

ABSTRACT

DEVELOPMENTAL IMPLICATIONS OF YOUTH SPORT PARTICIPATION ON PHYSICAL ACTIVITY AND SPORT PARTICIPATION IN YOUNG ADULTHOOD

by

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Abstract:

This study sought to address a point of controversy within youth sports: whether young athletes should specialize early (e.g., Ericsson, Krampe & Tesch-Römer, 1993) or if it is favorable to follow the path of early diversification and multiple sport participation (e.g., Côté, Leder and Hackfort, 2009). Based on a sample of students ($N=109$) from East Carolina University who were former athletes, the present study investigated whether former youth sport specialists and former multi-sport athletes differed on their reported experiences in sport for Basic Need Satisfaction (BNS), Motivation Type (MT), and Athlete Burnout (ABQ). The results from this sample reveal that there were no significant differences between the two groups based on BNS, MT, or ABQ to support the study hypotheses. However, results revealed that study participants who reported participating on a “travel team” were significantly less likely to report “a reduced sense of accomplishment” (a subscale of the ABQ) when compared to participants who reported no travel team participation. Correlation analyses demonstrated a negative

relationship between reduced sense of accomplishment and basic needs satisfaction. Specifically, participants who reported high levels of reduced sense of accomplishment were more likely to report lower levels of basic need satisfaction at a significant rate. Independent samples *t*-tests revealed that study participants who ceased participating in sports as adults also reported significantly higher overall athlete burnout and devaluation of sport when compared to those who continued in sports, regardless of specialization status. Participation in a single or multiple youth sports had no relationship to sport participation in young adulthood. For this sample of college students, factors related to athlete burnout played a significant role in continued participation in young adulthood. Future research should utilize a longitudinal design with current youth athletes as opposed to retrospective research with former youth athletes.

DEVELOPMENTAL IMPLICATIONS OF YOUTH SPORT PARTICIPATION ON
PHYSICAL ACTIVITY AND SPORT PARTICIPATION IN YOUNG ADULTHOOD

A Thesis

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Introduction

According to the 2014 United States Census Bureau, there were approximately 50 million citizens between the ages of six and eighteen living in the United States, nearly half of whom participated in some form of sport (Coakley, 2015). The purpose of organized youth sport varies depending upon the sponsor (e.g., public, non-profit, private). Public and some nonprofit programs tend to emphasize the life-long benefits of sport participation, whereas private and some non-profit agencies typically favor competition and reaching elite status. The general consensus is that youth sport participation in some way contributes to social development, general awareness of fitness and health, self-esteem, skill development, and enjoyment (Coakley, 2015). Youth sports are generally considered positive in nature, although there are areas of participation that could improve in the youth sport experience.

Smucny, Parikh, and Pandya (2015) identified that a growing trend in youth sport is the transition from instilling positive recreational values to organized deliberate activities in which a participant's success is measured by attaining elite status. Over the past 20 years, emphasis has shifted from youth-driven recreational sport activities to coach and parent-driven specific skill development, with an emphasis placed on achieving high levels of accomplishment in a single sport (Feeley, Agel, & LaPrade, 2015). This trend is associated with higher rates of single-sport specialization, which is often accompanied with intensive training (Smucny et al., 2015). Hill and Simons (1989) defined sport specialization as "students limiting participation to one sport which is practiced, trained-for and/or competed in on a year-round basis" (p. 1). This trend is in contrast to past practices of participating in and sampling multiple sports during youth.

According to Côté, Lidor, and Hackfort (2009), sampling multiple sports during childhood has been based on two main elements: (a) involvement in a variety of sporting

activities and (b) participation in deliberate play. For the purpose of this study, participation in multiple sports, diversification, or sampling sports will be referred to as “multi-sport participation” as the identified opposite path of sport specialization. Deliberate play consists of voluntary participation in several actions that are enjoyable and promote intrinsic regulation. Sport participation requires a high degree of physical processes, cognitive-perceptual abilities, and affective abilities. Exposure to multiple sports provides a wide variety of opportunities to develop these skills. Deliberate play establishes a wide range of motor skills, intrinsic motivation, and cognitive experiences, of which benefits both young athletes who specialize and those who sample different sports. Youth athletes who specialize in a single sport are often required to participate in more deliberate practice than multi-sport athletes, this can be detrimental if the deliberate practice comes at the expense of deliberate play. Multi-Sport athletes are required to participate in deliberate practice as well. Deliberate practice, while required to reach expertise skill level, may yield long-term consequences that can be detrimental if the proper practice guidelines are not followed. Ideally, training guidelines should be athlete, age, and sport specific (Nyland, 2014). Both types of early sport involvement (i.e., multi-sport participation and sport specialization) can potentially lead to elite performance in sport.

Research on young adults’ sport participation patterns has demonstrated that the degree of specialization in youth sport is negatively associated with continued sport participation in young adulthood (Limle & Russell, 2013; Russell & Symonds, 2015). Current research pits sport specialization and multi-sport participation as ends of a sport participation continuum and seeks to understand the potential for each on influencing developmental outcomes. Research in this area has the potential to optimize enjoyment and safety for the most beneficial experiences regardless of how many sports a young athlete plays. The purpose of this study was to examine

the long-term developmental implications of participation in youth sport. This study sought to explain the variation in sport participation by young adults through comparing the type of sport participation (specialized versus multi-sport) these individuals experienced in their youth. Specializers were also compared to multi-sport athletes in terms of their motivation during youth sports, the needs supportive climate or basic needs to support motivation in sport, and on measures of athlete burnout while youth sport athletes.

Objectives of the Study

The goal of recreational sports is to contribute to a healthy active community, holistically, throughout a lifetime. Research has suggested that those who specialize in one sport as youth are less likely to continue participating as young adults (Limle & Russell, 2013; Russell & Symonds, 2015). This study seeks to extend the work of Russell and Symonds (2015), who compared sport specialization and sport diversification based on sport motivation and perceived motivational climate in sport. By examining the degree to which participants experienced burnout in youth sports, measuring reported basic need satisfaction in youth sport, and reported motivation type in youth sport, this study is intended to contribute to current literature by using a unique combination of measurement instruments. The purpose of this study is two-fold: (a) to determine if differences in youth sport participation exist between sport specializers and multi-sport athletes; and (b) to observe if these two groups of athletes report differences in sport participation in adulthood. The study tests the following hypotheses:

1. Hypothesis 1: Those who specialize in sport will report lower perceptions of support for basic needs when compared to multi-sport participants.

2. Hypothesis 2: Those who specialize in sport will report lower perceptions of internalized motivation during youth sport participation when compared to multi-sport participants.
3. Hypothesis 3: Those who specialize in sport will report higher perceptions of athlete burnout when compared to multi-sport participants.
4. Hypothesis 4: Sport specializers will be less likely to participate in sport and exercise when compared to multi-sport participants categorically as competitive participation, recreational participation, or non-participant.
5. Hypothesis 5: Sport specializers will report lower levels of sport and exercise participation in days per week when compared to multi-sport participants.

Background

Theoretical Framework

The theoretical framework for this study was rooted in Self-Determination Theory (SDT, Deci & Ryan, 1991), and more specifically, Basic Needs Theory, a mini-theory of SDT (Ryan & Deci, 2000). According to SDT formulation, competence, autonomy, and relatedness are basic human needs, and the degree to which these needs are met determines an individual's intrinsic motivation for an activity. Social factors have the ability to play a role in facilitating these three basic needs both positively and negatively influencing motivation (Deci & Ryan, 1991). SDT is a fitting framework to examine physical activity participation because it allows for the investigation of physiological, developmental, and psychological determinants of behavior as well as providing various reasons for participation (Ryan & Deci, 2000; Teixeira, Carraca, Markland, Silva, & Ryan, 2012).

Basic Needs Theory (Ryan & Deci, 2000) was formulated to explain the relation of goals and motivation to well-being and health. Basic Needs Theory provides explanation in part by describing association of value configurations and regulatory styles to psychological health across situations, culture, gender, and time. Basic need theory states that support for competence, autonomy and relatedness within social environments develops a needs supportive climate under which self-determination can thrive or wither (Zang, Solmon, Carson & Gu, 2011).

Three basic needs work in concert to support self-determination: (a) relatedness, (b) competence and (c) autonomy. Relatedness is an indication of feeling connected to others, a sense of belongingness, and caring for others that care for you. Competence refers to an individual feeling effective in their ongoing interactions with the social environment, and the

opportunity to exercise their capacities. Autonomy attributes one's actions to an individual's own behavior, this expression of self consists of feelings of value and initiative (Ryan & Deci, 2000).

Intrinsic motivation is the purest form of autonomy and displays true self-determination (Ryan & Deci, 2000). However, individuals can learn to internalize behavior through finding personal meaning based on adopted values, alignment with one's identity, or integration with personal goals. The process of internalization is significant to participating in and adopting new behaviors (Deci & Ryan, 2002; Watts & Caldwell, 2008). Internalization is the natural process by which individuals strive to actively transform external regulation into self-regulation, becoming more integrated in the process (Ryan & Deci, 2000). The needs supportive climate determines the degree to which a behavior is internalized. Organismic Integration Theory (OIT), a sub-theory of SDT, explains the process of internalization (Ryan & Deci, 2000).

According to OIT, extrinsic motivation can move from being externally regulated (i.e., truly externally motivated) to internally regulated in various forms (i.e., internal motivation). Those participating in activities simply to gain rewards or avoid punishment are truly externally motivated. OIT explains that as one experiences relatedness within activities, they begin to adopt common values and mores of others and may participate in behaviors through introjection. Introjected regulation is doing activities to avoid the anxiety or disconcert associated with going against these adopted social norms or mores. As one becomes more competent in activities, one begins to align his or her self-perceptions with the activity. At this point, behavior is regulated through identity. The availability of choice and decision making supports autonomy. The provision of autonomy is key to one developing motivations based on personal goals and aspirations related to the behavior. While internalized, each type of internal regulation is

extrinsic in nature because the reasons for participation are not inherent to the activity, but aligned to one's values, identity or personal goals. As the activity becomes integrated, it is nearly indistinguishable from intrinsic motivation.

In relation to sport participation, there are many factors within the sporting environment that are related to internalized motivation such as: playing for a democratic coach versus controlling coach, focus on skill development versus win-at-all-costs, and individual perceived control of participation versus participation completely controlled by coaches (Gould & Carson, 2004). Social environments that support internalization lead to long-term, satisfying participation in behaviors; this idea is vitally important to this study, as coaches, parents and peers play a vital role in creating a needs supportive climate that helps youth persist through challenges and continue participation in sport.

The Long-term Effects of Specialization and Multi-Sport Participation

Both specialization and diversification in sport participation offer various developmental outcomes, outcomes are specific to the path of participation chosen. Hecimovich (2004) conducted research on youth sport participation and concluded that specialization in a single sport has become an increasingly popular trend in the United States. Perceived reasons for specialization include the following: improving specific skills, gain competitive edge over competition, reaching the status of elite, possibility of scholarships, and hopes of reaching professional levels. The uncertain benefits of reaching elite levels should be weighed versus the potentially dangerous health, psychological, and sociological risks.

Baker, Cobley, and Fraser-Thomas (2009) supported the notion that a primary motive for specialization in sport is to develop expertise and reach the status of elite. Specialization, however, can result in a range of negative consequences affecting social, physical, and

psychological development. Athlete burnout, overuse injury, and dropout are also potential consequences of specialization (Elbe, Hauge, Moesche & Wikman 2011; Jayanthi 2015; Yapar & Levent-Ince, 2014). An alternative to early sport specialization is diversification, which refers to playing multiple sports through sport sampling. Researchers indicated that playing multiple sports does not put athletes at a disadvantage pursuing expertise (Gould & Carson, 2004; Hill, 1993; White & Oatman, 2009). Intrinsic motivation and skill transferability are positively developed through diversification in sport (Côté, Lidor, & Hackfort, 2009).

Côté, Deakin, and Strachan (2009) compared the experiences and outcomes of youth sport specialists with youth sport samplers. Specialists were recruited from four different sports: artistic gymnastics, swimming, rhythmic gymnastics, and diving. Samplers were identified by participation in at least three sports, recruited from various sport programs in the Manitoba and Ontario areas. Results indicated that the number of hours spent in training or practice were significantly higher by the specialists, consequently recording higher levels of emotional and physical exhaustion. No significant differences were shown in enjoyment levels. Côté et al. found that healthy positive development in youth athletes is possible under the specialization framework, although there are inherent risks that can be detrimental to youth development and continued sport participation if proper training guidelines are not followed.

Harris and Watson (2011) examined the psychological properties of burnout, athletic identity, and motivation in a sample of youth athletes. Self-determination theory and the unidimensional identity model were used as the focal point of the assessments. The sample included 88 swimmers between the ages of seven and twelve years old (49 females and 39 males). The average time spent participating in swimming was three and a half days per week, averaging two hours of practice each session. The authors defined burnout as a

multidimensional phenomenon consisting of emotional and physical exhaustion, a reduced sense of sport accomplishment, and a devaluation of the particular sport. The parents of the participants completed demographic surveys, while the participants completed the following surveys: Athletes Burnout Questionnaire, Sport Motivation Scale, and Athletic Identity Measurement Scale, all of which were modified for youth sport. Results indicated a significant relationship between burnout and reduced accomplishment. The scales modified for youth sport participants provided preliminary psychometric support for the accurate measurement of youth athlete burnout, motivation, and athletic identity.

Yapar and Levent-Ince (2014) conducted a study to compare the experiences, enjoyment, and burnout levels between youth basketball players in specialization and recreational settings. The framework utilized in the study was the Developmental Model of Sport Participation, which states that youth participate in organized sport for competitive performance or for recreation. The authors collected data via the Youth Experiences in Sport Scale, Sources of Enjoyment in Youth Sport Questionnaire, and Athlete Burnout Questionnaire; all measurements related to basic needs. Results indicated that the specialization players' Athletes Burnout Questionnaire scores were significantly higher than the recreational players. There was no significant variation between groups' Youth Experiences in Sport Scale scores. The lack of variation of scores on the Youth Experiences in Sport Scale between the two groups indicated positive youth sport experiences in both categories, most noteworthy when there were high levels of enjoyment and low levels of burnout present. The reality of burnout continued to exist for those whose enjoyment diminished or where participation was more focused on an external outcome.

Rotella, Hanson, and Coop (1991) explained burnout in youth sport as a result of chronic stress induced between people and their environment that has physical, psychological, and

emotional components. Henschen (1986) defined burnout as “a state of mental, emotional, and physical exhaustion brought on by persistent devotion to a goal, the achievement of which is dramatically opposed to reality” (p. 327). Burnout should not be confused with dropout. While athletes who experience burnout may withdraw from participation, not all who are dropouts from sport experience the symptoms of burnout. Burnout is a condition that generally has a gradual onset of any combination of the following symptoms: exhaustion, confidence loss, performance decrease, anger, internalization of failures, lack of energy, sleeplessness, tension, disillusionment with sport, irritability, headaches or other physical ailments, and withdrawal from sport (Rotella et al., 1991). All of the symptoms of burnout mentioned are threats to the achievement of basic psychological needs for self-determination. The framework for burnout measurement tools are generally an adaptation of Smith’s Cognitive-Affective Model of Athletic Burnout (1982), which contains four elements: situational, cognitive-appraisal, behavioral, and physiological components that describe the experience of an individual athlete over an extended period of time. For the purpose of this study, an adaptation of the Athlete Burnout Questionnaire (Raedeke & Smith, 2001) was utilized to recall athletes’ past sport participation. Questions on the ABQ reflect perceptions of youth sport experiences that include a reduced sense of accomplishment, emotional and physical exhaustion, and devaluation of sport. These three types of youth sport experiences diminish enjoyment and are linked to decreased participation in sport.

Limle and Russel (2013) examined the relationship between (a) young adults’ sporting and physical activity patterns and (b) perceptions of their youth sport experiences. The study consisted of 153 participants with various backgrounds in sport. There were 71 males and 82 females in the study with an average age of 19.8 years who completed the Physical Activity Enjoyment Scale. Outcomes revealed that exercise habits and activity enjoyment levels were not

significantly related to participants playing a single sport. Results indicated a significant relationship between specialization status and continued sport participation, those who specialized in a single sport as youth athletes were less likely to participate in sport in young adulthood.

Russell and Symonds (2015) examined the recollections of former youth athletes to study if their youth sport motivation and motivational climate differed based on whether they specialized in one sport or sampled from a variety of sports. The study drew on perceptions of undergraduates. The undergraduates completed a paper-and-pencil survey that consisted of questions about past and current exercise habits and sport participation and their youth sport motivations. Results showed that the self-reported specializers were less likely to participate in sports as young adults compared to non-specializers, although exercise patterns did not significantly differ between groups. No significant differences were reported on the youth sport motivations or the perceptions of motivational climate between those who specialized in one sport and those who did not.

What is evident in the current literature is that youth sport specialization has the potential to foment conditions that undermine long-term sport participation, and carry higher risks for athlete burnout than those who do not specialize. In relation to Self-Determination Theory, it would seem that the likelihood of reported athlete burnout would negatively correlate with the degree to which competence, autonomy, competence, and relatedness are supported in sport by coaches, parents and teammates of former youth athletes. Linking athlete burnout to support for basic needs can potentially offer understanding to the sample's current sport participation patterns. To explore these relationships, Basic Needs Satisfaction (BNS), Motivation Type

(MT), and the Athlete Burnout Questionnaire (ABQ) were measurement tools utilized to learn more about both paths of youth sport participation.

Methods

Sampling

Data were collected via online survey utilizing a cross-sectional study. The study used a convenience sample from an electronic survey of entry level recreation and kinesiology classes at East Carolina University (ECU) within the Recreation and Leisure Studies Department (RCLS) and the Kinesiology Department, and also utilized undergraduate and graduate class lists available to the researcher's mentor, who was an instructor in RCLS at ECU. Participants were excluded from the study if they did not participate in youth sports. The study was reviewed and approved by the ECU Institutional Review Board in May 2017 (see Appendix B).

Links to electronic surveys with instructions were distributed by course instructors. Participation in the study was completely voluntary. Informed consent procedures called for summary of study objectives, risks and benefits, and how the data were to be used. Participants provided consent to the study by proceeding to the electronic questionnaire. Hyperlinks to the questionnaire were distributed to undergraduate and graduate level courses online and on-campus in June 2017 for two weeks with no follow up from instructors. Data analysis occurred at the end of June and into early July.

Measures

The study utilized an online questionnaire as the basis for the survey of university students. Ryan and Deci's (2000) Self-Determination Theory is the base framework in the creation of the scales utilized. The scales implemented on the survey were: Basic Needs Satisfaction questionnaire (BNS), Motivation Type (MT), Athlete Burnout Questionnaire (ABQ). Information related to past sports participation, current sports and exercise participation and

demographic information (i.e., age, gender, and race) were also collected. Completion of the survey took less than 10 minutes. A copy of the questionnaire can be found in Appendix A.

For the purpose of recollection, all measurement tools reflected the past tense to allow for recall. To determine if participants were Specializers or multi-sport athletes, an explicit description of sport specialization was provided:

“YOUTH SPORT refers to organized sports programs for children prior to high school. YOUTH SPORT SPECIALIZATION is defined as youth athletes limiting their athletic participation to one sport which is practiced, trained for, and completed throughout the year.”

Participants were asked if they fit the definition of sport Specializer. Answering yes to this question identified the participant as a sport Specializer; while answering no to this question indicates that the participant was a multi-sport athlete. Each type of athlete was given a chance to identify the sport or sports in which they participated. A list of common youth sports was generated by the researcher and reviewed by the thesis committee.

Current level of participation in sport was measured by a three-item categorical variable that classified participants as competitive, recreational or a nonparticipant in previous youth sports. Current sport and exercise participation utilized three items that measured current sport participation, aerobic exercise, and resistance training on an 8-point scale to reflect the possible participation days per week (0-7).

The Basic Needs Satisfaction measures were taken from previous instruments utilized by Ntoumanis (2001), McAuley, Duncan, and Tammen (1989), and Moody (2013) to measure the degree to which participants perceived support for autonomy, competence, and relatedness in

youth sport. The 8-item questionnaire has three items for autonomy support, three items for relatedness, and two items measuring support for competence. Basic Needs Satisfaction item scoring was calculated by the average of each need subscale, measured on a 5-point Likert scale starting at 1=Strongly Agree to 5=Strongly Disagree. Past studies produced adequate reliability with Cronbach's α scores ranging between .68-.98 (Goudas, Biddle, & Fox, 1994; Moody, 2013; Ntoumanis, 2001) for measures of support for autonomy, competence and relatedness.

The Motivation Types measurement tool (Goudas et al, 1994; Ntoumanis, 2001) is a 16-item questionnaire designed to assess four states of motivation subscales: (a) intrinsic motivation, (b) identified regulation, (c) external motivation, and (d) amotivation. The present study uses only the subscales measuring intrinsic motivation and identified regulation, as these subscales reflect internalized forms of motivation, which was of interest to Hypothesis 2. The intrinsic motivation scale for this study had three items, while the identified regulation scale had four items. Responses to all items on the questionnaire were measured on a 5-point Likert scale ranging from 1= Strongly Agree to 5= Strongly Disagree. The scoring for motivation types was calculated by the average of each of set of items used to measure the motivation type. Past studies produced adequate reliability with Cronbach's alpha scores ranging between .63-.92 (Goudas et al, 1994; Moody, 2013; Ntoumanis, 2001) for measures internalized motivation.

Athlete burnout was measured using the 15-item Athlete Burnout Questionnaire (ABQ; Raedeke & Smith, 2001). This questionnaire included three subscales: (a) emotional/physical exhaustion, b) devaluation, and (c) reduced sense of accomplishment. Participants responded using a 5-point rating Likert scale ranging from 1= almost never to 5= almost always. Previous studies produced adequate reliability with Cronbach's alpha scores ranging from .77-.89

(Raedeke & Smith, 2001). All three scales have been used in multiple studies suggesting reliability and validity.

Analysis of Data

Data were entered into a database using the Statistical Package for the Social Sciences (SPSS v. 23). Data analysis proceeded first with descriptive analyses for out of range and missing data, and also to review the range and skewness or kurtosis of responses to specific items and tests of normality for all scales. Following this review, data were compiled into appropriate scales for hypothesis testing. Inferential analyses were specific to each hypothesis and are described below.

Hypotheses 1 through 3 compared sport Specializers and multi-sport participants on their perceptions of support for basic needs in youth sport (Hypothesis 1), their perception of intrinsic motivation during youth sports (Hypothesis 2), and their perceptions of athlete burnout during youth sports (Hypothesis 3). These three hypotheses examined differences in the needs supportive climate, motivation during sport, and burnout between these two groups of athletes. Hypothesis 4 was analyzed using a chi-square test to determine if there was an association between specialization status and athletics participation type in adulthood (e.g., competitive sport participant, recreation sport participant, or no longer a sport participant). Hypothesis 5 compared levels of sport and exercise participation by days per week based on specialization status.

Results

This section presents the study results with respect to the study hypotheses, which examined how supports for basic psychological needs (i.e., autonomy, competence, and relatedness), type of motivation, and level of reported athlete burnout were related to the performance of physical activity behaviors among former youth athletes in young adulthood. Results are divided into five sections: (a) profile of respondents, (b) summary statistics for scaled scores, (c) comparisons among study variables, (d) results of hypothesis testing, and (e) additional analyses.

Profile of Respondents

The sample consisted of 109 students, which was approximately 17% of the total number of students available for sampling ($N=654$). The study collected demographic information on gender, race/ethnicity, and age. As shown in Table 1, female 68% and male 32%, respondents compared reasonably to ECU's student population, which is female 58% and male 42%. The racial and ethnic background of the sample representation of students was approximately 7% African American/Black, 12% Asian/ Pacific Islander, 88% Caucasian/White, 1.0% Hispanic/Latino, and 2% other respondents. The respondents identified as "Other" for ethnicity consisted of students who reported bi- or multi-racial status. The sample is a less diverse representation of the East Carolina University Population, which is 17 % African American/ black, 3% Asian/ Pacific Islander, 68% Caucasian/ white, 6% Hispanic/Latino, and 6% other. With respect to the age variable, 29% ranged from 19 to 21 ($n=30$), 31% were from 22 to 26 ($n=32$), and close to 40.0% were from 27 and 34 ($n=42$). The study included graduate and undergraduate students with average age of 25.03 ($SD = 4.39$), which is older than the average

age of 22 of the East Carolina University population. A summary of respondents' characteristics is presented in Table 1.

Table 1

Characteristics of Respondents

Category	Sample (N)	%	Valid %
<u>Gender</u>			
Female	70	64.3	68.0
Male	33	30.3	32.0
Missing	6	5.5	-
Total	109	-	100.0
 <u>Racial/Ethnic Background</u>			
African American/ Black	7	6.4	6.8
Asian/Pacific Islander	2	1.8	1.9
Caucasian/ White	91	83.5	88.3
Hispanic/Latino	1	.9	1.0
Other	2	1.8	1.9
Total	103	94.5	100.0
 <u>Age ($M = 25.03, SD = 4.39$)</u>			
19-21	30	27.5	29.1
22-26	32	29.3	31.1
27-34	41	37.7	39.8
Total	103	94.5	100.0

Table 2 shows that more than half of the valid sample (55.3%) identified themselves as multi-sport athletes in youth sport, while the remainder of the sample reported to specialize in a single youth sport (44.7%). The average age at which youth sport Specializers in this sample reported to begin specialization was 8.67 years of age ($SD = 3.15$).

Table 2

Sport Specialization Status and Age Sport Specialization Began

Category	Sample (N)	%	Valid %
Specialized in Youth Sport	46	42.2	44.7
Multi-Sport Youth Athlete	57	52.3	55.3
Completed Total	103	94.5	100
Missing	6	5.5	-
Total	109	100	-
<u>Mean Age Sport Specialization Began (SD)</u>	8.67 (3.15)		

Table 3 presents participation data for sport Specializers and provides an understanding of which sports were most often specialized. The majority of sport Specializers ($n=46$) indicated playing soccer (34.8%), softball (21.7%), and volleyball (10.9%). The remaining 32.6% participated in baseball, basketball, field hockey, football, swimming, cross country, gymnastics, lacrosse and track.

Table 3

Type of Sports Specializer Played as Youth

Category	<i>n</i>	%
Soccer	16	34.8
Softball	10	21.7
Volleyball	5	10.9
Baseball	3	6.5
Basketball	2	4.3
Field Hockey	2	4.3
Football	2	4.3
Swimming	2	4.3
Cross Country	1	2.2
Gymnastics	1	2.2
Lacrosse	1	2.2
Track	1	2.2

Table 4 presents participation data for multi-sport athletes. Multi-sport youth athletes reported participating most in basketball (77.4%), soccer (77.4%), baseball (40.4%), track (38.6%), and volleyball (24.6%). Other sports reported by multi-sport participants were swimming, gymnastics, softball, cross country, tennis, football, field hockey, golf, lacrosse, ultimate frisbee, wrestling, equestrian, karate, and diving.

Table 4

Type of Sports Multi-Sport Participants Played as Youth (n=57)

Category	<i>n</i>	%
Basketball	41	77.4
Soccer	41	77.4
Baseball	23	40.4
Track	22	38.6
Volleyball	14	24.6
Swimming	13	22.8
Gymnastics	12	21.1
Softball	12	21.1
Cross Country	11	19.3
Tennis	10	17.5
Football	9	15.8
Field Hockey	3	5.3
Golf	3	5.3
Lacrosse	3	5.3
Ultimate Frisbee	3	5.3
Wrestling	3	5.3
Equestrian	2	3.5
Karate	2	3.5
Diving	1	1.8

Descriptive Statistics for Study Variables

All study measures were tested for internal consistency using Cronbach's α . Scales were deemed adequate for statistical analysis when Cronbach's α scores met or exceeded .60 or higher for scales with six items or fewer as directed by Cortina (1993). Table 5 reports the descriptive scale and reliability statistics for the basic needs satisfaction scales. All three basic needs subscales were adequate for statistical testing with Cronbach's Alpha scores ranging

between .67-.92. Mean scale scores can be interpreted using a 7-point Likert scale ranging from 1 (Strongly Agree) to 7 (Strongly Disagree).

Table 5

Basic Needs Satisfaction Scale Reliability (N=99)

	<i>M</i>	<i>SD</i>	<i>α</i> if item deleted
<u>Perceived Competence ($\alpha=.92$)</u>			
I think I was pretty good at youth sport (PC)	6.68	1.58	-
I was pretty skilled at youth sport (PC)	6.67	1.57	-
<u>Autonomy Support ($\alpha=.67$)</u>			
I had my say in what youth sports I played (AS)	7.05	1.43	.60
I could decide what sports I wanted to play (AS)	7.19	1.11	.62
I could decide how much I wanted to practice on my own in youth sport (AS)	5.61	2.01	.63
<u>Relatedness ($\alpha=.92$)</u>			
Playing Youth sport made me feel closer to other kids my age (R)	6.77	1.35	.90
The youth sports I did in my free time made me feel more connected to other kids my age (R)	6.73	1.35	.81
When I participated in youth sport, I felt closer to other teammates (R)	6.77	1.37	.91

Table 6 reports the descriptive scale and reliability statistics for the measures of motivation. Both intrinsic motivation ($\alpha=.92$) and internal regulation ($\alpha=.76$) were acceptable for analysis. Mean scale scores can be interpreted using a 7-point Likert scale ranging from 1 (Strongly Agree) to 7 (Strongly Disagree).

Table 6

Motivation Type Scale Reliability (N=99)

Item- I took part in youth sport...	<i>M</i>	<i>SD</i>	α if item deleted
<u>Intrinsic Motivation ($\alpha=.92$)</u>			
Because youth sport was fun	7.15	1.12	.85
Because youth sport is exciting	7.09	1.15	.88
Because I wanted to	7.31	1.06	.91
<u>Internal Regulation ($\alpha=.76$)</u>			
Because it was important for me to be good at youth sport	5.59	1.94	.74
Because I wanted to improve in youth sport	6.50	1.71	.62
Because playing youth sport kept me fit	5.73	1.97	.71
Because I enjoyed learning new skills through youth sport	6.66	1.32	.71

Table 7 reports the descriptive scale and reliability statistics for the Burnout Scale ($\alpha=.84$) and its three subscales, which include reduced sense of accomplishment ($\alpha=.89$), emotional and physical exhaustion ($\alpha=.89$), and devaluation of sport ($\alpha=.70$). Results indicate acceptable reliability for the total scale and its subscales. Mean scale scores can be interpreted using a 5-point Likert scale ranging from 1 (Strongly Agree) to 5 (Strongly Disagree).

Table 7

Athlete Burnout Questionnaire Scale Reliability (N=99)

Item	Mean	SD	α if item deleted
<u>Reduced Sense of Accomplishment ($\alpha=.89$)</u>			
I accomplished many worthwhile things in youth sport*	2.21	1.09	.79
I did not achieve much in youth sports	2.16	1.23	.71
I did not perform up to my ability in youth sport	3.00	1.56	.66
No matter what I did in youth sport, I did not perform as well as I should have	2.52	1.37	.72
I felt successful in youth sport*	2.30	1.18	.69
<u>Emotional and Physical Exhaustion ($\alpha=.89$)</u>			
I felt so tired from the training in youth sport that I did not find the energy to do other things	2.94	1.44	.88
I felt overly tired from the youth sport participation	2.64	1.36	.85
When I played youth sports, I felt “wiped out” from participation	2.52	1.48	.88
When I played youth sports I felt physically exhausted from the sport	2.73	1.48	.86
I was exhausted by the physical and mental demands of youth sport	2.75	1.57	.84
<u>Devaluation of Sport ($\alpha=.70$)</u>			
The effort I spent in youth sport would have been better used in another activity	2.46	1.14	.72
I do not care as much about sport as when I first started playing youth sports	4.52	1.66	.60
Because of my experience in youth sport, I am not as interested in sport as I used to be	3.03	1.86	.56
Over time in youth sports, I felt less concerned about being successful in the sport(s)	4.24	1.70	
I have negative feelings towards youth sport	2.09	1.10	.74
Overall Burnout Scale ($\alpha=.84$)	42.10	12.03	

*item was reverse coded

Hypothesis Testing

Prior to hypothesis testing, the lead researcher performed tests of normality on all study variables. Scales measuring Basic Need Satisfaction, and Motivation type which served as dependent variables in hypotheses one and two respectively, did not meet the assumptions of a normal distribution. Therefore, Mann-Whitney U tests were utilized in place of independent samples *t*-tests. Normality tests on the burnout scale and its subscales confirmed that data from these measures were appropriate for parametric testing.

Table 8 tested Hypothesis 1 which posited that those who specialized in sport would report lower perceptions of support for basic needs when compared to multi-sport participants. Mann Whitney U tests were performed to test for differences between the two groups. Results do not support this hypothesis. There were no significant differences between Specializers and multi-sport athletes for the basic need measures autonomy support and relatedness. Interestingly, there was a significant difference between the two athlete types on support for competence. Contrary to the hypothesis, sport Specializers reported higher perceptions of support for competence when compared to multi-sport athletes ($U = 837.00, z = -2.73, p = .006$).

Table 8

Comparing Support for Basic Needs between Specializers and Multi-Sport Athletes (N=99)

	Sport Specializer <i>M (SD)</i> (<i>n</i> =43)	Multi-Sport <i>M (SD)</i> (<i>n</i> =56)	<i>U</i>	<i>z</i>	<i>p</i>
Autonomy Support	5.82 (.95)	5.79 (.82)	1130.50	-.52	n.s.
Support for Relatedness	6.06 (.86)	5.93 (.96)	1108.00	-.69	n.s.
Support for Competence	6.28 (.69)	5.60 (1.37)	837.00	-2.73	.006

Hypothesis 2 put forward that those who specialized in sport would report lower perceptions of internalized motivation during youth sport participation when compared to multi-sport participants. Mann Whitney U tests were performed to test for differences between the two groups. Results do not support Hypothesis 2. There were no significant differences between Specializers and multi-sport athletes on the intrinsic motivation scale. In opposition to the hypothesis, sport Specializers reported higher perceptions of identified regulation when compared to multi-sport athletes (*Mann Whitney U* = 899.00, *Z* = -2.01, *p* = .045).

Table 9

Comparing Support for Motivation between Specializers and Multi-Sport Athletes (N=99)

	Sport Specializer <i>M (SD)</i> (<i>n</i> =43)	Multi-Sport <i>M (SD)</i> (<i>n</i> =56)	<i>U</i>	<i>z</i>	<i>p</i>
Intrinsic Motivation Scale	6.31 (.77)	6.31 (.80)	994.00	-1.53	n.s.
Identified Regulation Scale	5.56 (1.19)	5.48 (.89)	899.00	-2.01	.045

Hypothesis 3 stated that those who specialize in sport would report higher perceptions of athlete burnout when compared to multi-sport participants. Results in Table 10 do not support Hypothesis 3 on three of the four measures of burnout. Using independent samples *t*-tests to compare differences between the two sport participant groups, there were no significant differences between Specializers and multi-sport athletes on the (a) emotional and physical exhaustion subscale, (b) the devaluation of sport subscale, or (c) the overall burnout scale. However, multi-sport athletes (*M* = 2.12, *SD* = 0.73) reported higher levels of reduced sense of accomplishment when compared to Specializers (*M* = 2.69, *SD* = 0.99), *t*(97) = -3.17, *p* = .002).

Table 10

Comparing Burnout Types between Specializers and Multi-Sport Athletes (N=99)

Burnout Subscales	Sport Specializer	Multi-Sport	<i>t</i>	<i>df</i>	<i>p</i>
	<i>M (SD)</i> (<i>n</i> =43)	<i>M (SD)</i> (<i>n</i> =56)			
Reduced sense of accomplishment	2.12 (0.73)	2.69 (0.99)	-3.17	97	<.01
Emotional and physical exhaustion	2.74 (1.25)	2.69 (1.20)	-.80	97	n.s.
Devaluation of sport	3.24 (1.19)	3.29 (.89)	-.27	97	n.s.
Overall Burnout Scale	2.70 (0.85)	2.89 (0.76)	-1.19	97	n.s.

Hypothesis 4 tested the notion that sport Specializers would be less likely to currently participate in sport and exercise when compared to multi-sport participants. The chi-square analysis found no association between athlete status and current sport and exercise participation ($\chi^2=.60$, $df=2$, $p=.742$). Thus, there was no support for this hypothesis (Table 11).

Table 11

*Comparing Participation in Sports as Adults between Specializers and Multi-Sport Athletes**

	I am currently a competitive sport participant	I am currently a recreational sport participant	I currently do not participate in sport	Total
Sport Specializer <i>n</i> (%)	4 (9.5%)	19 (45.2%)	19 (45.2%)	42 (100%)
Multi-Sport <i>n</i> (%)	6 (10.7%)	21 (37.5%)	29 (51.8%)	56 (100%)
Total	10 (10.2)	40 (40.8)	48 (49.0%)	98 (100%)

* $\chi^2=.60$, $df=2$, $p=.742$

Table 12 reports the results of Hypothesis 5, which proposed that sport Specializers would report lower levels of sport and exercise participation when compared to multi-sport participants. This measure of sport and exercise used number of days per week that respondents reported doing past sports, other sports, aerobics and resistance training. Independent *t*-tests demonstrated no significant mean differences in days per week spent in each activity between the two groups. Therefore, there was no support for Hypothesis 5.

Table 12

Comparing Current Sport Participation Levels between Specializers and Multi-Sport Athletes (N=99)

	Sport Specializer <i>M (SD)</i> (<i>n</i> =43)	Multi- Sport <i>M (SD)</i> (<i>n</i> =56)	<i>t</i>	<i>df</i>	<i>p</i>
Days/Week Still Playing Sport	2.23 (1.63)	1.84 (1.33)	1.32	97	n.s.
Days/Week Playing Other Sport	2.10 (1.57)	2.04 (1.48)	.19	97	n.s.
Days/Week Aerobics	3.74 (1.75)	3.86 (1.79)	- .33	97	n.s.
Days/Week Resistance	3.10 (1.82)	3.11 (1.81)	- .03	97	n.s.

Secondary Analyses

Aims of this study were to examine how experiences in sport differed for sport Specializers and multi-sport athletes, and if these two groups differed in terms of their overall sports and exercise participation into adulthood. The analysis of results did not support hypotheses. Despite findings, questions remained about the relationships between sport participation, burnout and the needs supportive climate for this sample. Secondary analyses were conducted to understand if other sports participation variables could explain possible reasons for the observed results on the burnout, needs supportive climate scales and motivation scales.

The first analysis examined the relationship between burnout and the type of sport experience for athletes. Type of sport experience in youth sport included participation in a recreational team, middle school team, travel team, junior varsity team, and varsity team. An

initial correlation analysis was performed to see if these types of sport experiences were related to burnout. Only playing travel sports was negatively correlated with a reduced sense of accomplishment scale. To understand this relationship better, an independent samples *t*-test was performed to test differences between those who participated on travel teams and those who did not participate on travel teams in sports. The *t*-test on Table 13 confirms that there was a significant mean difference between these two groups ($t(90) = -2.57, p = .01$). This analysis suggests that travel team sporting environments for this sample were linked to higher levels of a sense of accomplishment, which could have possibly reduced the likelihood of athlete burnout.

Table 13

Comparing Participation/Non-participation in Travel Teams on Measures of Burnout (N=99)

	Travel team <i>M (SD)</i> (<i>n</i> =71)	No Travel <i>M (SD)</i> (<i>n</i> =21)	<i>t</i>	<i>df</i>	<i>p</i>
Reduced sense of accomplishment	2.30 (0.94)	2.88 (0.89)	-2.57	90	.01
Emotional and physical exhaustion	2.74 (1.24)	2.40 (0.99)	.12	90	n.s.
Devaluation of sport	3.26 (1.14)	3.39 (0.75)	-.08	90	n.s.
Overall Burnout	2.77 (0.84)	2.89 (0.67)	-.05	90	n.s.

Of particular interest to this study is why athletes stop participating in sports. As discussed earlier, burnout is one significant reason for why athletes dropout of sports. A second series of independent samples *t*-tests examined differences on the athlete burnout scale and subscales between those who still participate in their past youth sports and those who stopped participating in sports. The results point to higher levels of overall burnout ($t(90) = -2.78, p = .006$)

and devaluation of sport ($t(90) = -4.28, p < .001$) for those who stopped participating when compared with those who continued with sports.

Table 14

Comparing Participation/Non-participation in Current Sport on Measures of Burnout (N=99)

	Still participates <i>M (SD)</i> (<i>n</i> =50)	Stopped participation <i>M (SD)</i> (<i>n</i> =48)	<i>t</i>	<i>df</i>	<i>p</i>
Reduced sense of accomplishment	2.27 (0.82)	2.60 (1.00)	-1.77	96	n.s.
Emotional and physical exhaustion	2.62 (1.14)	2.82 (1.30)	-.80	96	n.s.
Devaluation of sport	2.86 (0.90)	3.67 (0.99)	-4.28	96	<.001
Overall Burnout	2.58 (0.67)	3.03 (0.87)	-2.78	96	.006

Also mentioned in the literature review was the connection between needs supportive climate and burnout. As the needs supportive climate variables were not normally distributed, correlations were interpreted using Spearman's rho. Significant negative correlations ($p = .05$) between overall athlete burnout and supports for autonomy, relatedness and competence and reduced sense of accomplishment were observed. Reduced sense of accomplishment was the only burnout subscale that had a relationship to all of the needs supportive climate variables, and these were all significant at $p = .01$ or lower. The association between the two variables means that those who reported lower support for needs supportive climate variables were also more likely to report higher levels of a reduced sense of accomplishment.

Table 15

Basic Need Satisfaction correlated with Burnout Measures (N=99)

	Reduced Sense of Accomplishment Spearman's ρ	Overall Athlete Burnout Spearman's ρ
Autonomy Support	-.40**	-.22*
Support for Competence	-.39**	-.25 *
Support for Relatedness	-.54**	-.22*

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

Within the post-analysis, none of the variables reviewed explained differences or relationships with motivation type beyond those observed in hypothesis testing.

Conclusions and Discussion

This study set out to discover more about the long-term developmental implications of participating in youth sport. The study utilized Self-Determination Theory as a guiding framework, while comparing sport specialization to multi-sport participation on needs supportive climate, motivation in sport, burnout, and current sport and exercise participation. Youth sports have long been an essential part of American culture and play a monumental role on the development of communities and the individuals within. As recreation and park professionals, it is important to the discipline to dedicate quality research to youth sports, as these outlets have the potential to benefit physical, social and psychological developmental opportunities.

This study tested these hypotheses:

-1) Those who specialize in sport will report lower perceptions of support for basic needs when compared to multi-sport participants. This hypothesis was not supported, and partially counter to what was expected for one of the three basic needs. When examining competence, it was counter to the hypothesis, as multi-sport participants were lower than Specializers in their perceptions for competence support.

-2) Those who specialize in sport will report lower perceptions of internalized motivation during youth sport participation when compared to multi-sport participants. This hypothesis was not supported, and partially counter to what was expected for identified regulation, which was one of two motivation types tested. Multi-sport participants had lower mean scores for identified regulation than Specializers.

-3) Those who specialize in sport will report higher perceptions of athlete burnout when compared to multi-sport participants. This hypothesis was not supported, and partially counter to

what was expected for the reduced sense of accomplishment subscale, which was one of four areas tested. Multi-sport participants reported higher mean ratings for reduced sense of accomplishment when compared to Specializers.

-4) Sport Specializers will be less likely to participate in sport and exercise when compared to multi-sport participants categorically as competitive participants, recreational participants and non-participant. This hypothesis was not supported.

-5) Sport Specializers will report lower levels of sport and exercise participation in days per week when compared to multi-sport participants. This hypothesis was not supported.

For the first three hypotheses, no significant differences were found measuring the basic needs scale (BNS), motivation type (MT), and the athletes burnout questionnaire (ABQ) when comparing those who specialized in youth sport and those who participated in multiple sports. This study was guided by multiple sport specialization studies in an effort to examine this unique combination of processes and outcomes in youth sports. Results for tests on basic needs and motivation type suggested no significant differences between groups; however, the literature has traditionally associated youth sport specialization with higher risk levels of athlete burnout (Elbe et al, 2011; Jayanthi 2015; Yapar et al, 2014).

The first three hypotheses for this study were built on past studies which express concern for sport specialization and burnout. It linked the SDT literature to demonstrate a path to burnout. Past studies show that Specializers are more likely to have experiences where practices and experiences in sport are controlled and subject to high pressure. These contextual variables weaken needs supportive climates, and further, self-determined behavior. However, this study found no support for these past findings, and in some cases, contradicted them.

When we consider athlete burnout regardless of sport participation path (specialized/not specialized), the literature shows that athletes who experienced burnout were significantly more likely than their non-burnout counterparts to report lower support for basic needs and intrinsic motivation. Analyses following hypotheses testing for this study suggests a path of burnout in youth sport participation that is linked to lack of support for basic needs and heightened experiences with a reduced sense of accomplishment. SDT states that support for competence, autonomy support, and support for relatedness are necessary for sustained internalized intrinsic motivation (Deci & Ryan, 1991, 2002). These additional analyses are supplemental to the story this study tells. The negative correlation of basic needs to the reduced sense of accomplishment and overall athlete burnout points to the detrimental consequences of athlete burnout.

Investigating why people still play sports into adulthood is at the center of this study, and secondary analyses were conducted to see if those who continued playing their chosen sport differed from their counterparts who no longer participate based on study measures. This participation variable combined those who still play their youth sports competitively or recreationally to those who do not. Additional analyses continued to reveal a significant relationship between former youth athletes who no longer participated in any form of sport and overall athlete burnout and devaluation of sport. These relationships indicate the detrimental role that athlete burnout can potentially play on young athletes. Continued sport participation contributes to physical, psychological, and social wellbeing of participants in young adulthood, and experiencing youth athlete burnout is a key factor for the discontinuation of participation in sport. However, contrary to hypotheses, experiencing athlete burnout did not differ based on specialization status. Rather, burnout was linked to poor needs supportive climates.

Hypothesis four and five were formulated based on the results of studies by Limle and Russell (2013) and Russell and Symonds (2015) in which sport Specializers were compared to non-Specializers to determine physical activity and participation in young adulthood. Results from both studies suggested that those who specialized in sport during their youth sporting careers were significantly less likely to participate in any form of sport as young adults. Results from this study did not reveal any significant difference between groups' specializations status and current sport participation patterns. An explanation these results could be credited to the growing trend of specialization becoming a societal norm over time.

Over the past 20 years, the popularity of youth sport specialization has risen. The absence of significant differences between groups may be an indication that those who chose to specialize in youth sport had adequate support networks and followed proper training guidelines. These observations are consistent with Smucny et al. (2015) who reported the growing trend of more young athletes choosing to specialize in youth sport. Multiple studies (Baker et al., 2009; Elbe et al., 2011; Gould & Carson, 2004) revealed the main reason for specialization was to reach the most elite levels of sport; this despite various researchers (Hill 1993; White & Oatman, 2009) demonstrating that the sporting paths of athletes who reached elite levels more often than not were realized by those who did not specialize in sport as youth. This study points to possibly a different direction where specialized opportunities offer a means to experience success at a high level that feeds into a heightened sense of accomplishment. This might explain why youth sport Specializers and non-Specializers differ with respect to feeling a reduced sense of accomplishment, when we consider that sport Specializers were more likely to play a travel sport (88.3%) when compared to non-Specializers (62.2%).

While the hypotheses for this study were not supported, some concerns still exist with specialization in this sample. The age at which the sample reported to begin specialization was 8.67 years of age. The young age of 8.67 years was reported by Specializer from the sample despite consistent recommendations to initiate specialization in late adolescence. Elbe, Hauge, and Wikman (2011) conducted a study comparing elite athletes and near-elite athletes and found that near-elite athletes accumulated significantly more hours of training between the ages of 9 and 15, while the elite athletes did not complete more training hours than their counterparts until after the age of 18. Citing this study, further research on the nature of training and practices of youth sport Specializers is needed.

The types of sports in which the sample reported participating were noted to better understand the youth sporting experiences of the study sample. Recording the different levels of sporting competition and training that the sample competed in as youth plus their current participation patterns provided additional information to examine. Findings from this study differ from past literature that suggests differences between sport Specializers and multi-sport participants, whereby the latter exhibits greater sport participation. Results from this study contribute validity to the processes of athlete burnout, the negative effects noted in this study are a common theme in current literature. Where high levels of athlete burnout were present in this study there were negative correlations to basic needs for motivation and continued sport participation.

Limitations and Recommendations for Future Study

This study had number of limitations that could influence what was observed. First, the study used a convenience sample. Convenience sampling can easily lead to the over-representation or the under-representation of particular groups within the sample. Compounding

this type of method was how the sample was recruited. Class instructors sent out the recruitment e-mail only once over the study period with no reminder or follow up. Another issue with the sample recruitment was related to its occurrence during the summer session. Summer session classes are not commonly taken by ECU students, which further calls into question how representative this sample was of the general student population.

This study surveyed young adults and their current sport and exercise habits, along with their participation levels in youth sport to provide data for comparing the long-term effects of participation in youth sport. This type of recall is a limitation of the study. Retrospective studies are limited because they rely on recollections of athletes, sometimes even years after participation. Many athletes can recall their training habits and many aspects of their youth sport experience long after participation; it seems likely that participation and training activities play such a pivotal role in athletes' lives that accurate data numbers can be recalled (Elbe et al., 2011).

The nature of data collection is also a limitation to this study. Cross-sectional research does not reflect dynamic processes such as those that influence motivation and burnout. To counter this limitation, it is suggested that future studies occur with youth athletes over time to observe how the reciprocal processes that occur between player, teammates, opposing players, coaches, officials, and other adults affect dynamic psychological states such as motivation.

Further studies with larger more diverse samples should be conducted to provide additional data to the different developmental outcomes of participation in youth sport specialization and youth multi-sport participation. Other variables to consider in future studies that can potentially impact basic needs, motivation, and athlete burnout are the win/loss records of athletes and how much emphasis is placed on winning versus skill development and

teamwork. Both paths of youth sport participation have the potential for beneficial outcomes in youth participants' physical, psychological, and social development. The possibility of the developmental gains from both types of participation outweighs not participating in youth sport; however, mindful practice and training guidelines should be followed for each path. Studies on the organization, structure of practices, and training habits of youth athletes should be conducted to provide insight into youth athletes' sport experiences to more accurately determine if and when a young athlete may experience symptoms of athlete burnout.

Practical Implications

Côté, Lidor, and Hackfort (2009) suggested three assets (positive identity, support, and empowerment) that are essential focal points for sport programmers to consider. These focal points increase enjoyment levels and reduce the symptoms of burnout. Multi-sport participation has implications for enduring sport participation, does not deter elite sport participation, and allows for involvement in a range of settings that favorably affect positive youth development (Côté et al., 2009). This current study contributes to idea that there are beneficial long-term developmental outcomes and foundations for continued participation into young adulthood from both paths of youth sport participation, so long as athlete burnout is minimized.

Siegenthaler and Gonzalez (1997) agree that participation in youth sport is traditionally viewed as positive leisure involvement due to contribution to character development, belongingness, socialization, and a healthy lifestyle. Specialization in a single sport can be viewed as serious leisure, which requires committed and sustained involvement. Stebbins' (2001) six qualities of serious leisure include the following: personal effort, perseverance, career, subculture, identification, and long-lasting benefits. Youth who participate in sport as serious leisure can experience positive benefits when the youth decide to specialize rather than being

pressured by coaches or parents toward serious specialization. Proper training guidelines should be set by the athlete and their support network to reduce risks for those who choose to specialize in youth sport (Nyland, 2014).

Noteworthy results from this sample indicate that high levels of reported reduced sense of accomplishment were present when there were detrimental needs supportive climates present. This speaks to the role of the social context that fosters sport participation. Parents and coaches of youth athletes should strive to foster youth sporting environments that offer some level of autonomy to athletes, as well as create opportunities for competence and relatedness through participation. These steps have to be taken by the administrators, directors, coaches, officials, and parents to develop self-determined athletes who thrive in contexts that minimize the possibility of athlete burnout.

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Section II: Extended Literature Review

Developmental Implications of Youth Sport Participation on Physical Activity and Sport Participation in Young Adulthood:

Sport Specialization versus Multi-Sport Participation

Extended Literature Review

According to the 2014 United States Census Bureau there were approximately 50 million citizens/minors between the ages of six and eighteen living in the United States, nearly half of whom (23 million) participated in some form of sport (Coakley, 2015). The purpose of organized youth sport varies depending upon the sponsor (e.g., public, non-profit, private). The general consensus is that youth sport participation in some way contributes to social development, general awareness of fitness and health, self-esteem, skill development, and enjoyment (Coakley, 2015). Youth sports are generally considered positive leisure involvement, although there are areas of participation that could improve of youth sport experiences.

According to Smucny, Parikh, and Pandya (2015), a growing trend in youth sport has been the transition from recreational values to organized deliberate activities in which a participant's success is measured by the attainment of the title of elite status. This trend has led to higher rates of specialization in a single sport accompanied with intensive training (Smucny et al., 2015). Hill and Simons (1989) defined "sport specialization is defined as students limiting participation to one sport which is practiced, trained-for and/or competed in on a year-round basis" (p. 1). Over the past 20 years, emphasis has shifted from youth-driven recreational sport activities to coach and parent-driven specific skill development with an emphasis placed on achieving high levels of accomplishment in a single sport (Feeley, Agel, & LaPrade, 2015).

According to Côté, Lidor, and Hackfort (2009), sampling multiple sports during childhood is based on two main elements involvement in variation in sporting activities and

participation in deliberate play. High amounts of deliberate play builds a solid foundation of intrinsic motivation through participating in several actions that are enjoyable and promote intrinsic regulation. Deliberate play establishes a wide range of motor skills and cognitive experiences that benefits both young athletes who specialize and those who sample different sports. Youth athletes who specialize in a single sport are required to participate in more deliberate practice at the expense of deliberate play.

Research of young adult's sport participation patterns has shown results that the degree of specialization in youth sport negatively effects continued participation in young adulthood (Limle & Russell, 2013; Symonds, 2015). Researchers have examined specialization and diversification and have begun to offer explanations of the developmental outcomes of both of the proposed paths of sport participation. The research findings can be used to provide guidelines for ways to optimize enjoyment and safety for the most beneficial experiences regardless of how many sports a young athlete plays.

Developmental Factors of Youth Sport Specialization and Diversification

Both specialization and diversification in sport participation offer various developmental outcomes, outcomes are specific to the path of participation chosen. Hecimovich (2004) conducted research on youth sport participation accessing the Mayo Clinic Library database, Index Medicus, and MANTIS. Hecimovich concluded that specialization in a single sport has become an increasingly popular trend in the United States. Perceived reasons for specialization include the following: improving specific skills, gain competitive edge over competition, reaching the status of elite, possibility of scholarships, and hopes of reaching professional levels. These unlikely benefits of reaching elite levels should be weighed versus the potentially dangerous sociological, health, and psychological risks.

Baker, Cobley, and Fraser-Thomas (2009) support that the reasoning for specialization in sport is to develop expertise and reach the status of elite. Specialization however can result in a range of negative consequences affecting social, physical, and psychological development. Burnout and even withdrawal from sport all together through dropout are also potential consequences of specialization. An alternative to early sport specialization is diversification. Research indicates that playing multiple sports does not put athletes at a disadvantage pursuing expertise. Intrinsic motivation and skill transferability are positively developed through diversification in sport.

Côté, Deakin, and Strachan (2009) compared the experiences and outcomes of youth sport Specializers with youth sport samplers. Participants were 74 youth athletes between the ages of 12 and 16 who were split into samples of 40 Specializers and 34 samplers. Specializers were recruited from four different sports: artistic gymnastics, swimming, rhythmic gymnastics, and diving. Samplers were identified by participation in at least three sports, recruited from various sport programs in the Manitoba and Ontario areas. Results indicated that the number of hours spent in training or practice were significantly higher by the Specializers, consequently recording higher levels of emotional and physical exhaustion. No significant differences were shown in enjoyment levels. The authors' study indicates that healthy positive development in youth athletes is possible under the specialization framework, although there are inherent risks that can be detrimental to youth development and sport participation.

Limle and Russel (2013) examined the relationship between (a) young adults' sporting and physical activity patterns and (b) perceptions of their youth sport experiences. The study consisted of 153 participants with various backgrounds in sport. There were 71 males and 82 females in the study with an average age of 19.8 years who completed the Physical Activity

Enjoyment Scale. Outcomes revealed that exercise habits and activity enjoyment levels were not related to participants playing a single sport. Results indicated that those who specialized in a single sport as youth athletes were less likely to participate in sport later in life.

Hill and Simons (1989) conducted a study via questionnaire to provide insight into the causes and effects of high school sport specialization. The questionnaire was completed by 152 high school athletic directors in Illinois. The questionnaire focused on the following five focal points of the athletic director's perceptions: specialization trends, factors that contribute to specialization, effects of specialization, coaches' impact on specialization, and school policies regarding specialization. The athletic directors perceived that the sport specialization trend had noticeably increased over the past decade and predicted that it would continue to grow. The results from the questionnaire revealed the athletic directors' perceptions were that parental influence and the athletes own drive for the possibility of a collegiate scholarship increases specialization levels in high school sport. The authors concluded that the athletic directors perceive sport specialization at the high school level to be contrary to the basic purpose of high school sport. Athletic directors advocated that school policies as well as coaches should promote multi-sport participation throughout their athletic programs.

White and Oatman (2009) studied whether specialization in youth sport led to an athletic career at the collegiate level and the long-term effects of children specializing in sports. The authors conducted their research utilizing a descriptive survey that consisted of general demographic questions followed by specialization questions aimed at the participants' perceptions and involvement in specialization. The sample consisted of 71 participants from a mid-western university who were collegiate athletes in field hockey or football, (77% male; 23% female). The athletes averaged 13 years of competition in their perspective sport, starting on

average at the age of seven and a half years old. Results from the survey revealed that the participants on average played four different sports prior to high school, and 66% played at least three sports during high school. Nearly half of the sample began to specialize at 17 years old. Only 15 % specialized at the age of ten or younger. Results from the sample indicated that in high school the majority of athletes who earned collegiate athletic scholarships did not specialize.

Hill (1993) conducted a study to determine if professional baseball players specialized in baseball as youth, examining the influence of their coaches and parents on their baseball careers. Data were collected via a questionnaire with a sample of 152 baseball players averaging 21 years of age from six teams within the Northwest Rookie League. The survey consisted of four parts: biographical data, high school participation, advice given by high school coaches, and players' recommendations for aspiring baseball players. The majority of the players were multi-sport athletes at the high school level. Specialization in a specific baseball position often did not occur until reaching the professional level. The baseball players on average played three different positions in high school, while playing just one on average in the professional league. Players agreed with the advice provided by their high school coaches that training for baseball should be year round, although playing other sports was encouraged by 68.1% of players' high school coaches. Results indicated that in high school athletics: 68.7% of participants played basketball, 59.3% played football, 16% participated in track and field, 8.7% wrestled, and 7.3% played soccer. This study provided evidence to support that it is beneficial for young athletes to engage in a diverse set of sporting activities. A majority of the sample, 87%, believed that playing multiple sports was beneficial to their professional athletic success.

Gould and Carson (2004) argued specialization and the pursuit of professionalism in youth sport does not optimize the development of Olympic champions, and that it disadvantages the majority of young athletes who will not reach elite status. A multi-sport approach to youth sport participation makes sport enjoyable, encourages youth to be physically active, and also provide the skills and support necessary to progress to elite levels of sport. While specialization does not appear to have a direct correlation to a collegiate or professional career in sport, it can carry significant risks.

Risks of Specialization

Often the notion of sport specialization leading to scholarships is pursued naive of the possible risks associated. Nyland (2014) stated that the body of a young athlete grows stronger and performs at its best when appropriate activities and training loads are followed by adequate amounts of mental and physical rest. It is important that young athletes, parents, and coaches understand the risks of sport specialization and the true value of developing a specific sport skill set during childhood and adolescence. Common risks associated with specialization are early injury, burnout, and lack of coping-skill development.

Rotella (1991) explained burnout in youth sport as a result of chronic stress induced between people and their environment which has physical, psychological, and emotional components. Henschen (1986) defined burnout as “a state of mental, emotional, and physical exhaustion brought on by persistent devotion to a goal, the achievement of which is dramatically opposed to reality” (p. 327). Burnout should not be confused with dropout. While athletes who experience burnout may withdraw from participation, not all who dropout of sport experience the symptoms of burnout. Burnout is a condition that generally has gradual onset of any combination of the following symptoms: exhaustion, confidence loss, performance decrease,

anger, internalization of failures, lack of energy, sleeplessness, tension, disillusionment with sport, irritability, headaches or other physical ailments, and withdrawal from sport. The framework for burnout measurement tools are generally an adaptation of Smith's Cognitive-Affective Model of Athletic Burnout (1982), which contains four elements: situational, cognitive-appraisal, behavioral, and physiological components that describe the experience of an individual athlete over an extended period of time.

Harris and Watson (2011) examined the psychological properties of burnout, athletic identity, and motivation in a sample of youth athletes. The self-determination theory and unidimensional identity model were used as the central focal point of the assessments. The sample included 88 swimmers between the ages of seven and twelve years old (49 females and 39 males). The average swimmers participation was three and a half days per week, averaging two hours of practice each session. The authors defined burnout for this study as a multidimensional phenomenon consisting of emotional and physical exhaustion, a reduced sense of sport accomplishment, and a devaluation of the particular sport. The parents of the participants completed demographic surveys, while the participants completed the following surveys: Athletes Burnout Questionnaire, Sport Motivation Scale, and Athletic Identity Measurement Scale, all of which were modified for youth sport. Results indicated a significant relationship between burnout and reduced accomplishment. The scales modified for youth sport participants provided preliminary psychometric support for the accurate measurement of youth athlete burnout, motivation, and athletic identity.

Yapar and Levent-Ince (2014) conducted a study to compare the experiences, enjoyment, and burnout levels between youth basketball players (N=276) in specialization (n=143) and recreational (n=133) settings. The framework utilized in the study was the Developmental

Model of Sport Participation, which states that youth participate in organized sport for competitive performance or for recreation. The authors collected data via the Youth Experiences in Sport Scale, Sources of Enjoyment in Youth Sport Questionnaire, and Athlete Burnout Questionnaire. Results indicated that the specialization players' Athletes Burnout Questionnaire scores were significantly higher than the recreational players. There was no significant variation between groups' Youth Experiences in Sport Scale scores. The lack of variation of scores between the two groups Youth Experiences in Sport Scale indicated positive youth sport experiences in both categories, most noteworthy when there were high levels of enjoyment and low levels of burnout present.

Ferguson and Stern (2014) conducted a case study to examine the potential risks and benefits of early sport specialization. The case study focused on one 16 year old elite level baseball pitcher who participated in early sport specialization, engaging in high volume intense training which lead to multiple significant throwing related injuries. The athlete grew up in the Dominican Republic and began playing baseball year round at the age of five, playing or practicing two to three times per week. The pitcher at age 16 was referred to a chiropractor due to various ailments including his right shoulder, right elbow, left hip, and lower back pain. The injuries impaired the pitcher's performance and lead to significant time away from throwing a ball, indicating overuse. The purpose of specialization in sport is to generally reach the next level of competition, but such success is rare as only 6% of high school pitchers will make it to play at the collegiate level. Youth baseball pitchers are at higher levels of risk of an overuse injury. For instance 50% of youth pitchers will report shoulder or elbow pain during a season, and 5-8% will suffer injuries significant enough to end their pitching careers. The authors suggested that if an athlete is participating in early sport specialization that parents, coaches, and

trainers should set realistic goals and follow the proper guidelines to minimize risk factors.

Results suggested that in order for an athlete to be successful in sport specialization the correct time to specialize and training guidelines to follow are imperative and should be athlete and sport specific.

Russell and Symonds (2015) examined the recollections of former youth athletes to study if their youth sport motivation and motivational climate differed based on whether they specialized in one sport. The study included the perceptions of undergraduates (N=226) averaging 19.55 years of age. The undergraduates completed a paper-and-pencil survey that consisted of questions about past and current exercise habits and sport participation and their youth sport motivations. Results showed that the self-reported Specializers were less likely to participate in sports as young adults compared to non-Specializers, although exercise patterns did not significantly differ between groups. No significant differences were reported on the youth sport motivations or the perceptions of motivational climate between those who specialized in one sport and those who did not.

Launay (2015) concluded that overuse injuries in youth athletes, formally named osteochondrosis, can be accredited to increased intensity of training for sport activities. The most common are Server's disease and Osgood-Schlatter disease. Treatment involves temporary suspension of any athletic activities paired with physical therapy. Surgery may be required for more serious cases or if conservative treatment fails. An athlete experiencing pain in youth sport should not be considered normal, and is an early sign of overtraining. To prevent these overuse injuries Launay proposed analyzing and correcting problems with sports equipment, training intensity, and premature specialization.

Jayanthi (2015) conducted a case-control study to determine whether sport specialization, volume of weekly training, and athlete's growth rate were associated with higher risk for injury and severe overuse injury in young athletes. Participants were youth athletes (N=1,190); (50.7% male; 49.3% female) between the ages of seven and eighteen years. Injured athletes were selected from two hospital-based sports medicine clinics compared to the control group of athletes who were recruited from affiliated clinics conducting sports physicals, all of which filled out surveys. The surveys reported information on the following: general demographic information, hours spent in organized sport, physical education class, free play, and degree of sport specialization. Results indicated that athletes whose ratio of time in organized sport to free play time was greater than 2:1 hours per week had increased odds of a having a serious overuse injury. The authors concluded that athletes who specialized in a single sport were at a higher risk of injury, overuse injury, and serious overuse injury independent of age or training volume compared to athletes who did not specialize in one sport.

Elbe, Hauge, and Wikman (2011) investigated whether young athletes need to specialize early to reach elite status or follow the path of sport diversification. Data were collected via a survey of elite athletes (n=148) and near-elite athletes (n=95) with an average age of 24.5 years. The Denmark sample group consisted of athletes of sports measured by centimeters, grams, and seconds (cgs); elite were categorized as top ten finishers at the world level or as medalist at the European level. Results revealed that the elite athletes who specialized later in life had significantly fewer training hours as a child and significantly fewer characteristics of burnout. In comparison to the near-elite athletes, elite athletes trained for a specific sport later in adolescence. Outcomes demonstrated there was no direct correlation to success in sports and participation in multiple sports. The conclusion can be made that intensified training and

specialization are more effective for elite success during late adolescence, as the near-elite athletes results showed more practice hours at a younger age.

Conclusion

Beneficial developmental outcomes of sport participation in both specialization and diversification are possible. There are more developmental benefits associated with participation in a diverse sporting experiences than specialization in a single sport. Additionally, more risks are linked with specialization in a single sport, than participation in a variety of sports. Multiple studies (Baker et al., 2009; Elbe et al., 2011; Gould & Carson, 2004) revealed the main reason for specialization is to reach the most elite levels of sport, while various researchers (Hill 1993; White & Oatman, 2009) have demonstrated that the sporting paths of athletes who reached elites levels more often than not did not specialize in their sport.

Côté, Lidor, and Hackfort (2009) suggested three assets (positive identity, support, and empowerment) are essential focal points that sport programmers should consider to increase enjoyment levels and reduce the symptoms of burnout. Diversification, or sampling multiple sports, is linked to a longer sport career and has implications for enduring sport participation, does not deter elite sport participation, and allows for involvement in range of settings that most favorably affects positive youth development (Côté et al., 2009).

Siegenthaler and Gonzalez (1997) agree that participation in youth sport traditionally is viewed as positive leisure involvement due to contribution to character development, belongingness, socialization, and a healthy lifestyle. Specialization in a single sport can be viewed as serious leisure, which requires committed and sustained involvement. Stebbins' six qualities of serious leisure include the following: personal effort, perseverance, career,

subculture, identification, and long-lasting benefits. Youth who participate in sport as serious leisure can have positive implications when the youth decide to specialize rather than being pressured by coaches or parents toward serious specialization.

Further studies should be conducted to provide additional evidence to the different developmental outcomes of participation in youth sport specialization and diversification. Studies on the organization, structure of practices, and training habits of specialization should be conducted to provide insight into the experiences of specialized athletes. Surveys of young adults and their current sport and exercise habits, along with their participation levels in youth sport can provide data for comparing the long-term effects of participation in youth sport. Retrospective studies are limited because they rely on recollections of athletes, sometimes even years after participation. Many athletes can recall their training habits and many aspects of their youth sport participation; it seems likely that participation and training activities play such a pivotal role in athletes' lives that accurate data numbers can be recalled (Elbe et al., 2011).

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Appendix: A: Questionnaire

Youth Sport Research Survey

The purpose of this survey is to examine experiences of former youth sport athletes.

For the purpose of this survey:

YOUTH SPORT refers to organized sports programs for children prior to high school. YOUTH SPORT SPECIALIZATION is defined as youth athletes limiting their athletic participation to one sport which is practiced, trained for, and completed throughout the year.

Directions: Please take a few minutes to complete the survey. Your answers will remain confidential and there are no wrong answers. Give the response that best describes your youth sport experience.

Demographics:

Age: _____ Gender: (Male) ____ (Female) ____

Racial Background: ____ African-American/ Black ____ Asian/ Pacific Islander ____ Caucasian/ White ____ Hispanic ____ Native American ____ Other (_____)

1. According to the definition of YOUTH SPORT SPECIALIZATION at the top of this page, did you specialize in one sport as a youth athlete? (check one)

Yes: ____ No: ____

(if you answered “Yes”, indicate what sport you specialized in: drop down box: baseball, basketball, cross country, equestrian, field hockey, football, gymnastics, hockey, karate, lacrosse, soccer, softball, swimming, tennis, track, wrestling, volleyball, other)

If you answered “YES” to #1, please indicate the age when specialization began: _____

(if you answered “No”, please indicate each sport you played as a young athlete: drop down box)

2. Which of the current statements BEST describes your CURRENT participation in the sport(s) you participated in as a youth athlete? (Check one)

____ I am currently a competitive participant with the sport(s) I participated in as a youth athlete

____ I am currently a recreational participant within the sport(s) I participated in as a youth athlete

____ I currently DO NOT participate within the sport(s) I participated in as a youth athlete.
(Explain reason below)

3. If you currently participate within sport(s), please check your frequency of involvement:
Days per week: 0 1 2 3 4 5 6 7

4. How often do you currently participate in some form of aerobic exercise for personal fitness?

Days per week: 0 1 2 3 4 5 6 7

5. How often do you currently participate in some form of resistance training (i.e. lifting weights) for personal fitness?

Days per week: 0 1 2 3 4 5 6 7

6. Did you participate on a:

- (a) recreational team
- (b) middle school team
- (c) travel team
- (d) junior varsity team
- (e) varsity team?

Basic Needs Satisfaction (BNS) Coding: (AS=Autonomy Support, PC= Perceived Competence, R= Relatedness)

Complete the sentence with each statement and select the answer best fits you (Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree)

1. I think I was pretty good at youth sport (PC)
2. I was pretty skilled at youth sport (PC)
3. I had my say in what youth sports I did (AS)
4. Playing youth sport made me feel closer to other kids my age (R)
5. I could decide what sports I wanted to do in my free time (AS)
6. The youth sports I did in my free time made me feel more connected to other kids my age (R)
7. I could decide what activities I wanted to practice in youth sport (AS)
8. When I participated in youth sport, I felt closer to other teammates (R)

Motivation Types (MT) Coding (IM= Intrinsic Motivation, IR= Internally Regulated)

Complete the sentence with each statement and select the answer best fits you (Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree)

I took part in youth sport...

1. Because youth sport was fun (IM)
2. Because of the enjoyment I felt when playing youth sport (IM)
3. Because youth sport is exciting (IM)
4. Because playing youth sport made me feel good (IM)
5. Because it was important for me to be good at youth sport (IR)
6. Because I wanted to improve in youth sport (IR)
7. Because playing youth sport kept me fit (IR)
8. Because I enjoyed learning new skills through youth sport (IR)

Athlete Burnout Questionnaire (ABQ) coding (RSA=Reduced Sense of Accomplishment, EPE= Emotional and Physical Exhaustion, DS= Devaluation of Sport)

Complete the sentence with each statement and select the answer best fits you

(Strongly Agree, Agree, Not Sure, Disagree, Strongly Disagree)

1. I accomplished many worthwhile things in youth sport (RSA)
2. I felt so tired from the training in youth sports that I could not find the energy to do other things (EPE)
3. The effort I spent in youth sports would have been better used in another activity (DS)
4. I felt overly tired from my youth sport participation (EPE)
5. I did not achieve much in youth sports (RSA)
6. I do not care as much about sports as when I first started playing youth sports (DS)
7. I did not perform up to my ability in youth sport (RSA)
8. When I played youth sports, I felt “wiped out” from participation (EPE)
9. Because of my experience in youth sports, I am not as interested in sport as I used to be (DS)
10. When I played youth sports, I felt physically exhausted from the sport (EPE)
11. Over time in youth sports, I felt less concerned about being successful in the sports (DS)
12. I was exhausted by the physical and mental demands of youth sport ((EPE)
13. No matter what I did in youth sport, I did not perform as well as I should have (RSA)
14. I felt successful in youth sport (RSA)
15. I have negative feelings towards youth sports (DS)

Appendix B: IRB Approval



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

Notification of Exempt Certification

From: Social/Behavioral IRB
To: [Fletcher Flournoy](#)
CC: [Clifton Watts](#)
Date: 5/25/2017
[UMCIRB 17-000943](#)
Re: Developmental Implications of Youth Sport Participation on Physical Activity and Sport Participation in Young Adulthood

I am pleased to inform you that your research submission has been certified as exempt on 5/25/2017. 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 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

Study.PI Name:
Study.Co-Investigators: