continuum of Organismic Integration Theory is the progression through diverse sub-stages of extrinsic motivation. OIT recognizes that some behavioral principles are obligatory and imposed to the self, while other regulations are driven by choice and are self-endorsed. External regulation is the first regulatory style of extrinsic motivation and is the state in which “a person’s actions are compelled or driven by externally controlled rewards or punishments” (Ryan, Williams, Patrick, & Deci, 2009, p. 112). Put simply, the continuation of an activity is solely dependent on the reception of a reward or punishment and would not continue, otherwise. When an individual participates in an activity based on internal rewards and punishments (i.e. to increase feelings of self-worth or to avoid blows to the self-esteem or self-disapproval), the regulation is considered to be introjected (Ryan, et al., 2009, p. 112). Furthermore, Ryan, et al., 2009, argued that identified regulation is even more internalized and choice-driven in which the person “identifies with or personally values the behaviors they engage in” (p. 112). They go on to state that “because actions reflect values, behaviors regulated

through identification will persist independently of environmental reward.” Therefore, identified regulation of an activity is the first sub-stage of extrinsic motivation in which an individual is likely to maintain their participation. Finally, as positive behaviors and goals are created and become engrained into one’s core values, regulatory processes become integrated. Integrated regulation “presents a high degree of autonomy and self-endorsement” and “rivals intrinsic motivation in the relative autonomy experienced” by the participant (p. 112).

With regards to Self-Determination Theory, the varying categories and sub-stages of extrinsic and intrinsic motivation can be applied to all intentional actions. In fact, Ryan, et al., 2009, state that “most intentional acts involve some combination of the varied types of regulation” (p. 113). For instance, one may participate in a sporting activity because they find it to be a pleasurable experience, but may also engage in the activity for other outcomes such as weight reduction and to prove to themselves that they’re still able to compete at a certain level. In this case, intrinsic motivation, identified regulation, and introjected regulation, respectively, are present in the completion of the activity.

Adaptive Sports

Adaptive sports provide a wide variety of benefits (e.g., cognitive, emotional, and physical) for its participants, no matter their disabling condition. Cognitive benefits are those that relate to improved mental function and may include increased attention, memory, problem solving skills, and decision making, among others. Those benefits that are related to increased bodily performance are described as physical benefits. These benefits may include increased muscular strength, flexibility, cardiovascular endurance, and mobility. Emotional benefits are defined as the benefits to one’s overall state of being. These benefits may involve better mood, a sense of accomplishment, defined self-identity, independence, and increased self-esteem.

Groff, Lundberg, and Zabriskie (2009) assessed clients with Cerebral Palsy and noted that “the activity limitations that people with disabilities often experience result in more days of pain, depression, anxiety, and sleeplessness as well as fewer days of vitality when compared to individuals without activity limitations” (p. 318). Becoming more active is a solution to this crisis. Athletes with disabilities:

“(i) are better adjusted and more satisfied with life, (ii) report having fewer days of pain, depression, anxiety, sleeplessness, and improved vitality, (iii) substantially increase their life expectancy, (iv) are stronger and have more stamina, (v) have improved cardiovascular health and fitness, (vi) experience fewer and less severe secondary health conditions, and (vii) develop a positive athletic identity” (Groff et al., 2009, p. 319).

Goff (2012) explained the usefulness and impact of adaptive sports for wounded military personnel. Many of those personnel use adaptive sports as a transition to a new life, an outlet to move past their disabling condition both physically and mentally. They found that adaptive sport “offers a way of rehabilitating and living life beyond injuries” and that sport club programs “help build confidence and bring out joy in life” (Goff, 2012, pp. 28-29). Goff stated that adaptive sports give “families and service members a chance to embrace new life and see just how active life can be...and recognize abilities they did not know they had” (p. 28). In working with injured service members at a Paralympic military sports camp, Hawkins, Cory and Crowe (2011) found that “adults with physical disabilities who participate in sports and exercise programs can increase and maintain their physical performance including (a) muscle strength, (b) aerobic fitness, (c) physical function, (d) increased HDL-C, (e) decreased BMI, and (f) preservation of transfer independence” (p. 310). The authors also found that physical activity among people

with disabilities “promotes a sense of empowerment, contributes to a sense of freedom, alters perceptions of being ‘disabled,’ as well as possesses mediating effects on disability identity” (Hawkins et al., 2011, p. 310-311). Overall, Hawkins et al. found that involvement in the camp and other programs “can potentially promote improved quality of life for injured service members and their families” (p. 322).

Importance of Facilitating Self-Determination Theory in Adaptive Sports

Self-Determination Theory (SDT) is congruent with producing positive effects and promoting motivation for participation in activities. Adaptive sports are beneficial for populations with disabling conditions. It is important to understand the current literature linking the two concepts together. Very often, instead of using SDT as one unit, therapeutic recreation researchers choose the pieces that are most helpful. Bell (2010) sought to explore the relevance of the three innate psychological needs (i.e., autonomy, competence, relatedness) as aspects of participants’ intrinsic motivation. Defining intrinsic motivation in terms of SDT as “present when people are motivated for participating in an activity by the activity itself” (Bell, 2010, p. 6), Bell found that supporting autonomy, competence, and relatedness has a significant effect on intrinsic motivation and promotes psychological well-being. However, Bell noted that supporting only one psychological need, without supporting the others, can be detrimental to intrinsic motivation.

Similarly, Markland (1999) described an intrinsically motivated state as one where “individuals take part in an activity primarily for the enjoyment and satisfaction gained from participation itself” (p. 352) and that “although initial involvement in exercise might be prompted by extrinsic factors such as perceived health and fitness benefits, long-term participation more likely depends on the development of intrinsic motivation for exercise” (p.

351). Markland uncovered the explanation that when one feels when one is really performing an activity solely because one wants to, it does not matter how one perceives how good one is at that activity. Additionally, McGuire and McDonnell (2008) stated that “recreation may help enhance belief systems, but, more directly, it provides opportunities to practice skills in varied and dynamic settings, leading to increased occasions for individuals to self-regulate” (p. 161).

Purpose

The purpose of this study was to examine the relationship between variables of participation of adults with disabling conditions in a competitive adaptive sports program (i.e., frequency, duration and diversity of participation) and their perceived levels of autonomy, relatedness, and competence. Research questions for this study include:

1. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of autonomy among adult athletes with disabling conditions?
2. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of relatedness among adult athletes with disabling conditions?
3. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of competence among adult athletes with disabling conditions?

Methodology

Sample and Study Area

The sample was recruited from teams competing in the Carolinas Wheelchair Basketball Conference (CWBC) Tournament (Myrtle Beach, South Carolina) on March 9, 2013, and the Carolina Tarwheels Home Tournament (CTHT, Concord, North Carolina) on April 6, 2013. The CWBC Tournament was a conference tournament for teams representing the Southeastern United States. Some of the states represented in this tournament were North Carolina, South Carolina, and Georgia. The CTHT was an invitational tournament comprised of teams invited by the home team. Teams involved in this tournament hailed from Concord, NC, North Charleston, SC, Nashville, TN, and Washington, D.C. All teams competing in these two tournaments are members of the National Wheelchair Basketball Association (NWBA). At the time of data collection, all teams were classified as Division III. Per the NWBA, Division III competition “allows newer players and newer or lesser developed teams the ability to play at a developmental or recreational level” (Functional Classification, 2017).

Given the population available at this tournament, the study targeted a minimum of 30 participants from these two tournaments (where $p=.05$, $\beta=.80$, $r=.20$). Participants in this study were at least 18 years of age and were actively competing in wheelchair basketball. Participants were asked to participate in the study during their breaks between games. As the athletes were leaving the gym for their break, an attempt was made to contact every other athlete. Rather than trying to capture each participant individually, this convenience sampling method made contacting participants more manageable. Upon acquiring their consent to participate in the study, a packet consisting of the forms provided in Appendix B (Participant Consent, Wheelchair

Athletes questionnaire, and BPNS-AS) was given to the athlete to complete and return to the principal investigator.

Instrumentation

This study utilized the Basic Psychological Needs Scale. Developed by Deci and Ryan (n.d.), the Basic Psychological Needs Scale (BPNS) is used to measure the three innate needs outlined by Self-Determination Theory (SDT): competence, relatedness, and autonomy. Originally, the BPNS was used to measure the satisfaction of these needs in a work setting, but the scale has since been altered to various domains including: general life (Gagné, 2003), physical education (Ntoumanis, 2005), post-college life (Niemic, Ryan, & Deci, 2009), modeling (Meyer, Enstrom, Harstveit, Bowles, & Beevers, 2007), and aerobics (Thøgersen-Ntoumani & Ntoumanis, 2007).

The Basic Psychological Needs Scale has been tested for these settings and has provided evidence of reliability and validity. Initially, in a cross-cultural study of self-determination, Deci, Ryan, Gagné, Leone, Usunov, and Kornazheva (2001) found evidence of reliability utilizing the BPNS as they reported reliability coefficients of .73 for competence, .84 for relatedness, and .79 for autonomy. Other studies, using modified versions of the BPNS, reported reliability coefficients on a range from .60 to .86 for competence, .61 to .90 for relatedness, and .61 to .81 for autonomy (Gagné, 2003; Johnston & Finney, 2010; Meyer, et al., 2007; Niemic et al., 2009; Thøgersen-Ntoumani & Ntoumanis, 2007). Additionally, evidence of validity, supporting the use of the BPNS across a wide variety of settings and populations, was found through studies using the BPNS in general life (Gagné, 2003), physical education (Ntoumanis, 2005), post-college life (Niemic et al., 2009), modeling (Meyer, Enstrom, Harstveit, Bowles, & Beevers, 2007), and aerobics (Thøgersen-Ntoumani & Ntoumanis, 2007).

The Basic Psychological Needs Scale was modified to measure the satisfaction of competence, relatedness, and autonomy in community adaptive recreation and sports program for youth by Sovacool-Bell (2012). For example, statements such as, “I am free to express my ideas and opinions when at work” (Deci & Ryan, 2002) from the original scale were modified to state, “I feel like I can choose which sports to play at my adapted sports program.” The scale used in this study has been appropriately modified to focus on adults with disabling conditions participating in competitive adaptive sports. The Basic Psychological Needs Scale-Adaptive Sports (BPNS-AS) consists of 21 items that have been altered to measure the satisfaction of the basic psychological needs of individuals with disabling conditions participating in adaptive sports. A Likert-type scale ranging from 1 to 7 (1: not at all true – 7: very true) is used to assess these components. Within the BPNS-AS, six items address the competence construct (sample item: “I have been able to learn interesting new skills through adaptive sports”), eight items address the relatedness construct (sample item: “I really like the people with whom I participate in adaptive sports”), and seven items address the autonomy construct (sample item: “I feel like I can choose which adaptive sports to play”).

Measuring Participation

Participation was measured using frequency and duration. Frequency was measured by the months and days of participation via the following questions:

- 1) On average, how many months/years do you engage in wheelchair basketball?
- 2) On average, how many days/months do you engage in wheelchair basketball.

Duration was measured by asking how many hours the athlete participates in wheelchair basketball per session (practice and competition), reported in minutes. Diversity of participation was measured using the participants’ wheelchair basketball classification. Among other criteria,

classification is generally defined by the athlete's use of their trunk. The upper trunk is the area above the diaphragm called the thorax and the lower trunk is the area below the diaphragm known as the abdomen. At the time of data collection, the National Wheelchair Basketball Association (NWBA) wheelchair basketball classifications were 1, 2, 3, 4, and 4.5 (Functional Classification, 2017). A classification of "1" means that the athlete has no active movement of the trunk in the vertical, forward, or sideways planes. Athletes with a classification of "2" have active use of the upper trunk in the vertical and forward planes and can rotate the upper trunk in both directions while upright. A classification of "3" means that the athlete displays active use of the upper and lower trunk as a unit not supported by the backrest of a wheelchair. Athletes with a classification of "4" have the ability to move the trunk greatly in all planes and have a strong side and a weak side. A classification of "4.5" means that an athlete has no weakness in any direction and can move the trunk maximally in all planes of movement.

Data Analysis

Data were entered into Qualtrics for reports and preliminary analysis. Demographic characteristics of the participants (e.g., age, wheelchair basketball classification, and gender) were determined using frequency statistics. Descriptive statistics were used to determine the mean scores of all participants who completed the Basic Psychological Needs Scale-Adaptive Sports questionnaire. A correlation analysis was completed using SPSS to compare the independent variables (frequency, duration, and diversity of participation) to the dependent variables (competence, relatedness, and autonomy) of the participants. For all analyses, a statistical significance level of .05 was used. Finally, Cronbach's alpha coefficients were examined for the reliability of the competence, relatedness, and autonomy subscales of the Basic Psychological Needs Scale-Adaptive Sports questionnaire.

Results

This section presents the results of the study with regards to the study research questions. These research questions examined how basic psychological needs for self-determination (i.e., autonomy, relatedness, and competence) were related to the frequency, duration, and diversity of participation in competitive adaptive sports among athletes with disabling conditions. The results of this study are divided into two sections: Descriptive Results and Inferential Results.

Descriptive Results

Data for the following descriptive results were collected using the Wheelchair Athletes questionnaire provided in Appendix B. Following the reading of the participant consent form (Appendix B), participants were asked to complete the Wheelchair Athletes questionnaire, part of which contains demographic questions designed to gain an understanding of each participant regarding his or her engagement in wheelchair sports.

The total number of wheelchair basketball athletes participating in this study was 52. Table 1 shows the tournament in which the respondent was participating, their gender, and their Wheelchair Basketball Classification. Data were collected from participants in the Carolinas Wheelchair Basketball Tournament (CWBC), hosted in Myrtle Beach, SC, and the Carolina Tarwheels Home Tourney, hosted in Concord, NC. As shown in Table 1, 75% of the participants in this study played in the CWBC Tournament and 25% of the participants played in the Carolina Tarwheels Home Tourney. Most of the participants were men (96.2%) with very few women completing the questionnaire (3.80%). The diversity of participation of the participants, their Wheelchair Basketball Classification, provided a mean classification score of 1.90 ($SD=.80$). See Table 1 for the wheelchair classification breakdown.

Table 1

Tournament, Gender, and Wheelchair Basketball Classification (N=52)

Category	<i>n</i>	%
<u>Tournament</u>		
CWBC Tournament	39	75.0
Carolina Tarwheels Home Tourney	13	25.0
<u>Gender</u>		
Men	50	96.2
Women	2	3.8
<u>Wheelchair Basketball Classification</u>		
1	18	34.6
2	22	42.3
3	11	21.2
4	1	1.9

Table 2 illustrates the age of participants, the duration of participation in wheelchair basketball, and the frequency of participation in wheelchair basketball. The mean age of the participants was 38.02 years ($SD=11.26$). Duration of participation for the wheelchair athletes was calculated using years (converted to months) plus months. Duration of participation ranged from 12 to 446 months. The mean duration of participation is 145.19 months ($SD=11.26$). To determine total minutes, frequency of participation for the participants was measured using the calculation, days times minutes. Participation frequency ranged from a minimum of 60.0 minutes per week to a maximum of 2880 minutes per week. The mean for participation frequency was 949.63 minutes ($SD=630.05$).

Table 2

Descriptive Statistics for Age, Duration, and Frequency

Category	Range	Min	Max	<i>M</i>	<i>SD</i>
Age (years)	51	18	69	38.02	11.26
Duration (total months)	434	12	446	145.19	101.20
Frequency (minutes/week)	282	60	288	949.63	630.06

Inferential Results

Data for the following inferential results was derived from the study participants' responses on the Basic Psychological Needs Scale-Adaptive Sports Instrument (BPNS-AS) found in Appendix B. The BPNS-AS consisted of 21 items that correspond with each of the supports of basic psychological needs. Seven items addressed autonomy, eight questions addressed relatedness, and six questions addressed competence. Reliability analyses were performed in SPSS for each of the items corresponding with these supports and a correlational analysis was completed to show the relationship of each of the supports of basic psychological needs to the elements outlined in the research questions.

Table 3 reports the descriptive scale and reliability statistics for the subscale of autonomy support. Tests of internal consistency showed an acceptable level of consistency within the reliability analysis for autonomy ($\alpha = 0.70$).

Table 3

Reliability Analysis for Autonomy (N=52)

Item	<i>M</i>	<i>SD</i>	α if Item Deleted
I feel like I can choose which adaptive sports to play.	5.12	1.77	0.65
I feel pressured when playing adaptive sports.	5.42	1.70	0.72
I am free to express my ideas and opinions when playing adaptive sports.	5.71	1.39	0.62
When I am participating on my adaptive sports team, I have to do what I am told.	3.58	1.30	0.70
My feelings are taken into consideration when playing adaptive sports.	5.38	1.62	0.65
I feel like I can pretty much be myself when playing adaptive sports.	5.85	1.79	0.66
There is not much opportunity for me to decide for myself how to participate in adaptive sports.	5.75	1.66	0.68
Total Scale $\alpha= 0.70$			

Table 4 reports the descriptive scale and reliability statistics for the subscale of relatedness. Tests of internal consistency showed an acceptable level of reliability within the analysis for relatedness ($\alpha= 0.79$).

Table 4

Reliability Analysis for Relatedness (N=52)

Item	<i>M</i>	<i>SD</i>	α if Item Deleted
I really like the people with whom I participate in adaptive sports.	6.31	0.96	0.74
I get along with people on my adaptive sports team.	6.27	1.29	0.76
I pretty much keep to myself when I am playing adaptive sports.	5.92	1.51	0.75
I consider the people I participate with to be my friends.	6.40	0.87	0.76
People on my adaptive sports team care about me.	6.19	0.99	0.77
There are not many people on my adaptive sports team that I am close to.	5.10	1.94	0.79
The people I participate with do not seem to like me much.	5.87	1.66	0.76
People on my adaptive sports team are pretty friendly towards me.	6.38	1.05	0.78
Total Scale $\alpha= 0.79$			

Table 5 reports the descriptive scale and reliability statistics for the subscale of perceived competence. Tests of internal consistency for the relatedness scale fell below .70 ($\alpha= 0.64$), but the scale was left intact to preserve the dimensionality of the construct. Comparable results were observed in other studies (Ntoumanis, 2005; Sovacool-Bell, 2012).

Table 5

Reliability Analysis for Competence (N=52)

Item	<i>M</i>	<i>SD</i>	α if Item Deleted
I do not feel very skilled when I am playing adaptive sports.	5.19	1.99	0.60
People on my sports team tell me I am good at what I do.	5.50	1.41	0.57
I have been able to learn interesting new skills through adaptive sports.	6.33	1.15	0.61
Most days I feel a sense of accomplishment after participating in adaptive sports.	6.04	1.17	0.57
When playing adaptive sports, I do not get much of a chance to show how capable I am.	5.58	1.71	0.69
When I am playing adaptive sports, I often do not feel very capable.	5.87	1.52	0.56
Total Scale $\alpha = 0.64$			

Table 6 presents the correlational analysis of the supports for autonomy, relatedness, and competence in relation to the items outlined in the research questions (frequency, duration, and diversity of participation as defined by Wheelchair Basketball Classification). Pearson's correlation analyses indicated no significant correlation between support for autonomy in adaptive sports with frequency, duration or diversity of participation. Comparable results were observed in correlation analyses for relatedness and competence when examining relationships between frequency, duration and diversity of participation.

Table 6:

Correlation Analysis for Hypothesis Testing (N=52)

Variables	1	2	3	4	5	6
1. Frequency	-					
2. Duration	0.09	-				
3. Classification	-0.10	0.11	-			
4. Autonomy Support	-0.18	0.11	0.18	-		
5. Relatedness Support	0.07	0.28	0.20	0.44	-	
6. Competence Support	-0.10	0.12	-0.03	0.55	0.47**	-

* - $p < .05$; ** - $p < .01$

Conclusions & Discussion

This study sought to explore the relationship between adaptive sports participation and self-determination of adults engaged in adaptive sports. Self-Determination Theory's three essential innate psychological needs for optimal functioning are autonomy, relatedness, and competence (Ryan & Deci, 2000). Autonomy is defined as self-directed freedom and independence. Relatedness is a sense of connectedness and belonging to others. Competence is defined as attributions of success or failure to one's self in the performance of a task. When these three psychological needs are met, it leads an individual to the tendencies for "growth integration, as well as for constructive social development and personal well-being" (Ryan & Deci, p. 68).

Adaptive sports provide an outlet for populations with disabilities to focus on those abilities that they possess versus the abilities that they do not possess. Literature indicates that benefits experienced by those participating in adaptive sports are vast and include the promotion of cognitive, emotional, and physical improvements regardless of their disabling condition. Goff (2012) noted that wounded military personnel participating in adaptive sports found a way of "rehabilitating and living life beyond injuries" and that they "help build confidence and bring out joy in life" (pp. 28-29).

This study involved data collection at two wheelchair basketball tournaments in which 52 wheelchair basketball athletes completed a self-describing questionnaire and the Basic Psychological Needs Scale-Adaptive Sports Instrument. In turn, analyses were completed to answer each of the following research questions:

1. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of autonomy among adult athletes with disabling conditions?

2. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of relatedness among adult athletes with disabling conditions?
3. Does the frequency, duration, and diversity of participation in competitive adaptive sports relate to levels of competence among adult athletes with disabling conditions?

No significant relationships were discovered when analyzing the correlations between the dependent variables of autonomy, relatedness, and competence with the independent variables of frequency, duration, and diversity of participation. In respect to the findings in the review of the literature, these results were unexpected, but not entirely unexplainable. The following are suggestions as to why no significant relationships were found in this study.

As shown in Table 2, the minimum duration of participation in wheelchair basketball is one year and the maximum is 37 years. Though the range of duration is quite vast, the fact that all participants in this study had been participating in competitive wheelchair basketball for at least one year displays a level of commitment among these wheelchair basketball athletes. Wheelchair basketball may be something that all of the athletes participating in this study have established into their lifestyle. Consequently, the innate psychological needs of the participants may already have been met, and, in turn, the frequency of participation and their Wheelchair Basketball Classification play no role in their supports for autonomy, relatedness, or competence. Measures for all three psychological needs had means that were quite high with little variability, which also suggests a ceiling effect. This lends further credence to the observation that these athletes were likely motivated to participate and committed to the wheelchair basketball.

Markland (1999) defined an intrinsically motivated state as one where “individuals take part in an activity primarily for the enjoyment and satisfactions gained from participation itself” (p. 352) and that “although initial involvement in exercise might be prompted by extrinsic

factors...long-term participation more likely depends on the development of intrinsic motivation for exercise” (p. 351). Furthermore, Markland explained that when one feels that they are performing an activity because they want to versus because they have to, it does not matter how good they perceive they are at it. As many of the respondents in this study exhibited long-term participation in the sport of wheelchair basketball, research also suggests that this may have led to internalization among the participants.

Organismic Integration Theory (OIT), as defined by Deci and Ryan (2002), is an approach to internalization and integration of values and regulations to the self. OIT is presented on a continuum in which one participating in an activity moves from a starting point of amotivation, through extrinsic motivation, and forward to intrinsic motivation. Causality for continued participation moves from impersonal, with regulatory processes of incompetence and that are unintentional, to varying degrees of external causality that include regulatory processes such as compliance, internal rewards, personal importance, and synthesis with self. From external causality, one moves on to internalization. Regulatory processes involved in internalization include interest, enjoyment, and inherent satisfaction. Perhaps the most important facet in the continuum of Organismic Integration Theory is that as participants are moving through all of these stages, they are also moving from a state of nonself-determination to self-determination. As it relates to this study, participants involved in this study are long-term wheelchair basketball athletes. As the participants moved over time through the continuum of OIT towards total internalization, their basic psychological needs of competence, relatedness, and autonomy were achieved and their participation in wheelchair basketball became self-determined. Thus, internalization may have played a role in the outcome of this study.

Limitations and Recommendations for Future Research

There are several limitations to this study that may impact the generalization of the results. Since the study used a convenience sample of participants from two wheelchair basketball tournaments, the results are restricted to those athletes that participated in those tournaments. The sample size ($N=52$) is also of some concern here. Initially, the proposal for this thesis included data collection at an additional wheelchair basketball tournament, the National Wheelchair Basketball Tournament in Louisville, Kentucky. Due to monetary constraints and fair data collection at the tournaments presented in this study, the thesis committee deemed it acceptable to omit that tournament from inclusion in this thesis. Thus, it is recommended that future research in this topic include a larger sample size in the hopes of supporting and evidencing the relationship between self-determination and participation in adaptive sports. Ideally, a sample close to 200 participants ($N= 196$, $p=.05$, $\beta=.20$, $r=.20$) would yield stronger statistical power upon which to interpret study results. Beyond issues with the sampling method and sample size, there are some concerns about the ability to measure basic psychological needs through a cross-sectional study.

The Basic Psychological Needs Scale-Sports is a self-reported questionnaire. This presented the opportunity for unwanted results, due to selective memory, exaggeration or attribution to arise. Furthermore, self-determination is a dynamic process that might not be adequately measured at one point in time, as it was in this cross-sectional study. Longitudinal studies that follow wheelchair athletes who start sports and follow them through that process, would better capture the experiences of these athletes as they learn to internalize the behavior and continue participation.

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Appendix A: Extended Literature Review

Exploring the Relationship Between Adaptive Sports Participation and Self-Determination of Adults Engaged in Adaptive Sports

Extended Literature Review

Self-Determination Theory (SDT) is defined as an “approach to human motivation and personality that...highlights the importance of humans’ evolved inner resources for personality development and behavioral self-regulation” (Ryan & Deci, 2000, p. 68). Adaptive sports are those sporting activities that integrate populations with disabilities. These sports can be tailored to meet the needs of any participant whether their deficiency is cognitive, emotional, or physical. Adaptive sports provide an outlet for these populations to focus on those abilities that they possess versus the abilities that they do not possess. Motivation plays a significant role in how populations with disabilities participate in adaptive sports and the outcomes of the sports determine whether the participant decides to continue to partake in the activity. Self-Determination Theory and its positive effects are a key component in determining overall satisfaction and continuation in adaptive sports programs. This literature review will provide an evaluation of the current literature to determine how Self-Determination Theory can be applied to Adaptive Sports and how they coincide in order to provide populations with disabilities a positive experience so that they sustain participation.

Self-Determination Theory

Ryan and Deci (2000) described the three essential innate psychological needs for optimal functioning as competence, relatedness, and autonomy. These are the three components of Self-Determination Theory. Competence is defined as the ability of an individual to perform a task properly. Relatedness is a sense of belonging and of connectedness to others. Autonomy is

defined as freedom and independence that is self-directing. The combination of these three facets within an individual leads to the “natural propensities for growth and integration, as well as for constructive social development and personal well-being” (Ryan & Deci, 2000, p. 68). Ryan and Deci addressed three important outcomes of SDT: intrinsic motivation, self-regulation, and the impact of psychological need fulfillment on health and well-being.

Intrinsic Motivation

Ryan and Deci (2000) defined intrinsic motivation by examining “the conditions that elicit and sustain, versus subdue and diminish, this innate propensity” (p. 70). Ryan and Deci found that “social environments can facilitate or forestall intrinsic motivation by supporting versus thwarting people’s innate psychological needs” (p. 71) and that fulfilling “basic psychological needs are determinative with regard to optimal experience and well-being in daily life” (p. 76). “As people internalize regulations and assimilate them to the self, they experience greater autonomy in action” (Ryan & Deci, 2000, p. 73). Furthermore, Ryan and Deci (2000a) stated that “to be motivated means to be moved to do something. A person who feels no impetus or inspiration to act is thus characterized as unmotivated, whereas someone who is energized or activated toward an end is considered motivated” (p. 54). Niemiec, Ryan, and Deci (2009) defined goals of intrinsic factors as “expressive of humans’ inherent growth tendency and are conducive to satisfaction of the basic psychological needs for autonomy, competence, and relatedness” and goals of extrinsic factors as “typically pursued as a means to some separable outcome and are not directly linked to satisfaction of the basic psychological needs” (p. 292). Through their longitudinal study, the authors found that “attainment of intrinsic aspirations related positively to psychological health, whereas attainment of extrinsic aspirations was somewhat negatively related to psychological health” (Niemiec et al., 2009, p. 296)

Instituting Competence, Autonomy, and Relatedness

Wehmeyer and Gamer (2003) stated that there are two contributors to examine when determining degree of self-determination within a person: “one is the capacity of the person to act in a self-determined manner” and the second is “the degree to which the environments in which people live, learn, work, and play provide opportunities for them to exert control in their lives, make choices and so forth” (p. 255). Adults use autonomy reflecting two aspects of American individualism: “expressive individualism emphasizes the value of personal experience, enjoyment, and self-development” and “utilitarian individualism focuses on the desire for personal achievement and attaining personal goals” (Arnett, Ramos, & Jensen, 2001, p. 76).

Baumeister and Leary (1995) stated that the satisfying the drive to form lasting, positive, and significant interpersonal relationships involves two criteria: “there is a need for frequent, affectively pleasant actions with a few people” and “these interactions must take place in the context of a temporally stable and enduring framework of affective concern for each other’s welfare” (p. 497). Belongingness is key to well-being and deprivation of relationships leads to a large array of adverse consequences: “Evidence suggests a general conclusion that being accepted, included, or welcomed leads to a variety of positive emotions (e.g., happiness, elation, contentment, and calm), whereas being rejected, excluded, or ignored leads to potent negative feelings (e.g., anxiety, depression, grief, jealousy, and loneliness)” (Baumeister & Leary, 1995, p. 508).

Wehmeyer and Gamer (2003) suggested that “being self-determined is not a function of what you can do for yourself, behaviorally, but instead is a function of how much you can make or cause things to happen in your life” (p. 263). Wehmeyer and Gamer concluded their article with advice for practitioners that work with people with

disabilities: “we would emphasize the importance of promoting choice opportunities both as a means to provide more chances to exert control, but also to enhance personal beliefs about one’s capacity and opportunity to exert control and make choices in one’s life” (p. 264). Additionally, through their literature review, Deci and Ryan (2008) concluded that these conditions promote “greater conceptual understanding, better grades, more creativity, enhanced persistence at school and sporting activities, better productivity and less burnout at work, healthier lifestyles and behaviors, greater involvement and better outcomes from psychotherapy, and higher levels of psychological well-being, among other positive outcomes” (p. 17). In conclusion, Ryan and Deci (2000) found that social conditions that are supportive of autonomy, competence, and relatedness are critical to facilitating human growth tendency, internalization, and integration.

Adaptive Sports

Adaptive sports provide a wide variety of benefits (cognitive, emotional, and physical) for its participants, no matter their disability. Cognitive benefits, those that relate to improved mental function, may include increased attention, memory, problem solving skills, and decision making, among others. Those benefits that are related to increased bodily performance are described as physical benefits. These benefits may include increased muscular strength, flexibility, cardiovascular endurance, and mobility. Emotional benefits are defined as the benefits to one’s overall state of being. These benefits may involve better mood, a sense of accomplishment, defined self-identity, independence, and increased self-esteem.

Benefits of Adaptive Sports for Populations with Disabilities

Participation in sports by athletes with disabilities is linked to improved quality of life; and, in turn, greater health and happiness. Murphy and Carbone (2008) stated that “the benefits of physical activity are universal for all children, including those with disabilities” (p. 1057). Fowler, Kolobe, Damiano, Thorpe, Morgan, Brunstrom and Stevenson (2007) found that, in children with cerebral palsy (CP) that participate in physical fitness activities, an increase in strength is positively correlated with an increase in activity. Regarding cardiorespiratory fitness, the findings of Fowler et al. indicated that children with CP have low levels of this measure and that low levels of fitness are related to poor general health. However, the summit found that gains in aerobic capacity lead to lower submaximal VO₂ and lower energy consumption. Groff, Lundberg and Zabriskie (2009) found, in assessing clients with CP, that “the activity limitations that people with disabilities often experience result in more days of pain, depression, anxiety, and sleeplessness as well as fewer days of vitality when compared to individuals without activity limitations” (p. 318). Becoming more active is a solution to this crisis. Athletes with disabilities:

“(i) are better adjusted and more satisfied with life, (ii) report having fewer days of pain, depression, anxiety, sleeplessness, and improved vitality, (iii) substantially increase their life expectancy, (iv) are stronger and have more stamina, (v) have improved cardiovascular health and fitness, (vi) experience fewer and less severe secondary health conditions, and (vii) develop a positive athletic identity” (Groff et al., 2009, p. 319).

Goff (2012) explained the usefulness and impact of adaptive sports for wounded military personnel. Many of those personnel use adaptive sports as a transition to a new life, an outlet to

move past their disability both physically and mentally. They found that adaptive sport “offers a way of rehabilitating and living life beyond injuries” and that sport club programs “help build confidence and bring out joy in life” (Goff, 2012, pp. 28-29). Goff stated that adaptive sports give “families and service members a chance to embrace new life and see just how active life can be...and recognize abilities they did not know they had” (p. 28). In working with injured service members at a Paralympic military sports camp, Hawkins, Cory and Crowe (2011) found that “adults with physical disabilities who participate in sports and exercise programs can increase and maintain their physical performance including (a) muscle strength, (b) aerobic fitness, (c) physical function, (d) increased HDL-C, (e) decreased BMI, and (f) preservation of transfer independence” (p. 310). The authors also found that physical activity among people with disabilities “promotes a sense of empowerment, contributes to a sense of freedom, alters perceptions of being “disabled,” as well as possesses mediating effects on disability identity” (Hawkins et al., 2011, p. 310-311). Overall, Hawkins et al. found that involvement in the camp and other programs “can potentially promote improved quality of life for injured service members and their families” (p. 322).

Riggen and Ulrich (1993) found that individuals with mental retardation that participate in a united sports program show a greater increase in social self-concept regardless of whether or not the participant improved their actual physical ability. Leisure activities, including adaptive sports, provide many of the same benefits to both disabled and abled populations that include: “stress reduction, improved coping skills, companionship, enjoyment, relaxation, and a positive effect on life satisfaction and well-being” (Specht, King, Brown, & Foris, 2002, p. 437) as well as higher self-esteem and lower counts of depression. Specht et al. found that with respect to

leisure, a few major themes evolved in their research: “mental and physical health benefits, enjoyment, proving self, and friendship building and belonging” (p. 440).

Constraints to Adaptive Sports

Despite benefits of adaptive sports for populations with disabilities, the literature suggests that there are many barriers and limitations that these populations encounter. Fowler et al. (2007) discovered many barriers to increasing and maintaining physical activity within populations with disabilities and concluded that a “paucity of accessible sport and physical fitness programs for children with physical disabilities is a major contributor to this problem” (p. 1504). Specht et al. (2002) found common structural and interpersonal barriers that included transportation issues, lack of support, and prejudices/social stigmas. Groff et al. (2009) stated that one way to improve the “physical and psychosocial functioning” of individuals with CP and other disabilities is to offer them opportunities to “promote their own good health by developing and maintaining healthy lifestyles” (p. 318). Murphy and Carbone (2008) stated that “environmental and family factors seem to be more significant determinants of participation than the characteristics of the children themselves” (p. 1059). Hunter (2012) defined many opportunities that are available to populations with disabilities that include community programs, sport clubs, and clinics for adapted sports. Developing ways to overcome the barriers in both the personal and environmental realms and providing opportunities for populations with disabilities to become active are important in increasing overall health and well-being. An “I can do” versus a “you can’t do that” attitude is vital in empowering people with disabilities to participate in adaptive sports.

Self-Determination Theory and Adaptive Sports

As Self-Determination Theory (SDT) is congruent with producing positive effects and promoting motivation for participation in activities and adaptive sports are quite beneficial for populations with disabilities, it is important to understand the current literature linking the two concepts together. Very often, instead of using SDT as one unit, therapeutic recreation researchers choose which pieces are more helpful. Bell (2010) sought to explore the relevance of the three innate psychological needs (autonomy, competence, relatedness) as a whole to participant intrinsic motivation. Defining intrinsic motivation in terms of SDT as “present when people are motivated for participating in an activity by the activity itself” (Bell, 2010, p. 6), Bell found that supporting autonomy, competence, and relatedness has a significant effect on intrinsic motivation and promotes psychological well-being. However, supporting only one psychological need without supporting the others can be detrimental to intrinsic motivation. Bell’s findings could be considered a landmark in this field of research due to this conclusion. Similarly, Markland (1999) described an intrinsically motivated state as one where “individuals take part in an activity primarily for the enjoyment and satisfaction gained from participation itself” (p. 352) and that “although initial involvement in exercise might be prompted by extrinsic factors such as perceived health and fitness benefits, long-term participation more likely depends on the development of intrinsic motivation for exercise” (p. 351). Markland (1999) uncovered the explanation that when one feels that they are really performing an activity solely because they want to, it does not matter how they perceive how good they are at it.

Importance of Facilitating Self-Determination Theory in Adaptive Sports

Burstein, Bryan and Chao (2005) found that through goal setting and evaluation, participants progress “toward independence by virtue of an analysis of their personal needs,

selection of a goal, and a strategy for achieving the goal” (p. 198) and that participants can “focus on solutions rather than personal frailties” (p. 200). Mazzoni, Purves, Southward, Rhodes and Temple (2009) found that active efforts toward a task are “more likely to lead to positive outcomes, which subsequently influence the individual’s perception of his/her competence” (p. 260). Mazzoni et al. (2009) explained that there are physical and psychological benefits of climbing walls for individuals with disabilities that include: improved strength, mobility, self-esteem, movement skills, problem solving, and positive risk taking.

McGuire and McDonnel (2008) suggested that “self-determination skills are positively correlated with adult outcomes and an individual’s perception of his or her quality of life” and that “students with disabilities who exercise self-determination have a greater likelihood of being successful in adult life, including employment and independence” (p. 154). Their important review of the current literature evidenced that “developing both self-determination and recreation involvement can have an important impact on the long-term quality of life of young adults with disabilities” (McGuire & McDonnel, 2008, p. 155). Furthermore, one final thought was offered by McGuire and McDonnel: “Recreation may help enhance belief systems, but, more directly, it provides opportunities to practice skills in varied and dynamic settings, leading to increased occasions for individuals to self-regulate” (p. 161).

In physical education and general promotion of physical fitness, Standage, Duda and Ntoumanis (2003) found that student motivation in terms of physical education should incorporate constructs from self-determination theory and goal achievement theories (see Standage et al. for a more detailed description of goal achievement theories). The findings promote “how physical educators may begin to combat the decrease in interest and participation levels in students” by promoting “class structures that are autonomy-supportive and mastery

focused” (Standage et al., p. 108). Also, Standage et al. found that, in addition to this, students that were self-determined were more likely to participate in physical activity during their leisure time.

Organismic Integration Theory

Organismic Integration Theory (OIT) is an approach to the development of internalization and integration of values and regulations to the self. Deci and Ryan (1985) coined the term organismic integration as the process by which one develops a pattern of distinguishing “specific elements of one’s internal and external environments and then brings those elements into harmony with one’s existing structures, thereby elaborating and refining the structures” (p. 114). Organismic integration is presented on a continuum in which one participating in an activity moves from a starting point of amotivation (a state of nonself-determination), through extrinsic motivation, and forward to intrinsic motivation (a state of self-determination). However, it is important to note that the process is fluid and that this development requires “more than just structural concepts; it requires the concept of activity” (Deci & Ryan, 1985, p. 114). Deci and Ryan (1985) state that one develops their abilities and constructs increasingly intricate and refined internal structures by “acting on their surroundings, by exploring, testing, succeeding, and failing” (p. 114).

Within the continuum of Organismic Integration Theory is the progression through diverse sub-stages of extrinsic motivation. OIT recognizes that some behavioral principles are obligatory and imposed to the self, while other regulations are driven by choice and are self-endorsed. External regulation is the first regulatory style of extrinsic motivation and is the state in which “a person’s actions are compelled or driven by externally controlled rewards or

punishments” (Ryan, Williams, Patrick, & Deci, 2009, p. 112). Put simply, the continuation of an activity is solely dependent on the reception of a reward or punishment and would not continue, otherwise. When an individual participates in an activity based on internal rewards and punishments (i.e. to increase feelings of self-worth or to avoid blows to the self-esteem or self-disapproval), the regulation is considered to be introjected (Ryan, et al., 2009, p. 112). Furthermore, Ryan, et al., 2009, argued that identified regulation is even more internalized and choice-driven in which the person “identifies with or personally values the behaviors they engage in” (p. 112). They go on to state that “because actions reflect values, behaviors regulated through identification will persist independently of environmental reward.” Therefore, identified regulation of an activity is the first sub-stage of extrinsic motivation in which an individual is likely to maintain their participation. Finally, as positive behaviors and goals are created and become engrained into one’s core values, regulatory processes become integrated. Integrated regulation “presents a high degree of autonomy and self-endorsement” and “rivals intrinsic motivation in the relative autonomy experienced” by the participant (p. 112).

With regards to Self-Determination Theory, the varying categories and sub-stages of extrinsic and intrinsic motivation can be applied to all intentional actions. In fact, Ryan, et al., 2009, state that “most intentional acts involve some combination of the varied types of regulation” (p. 113). For instance, one may participate in a sporting activity because they find it to be a pleasurable experience, but may also engage in the activity for other outcomes such as weight reduction and to prove to themselves that they’re still able to compete at a certain level. In this case, intrinsic motivation, identified regulation, and introjected regulation, respectively, are present in the completion of the activity.

Conclusion

Self-Determination Theory (SDT) and adaptive sports are two distinct concepts that can be integrated to provide outstanding benefits (cognitive, emotional, and physical) to populations with disabilities. Facilitating an environment where autonomy, competence, and relatedness (the three innate psychological needs) can be achieved and reducing barriers and limitations to activity participation is crucial in promoting intrinsic motivation for participating in and continuing with adaptive sports activities.

Though there has been a significant amount of research involving Self-Determination Theory (SDT) and adaptive sports within the realm of children and adolescents with disabilities, there has been far less research on the effects of Self-Determination Theory on adults with disabilities participating in adaptive sports. In order to fully understand SDT and its connections with adaptive sports, all populations must be addressed. Further research should focus on incorporating SDT to adaptive sports for adults with disabilities. In doing so, this population can achieve the benefits that Self-Determination Theory promotes and develop the motivation that inspires them to continue participation in adaptive sports.

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Appendix B:
Participant Consent
and
Wheelchair Athletes
and
Basic Psychological Needs Scale-Adaptive Sports Instrument

Hello,

You are being invited to participate in a **research** study titled “Exploring the Relationship Between Adaptive Sports Participation and Self-Determination of Adults who Participate in Adaptive Sports” being conducted by Josh Wall, a Graduate Student of Recreational Therapy Administration at East Carolina University in the Department of Recreation and Leisure Studies. The goal is to survey at least 30 individuals (total) from separate wheelchair basketball tournaments. The survey will take approximately five to ten minutes to complete. It is hoped that this information will assist us to better understand the concept of self-determination in wheelchair athletes when participating in competitive adaptive sports. The survey is anonymous, so please do not write your name on it. We simply ask that you write an identifying number (e.g. last 3 letters of your last name and month of birth) at the designated location on the survey. However, your responses will be kept confidential. No data will be released or used with any identification attached. Your participation in the research is **voluntary**. You may choose not to answer any or all questions, and you may stop at any time. There is **no penalty for not taking part** in this research study. Please call Josh Wall at 919-413-6781 or Dr. Thomas Skalko at 252-328-0018 for any research related questions or the Office for Human Research Integrity (OHRI) at 252-744-2914 for questions about your rights as a research participant. Thank you for your time and consideration.

By completion of the attached survey, I am offering my consent.

Wheelchair Athletes

Instructions: Please complete the following demographic questions regarding your engagement in wheelchair sports.

1. Please list your age in the space provided: _____
2. Please circle your gender: M / F
3. How long have you been involved in wheelchair basketball? _____years _____months
4. Please mark your classification for wheelchair basketball:
1 _____ 2 _____ 3 _____ 4 _____ 4.5 _____
5. On average, how many months per year do you engage in wheelchair basketball?
_____months
6. On average, how many days per month do you engage in wheelchair basketball? _____days
7. On average, how many hours do you participate in wheelchair basketball per session (practice and competition)? _____minutes
8. In how many different adaptive sports activities do you engage? _____
9. Please list other adaptive sports activities (individual or team) in which you engage:

Please choose an identifying number that you will remember (e.g. last 3 letters of last name and month of birth): _____

Appendix C: IRB Approval

EAST CAROLINA UNIVERSITY
University & Medical Center Institutional Review Board Office
4N-70 Brody Medical Sciences Building · Mail Stop 682
600 Moye Boulevard · Greenville, NC 27834
Office **252-744-2914** · Fax **252-744-2284** · www.ecu.edu/irb

From: Social/Behavioral **IRB**
To: [Joshua Wall](#)
CC: [Thomas Skalko](#)
Date: 3/8/2013
[UMCIRB 13-000413](#)
Re: EXPLORING THE RELATIONSHIP BETWEEN ADAPTIVE SPORTS
PARTICIPATION AND SELF-DETERMINATION OF ADULTS ENGAGED IN
ADAPTIVE SPORTS

I am pleased to inform you that your research submission has been certified as exempt on 3/8/2013. This study is eligible for Exempt Certification under category #2.

It is your responsibility to ensure that this research is conducted in the manner reported in your application and/or protocol, as well as being consistent with the ethical principles of the Belmont Report and your profession.

This research study does not require any additional interaction with the UMCIRB unless there are proposed changes to this study. Any change, prior to implementing that change, must be submitted to the UMCIRB for review and approval. The UMCIRB will determine if the change impacts the eligibility of the research for exempt status. If more substantive review is required, you will be notified within five business days.

The UMCIRB office will hold your exemption application for a period of five years from the date of this letter. If you wish to continue this protocol beyond this period, you will need to submit an Exemption Certification request at least 30 days before the end of the five year period.

The Chairperson (or designee) does not have a potential for conflict of interest on this study.

IRB00000705 East Carolina U **IRB** #1 (Biomedical) IORG0000418
IRB00003781 East Carolina U **IRB** #2 (Behavioral/SS) IORG0000418 **IRB**00004973