**The Effects of Participating in Athletics on the Academic Success of High School Juniors**

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## Abstract

The primary purpose of this study is to examine the impact of athletic participation on academic achievement among high school juniors. More specifically, the study was designed to examine the impact of athletic participation on a student's GPA and ACT scores. Another purpose of the study was to examine the extent, if any, of the difference in GPA and ACT scores between male and female athletes. The research design for this study was quantitative. The sample was 332 high school juniors from District J in the school years 2015-2016, 2016-2017, and 2017-2018.

High school juniors were identified for the purpose of this study. As part of this quantitative study, data were collected to analyze the participation, ACT scores and GPAs over three years. A variety of sources were used to collect the necessary data for this study including data from Tyler Student Information System which identified gender, ACT score and GPA, and MSHSAA participation rosters which identified student participation in sports. Four research questions and four hypotheses regarding athletic participation, gender, ACT scores and GPAs were analyzed using an independent samples *t* test.

Results of the hypothesis testing indicated a statistically significant difference in GPAs between athletes and non-athletes with the athletes having a statistically significant higher GPA, however there was no statistically significant difference in ACT scores between athletes and non-athletes. In addition, a statistically significant difference was found between male and female athletes in both ACT scores and GPAs with the female athletes having a statistically significant higher ACT score and GPA than male athletes.

## Dedication

This dissertation is dedicated to the people in my life that have taught me the work ethic and the drive necessary to achieve any goal. My parents, Perry and Lisa Parkhurst, who have worked hard their entire lives to set an example and who always put their children first and foremost in everything. To my grandparents, Carl and Gladys Parkhurst who have always supported me in all aspects of my life. Also, to grandparents Gerald and Mary Wood whose memories spent together I will always cherish. Finally, to my sister Marlena Parkhurst who has passed, but whose impact will never be lost. It is an honor to complete this dissertation in their dedication, as without them I would not be the husband, father or man I am today.

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## Table of Contents

# Chapter 1

## Introduction

Athletics have become an essential and important part of American society and culture (Macri, 2012). American sports fans have 24-hour coverage of almost every sports event and updates of scores (Burgess, 2007). This allows fans to follow sports by reading about or watching games 24 hours a day seven days a week. Gehring (2004) found that media coverage for sports is no longer tied only to college and professional sports; he found an increase in the media coverage for high school sports. High school athletics are becoming a business and when schools focus on the business aspect of sports, that can affect the academic achievement of high school student athletes (Gehring, 2004). High school athletics are becoming more popular due to media coverage and television programs such as QB1.

Studies have shown that there are many positive characteristics and outcomes related to high school athletic participation. Whitley (1996) concluded that athletes performed better than non-athletes in five key areas: GPA, attendance, discipline, dropout rate, and graduation rate. In addition to positive academic outcomes, Chen (2018) revealed that athletes learn time management skills that are essential in life and academic success. In the topic of high school sports and the impact on student achievement, both sides of this issue are passionate about their opinion. This study will analyze both sides of the topic that need to be considered by schools in regard to their sports programs.

Additional studies have disagreed showing that high school athletes have been perceived to be less prepared, less motivated, and less intelligent than the general student population (Horton, 2009). Traditionally, athletes have a unique stereotype and

according to this stereotype, the athletically involved student is less engaged in school and therefore less competent academically (Diekfuss, 2012). McMillen (1991) identified that high school athletics have a negative impact on the achievement of students who participate in athletics by revealing a discrepancy between athletic success and academic achievement.

**Background**

District J is a rural school district located in mid-Missouri that served 1,170 students during the 2016-2017 school year. The primary town in District J has a population of fewer than 3,000. In addition, the district is one of the top five largest in the state of Missouri with square miles. This large catchment area leads to a sizeable student population, but creates greater distances for students and parents to travel to school and extra-curricular events.

District J has one high school (grades 9-12), one middle school (grades 6-8) and one elementary school (PreK-5). According to the Department of Elementary and Secondary Education (DESE) District Report Card, District J reported 50.7% male students and 49.3% female students. District J also reported 92.9% White, 2.6% Multi-Race, 2.7% Hispanic, 0.9% African American, and 0.5% Asian. District J reported that 39.5% of their population was economically disadvantaged and were eligible for free and reduced lunches.

Using the DESE state and district report card, the academic and graduation data for District J was compared to the state. The following data was used in this study. The state graduation rate for the senior class of 2017 was 88.95% as compared to District J at

96.04%. District J had an average composite ACT score of 19.60 and the state had an average composite score of 20.20.

District J offered 10 varsity sports programs that included, football, volleyball, cross country, softball, boys' basketball, girls' basketball, wrestling, baseball, boys' track, and girls' track. Softball was the only sport at District J that involved selecting the best athletes to be on the sports team. In addition to the varsity level, each program offered a junior varsity level while C/Freshman teams were also possible based on the number of participating students.

District J high school coaches average over 15 years of coaching experience and many coaches are originally from District J or have worked in the district over 10 years. There is strong community support for athletics in District J with many community members volunteering their time to coach youth sports for the community. This creates a community-wide tradition of support for athletics, which is reflected in the sizable attendance at sporting events.

**Statement of the Problem**

Many school districts around the nation are working to find ways to increase student achievement, raise ACT scores, and improve graduation rates among the entire student body. There is a large volume of research supporting both positive and negative impacts of athletic participation. For example, many researchers have found that participation in athletics has a positive impact on student academics (Fleming, 2015; Heil, 2013; Lumpkin & Favor, 2012; Whitley, 1996). Other researchers have found a negative impact or no impact on student academics (Ganim, 2014; Miles, 2015; Oswald, 2006). However, the majority of these studies focus on larger suburban schools

(Fleming, 2015; Heil, 2013; Lumpkin & Favor, 2012; Whitley, 1996; Miles, 2015). Few studies examine smaller, rural, and agricultural school districts where there is a large economic gap among students and families. No previous research has been conducted at District J on the academic impact of participating in athletics and for that reason this study will be limited to District J. This study will examine the academic impact that athletics has on students in the environment associated with District J.

**Purpose of the Study**

The primary purpose of this study is to examine the impact of athletic participation on academic achievement among high school juniors. More specifically, the study was designed to examine the impact of athletic participation on a student's GPA and ACT scores. Another purpose of the study was to examine the extent, if any, of the difference in GPA and ACT scores between male and female athletes.

**Significance of the Study**

A study of athletic participation on academic performance is important for multiple reasons. The research from this study will provide schools with data on how students who participate in athletics compare in academic performance to students who do not participate in athletics. This study may be significant because it gives schools a better understanding of the impact of athletics and can help us better design future athletic programs that serve our students. The research may allow for school districts to evaluate the importance of athletics during times of financial difficulty. The research might also allow school districts to investigate the impact of athletics on student achievement in their individual districts. The research may assist educational leaders when evaluating athletic programs.

## Delimitations

Luennenburg and Irby (2008) stated, "Delimitations are self-imposed boundaries set by the researcher on the purpose and scope of the study" (p. 134). Delimitations allow for a narrowed view of the research. There are four delimitations in this study:

1. The location of the study is a rural school district in mid-Missouri.
2. The population studied is that of three consecutive high school junior classes.
3. Only data from the 2015-2017 school years were utilized in this study.
4. Only GPA and ACT scores were examined in the study.

## Assumptions

According to Lunnenburg and Irby (2008) assumptions are postulates, premises, and propositions that are accepted for the purposes of research. The researcher of this study used the following assumptions while conducting this study:

1. The data from District J was accurate and reliable in reference to student achievement.
2. All district athletic participation numbers were accurate.
3. All ACT data reported by District J was complete and accurate.

## Research Questions

Research questions are meant to define and guide the direction of a study (Lunnenburg & Irby, 2008). The following research questions guided this study:

**RQ1.** Is there a difference in the GPA of high school juniors who participated in athletics and those who did not participate in athletics?

**RQ2.** Is there a difference in the ACT score performance of high school juniors who participated in athletics and those who did not participate in athletics?

**RQ3.** Is there a difference in GPAs between males and females of high school juniors who participated in athletics?

**RQ4.** Is there a difference in ACT scores between males and females of high school juniors who participated in athletics?

**Definition of Terms**

An accurate interpretation of this study's purpose and findings, terms specific to this research have been defined. The terms, based on literature are provided for this purpose:

**Academic Achievement –** the student performance in each educational subject area and the grade provided for interpreting the student's performance (National Center for Educational Statistics, 2011).

**Achievement gap –** the result of a sub-group of students (race, gender) outperforming another group in an educational setting (National Center for Educational Statistics, 2017).

**Adolescent –** the period of 13 years of age to 18 years of age (Allen, 2019).

**American College Testing (ACT) –** A standardized test that measures a high school student's skill in five core areas: English, math, reading, science and writing. The ACT scores are used as a high school benchmark and scores are submitted to colleges for the application process (ACT, 2007).

**Dropout rate –** the percentage of students in grades 10-12 who leave high school without earning a high school diploma or alternative credentials (National Center for Educational Statistics, 2011)

**Grade point average (GPA) –** the student's average grade based on a 4.0 scale. The GPA result is calculated by dividing the total amount of grade points earned by the amount of credits attempted (National Center for Educational Statistics, 2011)

**High school student athlete –** a student in high school grades 9-12 who participate in a school-sponsored sports program (Missouri State High School Activities Association, 2017).

**Self–Efficacy –** A person's belief about one's ability to execute successfully a behavior needed to reach a certain outcome (Bandura, 2010).

**Sports participation –** refers to a student who participates in at least one organized athletic program (Stephens & Schaben, 2002).

## Organization of the Study

Chapter 1 provided an introduction to the study, the problem statement, and background information on high school athletics and student achievement. Also included were the significance, purpose statement, delimitations, assumptions and definition of terms. Chapter 2 provides the review of literature including research on high school athletics, student achievement, student athletes, college athletic transition, and time involved for high school athletes. Chapter 3 provides the research design, population, sample, instrumentation, validity, reliability, data, hypothesis testing and limitations related to this study. Chapter 4 is a summary and interpretation of the data results and the data's relationship to literature. Chapter 5 also provides a summary of the recommendations for future studies.

# Chapter 2

## Review of Literature

In order for students to learn at a high-level, school districts work to ensure that there are goals for learning, high quality educators, and that schools are safe. When schools offer students the opportunity to be involved in athletics with multiple options of sports, this can create a strong sense of connection to the school and community (Crutcher, 2018). The review of literature for this study begins with the history of high school sports and presents the impact of physical exercise on student achievement, perception of athletes, ACT scores, grade point averages, attendance, discipline and the time involved in athletics. The purpose of this chapter is to review research related to athletic participation and its effect on student achievement.

### History of High School Sports

The beginning of high school sports was initiated upon the start of the mandatory-schooling movement in 1852. The first state to make schooling required by law was Massachusetts and the final state to require schooling was Mississippi in 1917. Through mandatory schooling, families, and students experienced a culture change and this impacted how students spent their time and how they utilized that time (Friedman, 2013). This cultural shift primarily impacted the structure of student life and family priorities. Hilary Friedman, a writer for *The Atlantic* wrote, "Compulsory education brought leisure time into focus; since 'school time' was delineated as obligatory, 'free time' could now be identified as well." It is the free time that created the opportunity to begin an interest in athletics for children, primarily in urban centers such as Boston and New York City, where overcrowding in tenements had poor immigrant boys on the streets. Originally this

issue had a focus on parks, but adults did not trust the boys to be unsupervised and thus shifted the focus to organized sports (Friedman, 2013).

It was during this time that sports began to take on a likeness of the American values such as teamwork, hard work, and respect of authority. This ideal was promoted in the early 1900's by progressive reformers that believed sports could prepare students for the "new industrial society" that was becoming prominent (Friedman, 2013). By 1910, close to 20 other cities in the U.S. had their own competitive sports leagues modeled after those in Boston and New York City. These clubs and sports continued to grow through the 1920's as did the number of students participating in high school sports (Friedman, 2013).

According to the National Federation of State High School Associations, in the early 2010's over 7.7 million students participated on a high school sports team. Lower-class children competed in athletic events while upper-class students were involved in non-athletic events such as dancing and music that were normally conducted inside of their home. Tournaments were typically associated with immigrants and lower-class students living in big cities. It was during the mid-1940's that there was a change in athletic involvement where high school athletics became dominated by students from the middle and upper classes (Friedman, 2013). This was due to the end of WWII with the rise in soldiers returning home, having children, and higher paying jobs.

In the 1960s through the1980s, high school parents created what historian Peter Stearns called a "growing competitive frenzy over college admissions as a badge of parental fulfillment" (Stearns, 2003). This included competitive athletics at the college level that impacted the participation in high school sports. In addition, according to

Betsey Stevenson of the University of Pennsylvania, it was Title Nine of the 1972 Educational Amendments that required schools to provide equal access to all school activities including sports. Title IX began to move high school females from activities such as cheerleading and glee club into sports such as basketball, volleyball and softball. Student athletics and activities are adjusted based on the interests and the needs of the students and the demands of their parents,

> Competitive children's activities have certainly evolved since they began in late 19th-century America. Today, there are more activities, a greater number of competitions, and a change in the class backgrounds of competitors. It's thanks to changes in the 20th – century educational system, like compulsory schools, the self-esteem movement, and higher-stakes college admissions. (Friedman, 2013 para. 19)

**Impact of Physical Exercise on Student Achievement**

John Ratey, a Harvard psychiatrist who wrote *Spark: The Revolutionary New Science of Exercise and the Brain*, completed a unique study where he analyzed the scientific correlation between physical exercise and academic achievement. Ratey's research compiled MRI scans of the brains of people who had improved their fitness level and found that there was an increased volume in the frontal and temporal lobes of their brains. The frontal and temporal lobes are associated with cognitive functioning. The universities of Strathclyde and Dundee conducted a study analyzing the exercise of 5,000 children and adolescents and found a correlation between exercise and success in Math, Science, and English assessments. In addition, this study also found activity to be a benefit to females particularly in the area of science (Booth, 2014). A leader on this

study, Dr. Booth from Dundee University said, “Physical activity is more than just important for your physical health. There are other benefits and that is something that should be especially important to parents, policy makers and people involved in education” (Booth, 2014).

The Centers for Disease Control and Prevention (CDC) published a 2010 report that cited 251 connections between participating in physical activity and academic performance. The academic performance represented academic achievement, academic behavior, and cognitive skills (CDC, 2010). According to the CDC report:

> Increased time in physical education appears to have a positive relationship or no relationship with academic achievement. Increased time in physical education does not appear to have a negative relationship with academic achievement. Eleven of the 14 studies found one or more positive associations between school-based physical education and indicators of academic performance, the remaining three studies found no significant associations. (CDC, 2010 p. 29)

There have been conflicting results on the effects of athletic participation on a student-athlete’s academic success according to Adler and Adler. The study from 1985 explained the minimal impact that athletics had on student achievement. Adler and Adler found a small positive relationship, and their studies found that despite the lower high school GPA and other credentials, student athletes have higher graduation rates. Adler and Adler argued that this was likely due to more academic help and special treatment for athletes (Adler & Adler, 1985). Additional studies from Adler and Adler (1985) show a negative relationship between being involved in athletics and academic performance due to student athletes being more focused on advancing their athletic careers. A point of

contention was that each settings' expectations were key factors in differing results. For example, high schools and colleges that have higher requirements for eligibility or participation could impact the achievement levels of those students (Forster, 2012).

Adler and Adler found in their studies that there was a negative impact from athletics in the success of student academics and they found reasons why this impact exists (Forster, 2012). In Adler and Adler's study, students began college with ambitious goals and aspirations, but quickly lost interest due to the time commitment connected to the athletic event (Adler & Adler, 1985). This was due to the fact that the student sports required a large amount of time including, but not limited to practices. Their study indicated that at times athletes blamed their professors and other educational support for the athletes' lack of time. In addition, athletes often changed their majors and many athletes did not remain eligible due to multiple factors including grade deficiencies. Adler and Adler also reported that many athletes switched majors to more manageable majors in hopes that they would be able to get a job with a booster after college (Adler & Adler, 1985).

Researchers from Michigan State University tracked 200 sixth graders for one academic year. During this study, half of the students took a physical education class for the first semester and the other half took a non-physical education course. The research found that students in the physical education class had no better or worse results in their academic classes (Oswald, 2006). However, the research showed that students who participated in organized sports or non-organized activities after school did 10% better in math, science, English, and social studies core classes (Oswald, 2006). Dr. Pivarnik, a Michigan State University professor stated that very few studies have been conducted

that connect activity to measurable academic outcomes that consider all the factors that contributed to what determines a students' grade; a 10 percent increase by the most physically active kids is a large amount. Dr. Coe, the study's lead author stated that his research indicated that the students who perform better academically were the most active (Coe, 2014).

**Perception of Athletes**

Perceptions of athletes have, at times, been very negative and problematic. The "dumb jock" stereotype had created a perception that a student athlete was not a serious student (Beezley, 1985). These perceptions have created a gap between academics and athletics and a perception that stretches over 30 years. At the college level, this perception exists and according to Baucom & Lantz, there was a perceived conflict between academic program integrity and the goals of athletic programs, this perceived conflict creates prejudices towards athletes (Baucom & Lantz, 2000). "It is common for teachers to view athletes as being less intelligent as compared to their non-athlete students and the teachers may have prejudices based on their personal perception that student-athletes receive special benefits due to their involvement" (Baucom & Lantz, 2000, p. 256). This perception was based on the notion that there was a disconnect between the values of integrity and academic excellence in education (Baucom & Lantz, 2000, p. 265). *An Examination of Student – Athletes Perceptions of Their Academic Abilities* by Tiffany Ann White resulted in student athletes indicating that professors were willing to provide academic help because they were athletes and that non-athletic peers have lower academic expectations of athletes (White, 2010).

A 2015 article, *Student Athletes are still Students*, stated that athletes receiving special treatment in schools had been a problem for over 30 years (Keenan, 2015). The article cited a mid-1980's event at the University of Georgia where a female professor was fired because it was found that a student athlete's grade was changed in her class. The football player's grade was changed in her class and she filed a lawsuit claiming that the university had changed the student's grade so that he would be able to play in the game. She argued that "evidence that the academic institution is more concerned with how the student athletes will make more money after their college career, than how well his education is furthered" (Keenan, 2015, p. 2).

John Bradley's study, *School Sport and Academic Achievement,* found that athletes had character traits that lead to motivation such as: reliability, self-discipline, and self-preservation (Bradley, 2012). These studies found that participating in athletics can have a positive effect on a student's self-concept. Self-concept developed from being a part of a sports team was also connected to increased student achievement (Knifsend & Graham, 2012). The character traits developed through athletics that make athletes successful are also traits that can have positive impacts in the classroom also (Kronholz, 2012).

A teacher perception study completed in 2014, reviewed the teacher perceptions of participation in athletics and how that participation affected the athletic and behavioral actions of high school students. The study examined the students' classroom effects, personal traits gained through participation, and academic challenges. The teachers surveyed through 30-minute interviews concluded that all of the participants believed that playing sports in high school was important to the educational environment and

concluded that managing time was the hardest task of a student athlete. In addition, they concluded that student athletes develop positive character traits and leadership/teamwork skills necessary for positive academic progress (Starostka, 2014).

**ACT**

In the 2009 study of Kansas' high school student athletes, Lumpkin and Favor reported that both non-athletes' and athletes' scores in Kansas exceeded the 21.1 national average ACT composite score. This study showed that athletes scored higher on the science and math portions of the ACT than did the non-athletes. However, in reading, non-athletes performed better than athletes (Lumpkin & Favor, 2012).

In a separate study from Heil, Kansas high school student athletes showed a significant difference in ACT scores between athletes and no-athletes. In this study, the non-athletes had a composite score of 21.8 as compared to the athletes' composite score of 22.9 (Heil, 2013). In addition, a study by Troy Lemke completed in 2015 compared Division III undergraduate athletes to undergraduates who were non- athletes. The data in this study showed non-athletes to have a slightly higher ACT average than the athletes. The athletes scored higher in the 19 to 24 scoring range, but the non-athletes tested higher overall (Lemke, 2015).

In 2014, 21 universities responded to a CNN survey reflecting that many incoming freshman athletes were scoring in the single digits on the ACT. In addition, Division 1 team averages for all teams and genders on the ACT reading portion were in the 17 to 19 range (Ganim, 2014). Dr. Southall, the director of the College Sport Research Institute said that it was immoral for a university to admit a student with those results. University officials explained, that many athletes do not focus on getting high

scores on the ACT, but only to score high enough for NCAA eligibility. The officials also stated that low scores on the ACT could be a sign of a learning disability (Ganim, 2014).

Data from the Department of Education examined by Dr. Mark Perry, a professor at University of Michigan's Flint campus, showed how different genders performed on the ACT test. Understanding the difference in ACT data between genders is important for the complete study of athletes. The initial data for the National ACT Test were in 5-year intervals from 1995-2015. In the initial data, high school females scored higher on English over a 20-year span by a 0.80 average and an average of 0.40 on reading. The same data grouping showed that high school male students scored higher on Math by an average of 1.1 points and Science by 0.9 over the same time span. The years of 2011-2015 showed comparable results in the number of students from each gender group, due to the funding for all high school juniors to take the ACT. The data during this time period showed very similar results with the female students scoring higher in English and Reading while the boys scored higher in Math and Science (Perry, 2016).

National data from ACT Research by Buddin in March of 2014 showed that female students averaged slightly lower on the overall ACT score than their male counterparts. The average male composite ACT score was 20.95 while female students averaged a composite score of 20.86. The breakdown showed that male students scored higher than female students in the Math and Science portions of the ACT, based on 1,799,243 students expected to graduate from high school in 2013. Female students scored higher in English and Social Science portions of the test. The research data also states that, "ACT test scores are a point-in-time estimate of academic achievement,

because the ACT excludes items that might create a gender bias, it provides an objective, summative measure of student learning" (Buddin, 2014, para. 4).

Members of The Association for Test Prep, Admissions, and Private Tutoring (TPAPT) used ACT data from graduating classes of 2013 through 2016 to find the results of how male students compared to female students. There were 1,074,049 females and 971,383 males who completed the ACT based on average 2013-2016 scores data. The English scores showed that females scored 0.8 higher than male students. Math scores revealed a male advantage of 0.7 score difference. Reading showed that females scored a 0.6 higher average than males. In Science, male students scored a 0.5 average higher than females. In summary, females scored better in Reading and Language and on average male students scored higher in Math and Science. Results from this study show that the average composite score was identical at 20.9 for both genders (Moore & Pedro & Sanchez, 2018).

**Grade Point Average (GPA)**

In a 2015 study, Fleming analyzed the grade point average (GPA) of student athletes and non-athletes from a suburban school with a graduating class of 393 students. This study found a significant difference between the GPA of athletes vs. non-athletes. In this study, the sample size was 386 total students with 245 non-athletes and 141 student athletes. Results showed that based on GPA data, athletes average GPA was 3.28 and non-athletes was 2.99 (Fleming, 2015).

The academic transition from high school athletics to college athletics can be difficult for many athletes, however some student athletes make the transition without much of a problem (VanLone, 2017). After being accepted to a university, students are

expected to increase their academic rigor and have greater athletic responsibilities while adjusting to a new social climate (Gayles & Baker, 2015). Many times, students report feeling overwhelmed while trying to meet the expectations of being a college-level athlete (Clift & Mower, 2013).

A 2008-2009 study comparing the academic performance of high school athletes and non-athletes in Kansas found that athletes reported having higher GPAs than non-athletes (Lumpkin & Favor, 2012). Lumpkin and Favor (2012) study reveals, 80.5% of athletes reported having a 3.0 GPA or higher compared to only 69.5% of non-athletes who reported the same level of academic performance. This study also had results that noted gender differences with females reporting a 12% higher rate than female non-athletes. Additional information noted that females had higher GPAs than did males.

Dr. Miller from the University at Buffalo conducted a 2005 study of 600 Western New York students titled, *Untangling the Links among Athletic Involvement, Gender, Race, and Adolescent Academic Outcomes*. This study concluded being white, female, or having a higher socioeconomic status had a greater impact on GPA than did the participation in athletics. "However, both measures of athletic involvement interacted significantly with gender with respect to their impact on GPA" (Miller, 2005, p.178). Female athletes attained a higher GPA than non-athlete females and male athletes showed a slightly higher GPA than non-athlete males. The study also examined race specific samples and concluded that African American male athletes reported lower GPAs than African American non-athletes as compared to white athletes who displayed no significant difference in GPA based on athletic participation (Miller, 2005).

Dr. Roger Whitley in partnership with the North Carolina High School Athletic Association (NCHSAA) conducted a three-year academic study titled, *A Comparison of the Educational Performances of Athletes and Non-athletes in 133 North Carolina High Schools.* This study revealed large differences between athletic participation and non-participation. This study incorporated a total of 126,700 high school students and over 133 high schools, which represented 44% of the state high school athletic membership (Whitley, 1996). In addition, five sets of criteria were used to compare athletic participation to non-athletic participation including: GPA, attendance, discipline, dropout rate, and graduation rate for the 1994-1995 school year. Whitley found data in all five areas indicated that the athletes performed better than the non-athletes (Whitley, 1996).

However, there were questions concerning the sample being from only one year and how the students might perform over time (Whitley, 1996). Data were collected over a three-year period including 285,805 students throughout North Carolina high schools. The North Carolina students surveyed in the years of 1993-1994, 1994-1995, and 1995-1996 school years revealed student data and consistency in the performances of both athletes and non-athletes and that athletes were and continued doing better than the non-athletes (Whitley, 1996). A significant finding for students' GPAs was that the average GPA for athletes was 2.86 and the average GPA for non-athletes were 1.96 and over the three-year study, athletes' GPAs ranged from 2.83 to 2.91, while non-athletes averaged 1.84 to 2.03 (Whitley, 1996).

**Graduation Rate/Dropout Rate**

A study done at the University of Kansas by Angela Lumpkin and Rebecca Achen analyzed graduation data from Kansas high school athletes and found that 98% of the

2012 class of athletes graduated compared to that of 90% of non-athletes. This study suggested that athletic participation does increase graduation rates. Athletics can give students motivation to attend classes. Lumpkin (2014) suggested that the teacher or the school must give students a reason to come to school, even if that reason has nothing to do with academics (Lumpkin & Achen, 2014). When students' earn the right to play sports, based on their performance in the classroom, it can be a strong factor in keeping these kids in school (Lumpkin, 2014).

High graduation rates could be explained by lower standards by teachers as some teachers may allow students to pass the class without doing all of the work (Barkhorn, 2014). However, Achen's study used state test data that indicated that athletes score higher on the Kansas state assessments than non-athletes, in all subject areas (Achen, 2014). Dr. Roger Whitley's research from his three-year study in North Carolina revealed that the mean graduation rate for athletes was 99.56% as compared to the non-athletes 94.66%. In addition, research was comparable for dropout rates with athletes having a 12 times lower rate than non-athletes over the three-year study (Whitley, 1996).

Additional studies by Lumpkin and Kansas athletes in 2008 support Whitley's findings (1996) for students in North Carolina as student athletes in Kansas had a graduation rate of 98% compared to non-athletes at 88%. When analyzing gender data, female athletes' graduation percentage were 8% higher than non-athlete females while male athlete's graduation rates were 11% higher than non-athlete males (Lumpkin & Favor, 2012). Lumpkin found that participating in athletics was especially positive for students from ethnic minority backgrounds in relation to graduation rates. Across all ethnic groups, athletes graduated at a higher rate than did non-athletes: African

Americans 18% higher, American Indians 17% higher, and Hispanic 10% higher (Lumpkin & Favor, 2012).

Lumpkin's study also found that non-athletes in Kansas were over 15 times more likely to drop out of school than athletes. This was based on data from the 2008-2009 school year, where 1955 non-athletes dropped out of high school compared to 126 athletes. Gender had many differences as male non-athletes were 12 times more likely to be a high school dropout and female non-athletes were 24 times more likely to drop out than female athletes (Lumpkin & Favor, 2012). In the 2008-2009 school year, only 36 female athletes dropped out of high school in the state of Kansas as compared to the 878 female non-athletes. Dropout rate impacts minority students also, as African American non-athletes were 16 times more likely to drop out of high school and American Indian non-athletes were 19 times more likely to drop out of high school as compared to athletes (Lumpkin & Favor, 2012). There are many factors that impact a student's decision to drop out of high school, however this study indicated that athletic participation can impact a student's persistence to stay in school (Lumpkin & Favor, 2012).

Dr. Stephen Jones wrote about the athletes' dropout rate as a "crisis in the making." Jones focused his study on the African American student athlete population and found that each year more than 50% of African American students drop out of high school and college (Jones, 2008). Jones suggests the college dropout rate is due to a lack of high school preparation and that athletes are accepted to college without the preparation needed to graduate. Many of these students found themselves unable to complete their studies due to the time that athletics required. African American athletes also indicated that their athletic ability was valued more than their intellectual abilities

(Jones, 2008). This becomes an issue in college when student athletes are accepted without the preparation needed to graduate. Although these athletes have graduated from high school, they may be three to four years behind their classmates. Jones says, "This achievement gap is too large even for the tutors that are assigned to students" (Jones, 2008, para. 2).

**Attendance**

Many high school activity associations in America require a minimum school attendance record or other attendance requirements. Students who are late, absent, or have irregular attendance are not typically allowed to participate in games or practices. Many perceive this as a reason that athletes have a higher attendance rate than general students (Gorton, 2010). In North Carolina high schools, Whitley (1996) revealed that the average days missed for non-athletes were significantly higher than that of athletes. Based on a 180-day school year, athletes had an average of 6.52 days missed compared to 12.57 days averaged of non-athletes (Whitley, 1996). Will Okun (2008) argued in his article, *One Class*, that attendance was increased due to students being motivated to participate in something they enjoy. "In my own nine years of teaching, students enrolled in my photography class boast a 90% daily attendance rate while students enrolled in my English classes maintain a daily attendance rate of only 70%" (Okun, 2008, p. 2). McCarthy (2000) studied attendance rates of a large Colorado school district, and found that, of the 19,543 students in the study that the students involved in activities had higher GPA's and lower absenteeism. When male and female students were compared in McCarthy's study, the mean absentee rate for female athletes was a half-day greater than the mean number for male students. The data revealed the impact of ethnicity on

attendance all minorities who participated had significantly fewer days absent than minority non-participants (McCarthy, 2000). Broh's (2002) study revealed that students involved in extracurricular activities, such as sports, have increased attendance and reduced absenteeism.

Underprivileged youth, who are at a higher educational risk, have shown to be positively impacted by extracurricular activities such as sports (NFHS, 2008). These students who were involved in sports were more likely to attend college within three years after high school. These results suggest that when youth who are exposed to a increased level of extracurricular opportunities then their chances of being educationally resilient are increased (Peck et al., 2008).

A 2014 study showed that active participation reduced male absenteeism by 5.2% while female attendance was not influenced based on participation in athletics (Cuffe, Waddell, Bignell, 2014). The impact of participation was strongest with black males with a 12.8% better attendance rate over non-participants and for students in grades 9 and 10 with a 14.6% better attendance rate. When sports in-season were added, the data reflect that participants' absences fall on game days but rise the day after. The attendance increase on game days compared to the decline the day after the game makes the effect of athletic participation zero (Cuffe, Waddell, Bigness, 2014).

Cuffs' research indicated that physical activity itself increases attendance, regardless of the direct impact of an organized sport. As this study has shown, athletic participation lowers absenteeism. In-season athletes had a 7% lower absentee rate than out-of-season athletes (Cuffe, Waddell, Bigness, 2014). When reviewing race, the male data reveals that participation in athletics decreases unexcused absences. This was noted

most among black and Hispanic males who had a 12.8% decline in unexcused absences as compared to out-of-season athletes of the same race (Cuffe, Waddell, Bigness, 2014). Failing to show up for class could results in consequences like running in addition to missed playing time.

**Discipline**

In a North Carolina High School study by Whitley (1996), it was noted that reporting schools had a significant difference in the number of discipline referrals for athletes and non-athletes. Athletes in North Carolina had a 10% lower discipline rate as compared to non-athletes. Fejgin (1994) revealed in her study that high school students who participate in athletics have fewer discipline problems in school and that playing sports may reflect a deeper commitment to school rules and values.

Character aspects stem from participation in athletics such as: honesty, loyalty, and courage that affect better behavior and lower discipline issues (Rees & Miracle, 1986). Rigid rules, structure, practice times, and authority are all variables in sports that can have a positive effect on students who do not have those variables and environment at home. It is in these cases, sports can establish social practices that contribute to a more well rounded student behaviorally (Whitson, 1986). Zaugg (1998) discovered that athletes were tardy less, missed fewer classes, and had fewer discipline issues than non-athletes. In addition, athletes were sent to the office 6% less than non-athletes. Landers and Landers (1978) found that there was a connection between being an athlete and less discipline at school. The study found that 9.6% more of the non-athletes had discipline issues than the athletes. In the Barnes (2007) study, the self-reported "jocks" had significantly more incidents of delinquency as compared to general students. The study's

researchers hypothesized that the athletes felt that they were above the law and that some rules didn't apply to them (Barnes, 2007).

A study by Adlaf (2007) revealed that high levels of activity resulted in an increased male student risk of engaging in delinquent behavior. The researchers from this study theorized that the mental and physical toughness created in athletics manifests negatively outside of high school sports. In addition, the perception of drug use and violence reported by professional athletes has become part of the athletic culture (Adlaf, 2007).

**Time Involved in Athletics**

For high school athletes, practices and games take up a large portion of time leaving a limited amount of time for work, academics, and leisure activities. High school can be stressful and adding athletics to their already heavy work load can elevate the stress while attempting to maintain academic success. It is important that athletes learn time management skills in order to be successful (Chen, 2018). High school athletes report practicing 10-12 hours per week not including time involved on game days (Pashley, 2014). Athletics can also dictate a school district start time. Schools create an earlier start due to the need for practice, daylight hours and travel time for competitions. Many schools start prior to 8:00 a.m., disregarding research that indicates starting school later can improve student performance (Ripley, 2014).

Schultz (2015) studied the academic grades of athletes and the comparison on in-season and out-of-season participation with the intent to determine if the time to participate in athletics takes away from academic efforts. This study showed no significant change between participation in season versus out of season (Schultz, 2015).

The results of this study determined that athletes that are out of season do not have a significant difference in academic achievement.

A study by Reuters Health suggests that one to two hours of playing sports each day is optimal for a student's well-being. The study does not prove that a student's participation in sports improves their well-being, but does provide a correlation (Jegtvig, 2013).

**Summary**

The purposes of the literature review were to create a direction and theory for the focus of the study, as it pertains to athletic participation and student achievement. The review presented the history of high school sports and how the importance of competition at a high level has increased throughout time. The review investigated how physical exercise can have positive and negative effects on a student's achievement and the relation to ACT scores and GPA. In addition, the review identified the effects that athletics have on the perception of student athletes. Attendance and graduation research were reviewed to identify rates that athletes and non-athletes attend school and graduate. Finally, discipline data and time involvement in athletics were reviewed. This literature review analyzed a vast number of factors that involve athletics and achievement for males and females. Chapter 3 presents the methodology used in this study and identifies the population, sampling procedures, measurement, data collection procedures, data analysis, hypothesis testing, and limitations.

# Chapter 3

## Methods

The primary purpose of this study was to examine the differences in GPA and ACT scores between students who participated in athletics and those who did not. Chapter three contains the methodology used within this study. This chapter focuses on the following areas: research design, selection of participants, and measurements. Data collection and data analysis are presented as related to the research questions. The limitations of the study and a summary are also included.

### Research Design

This study was a quantitative study.

> Quantitative research is grounded in the assumption that features of the social environment constitute an objective reality and the dominant methodology for studying these features is to collect numerical data on the observable behavior of samples and subject them to statistical analysis. (Gall, 2005, p. 555)

This study applied a quasi-experimental design, and this specific design was utilized because this method examined the impact athletic participation had on the academic success of high school juniors. The dependent variables in this study were the GPA and ACT scores from the 2015-2016, 2016-2017, and 2017-2018 school years. The independent variables in this study were athletic participation and gender.

### Selection of Participants

The population of this study included all the high school juniors who participated in athletics at District J over a 3-year period. Convenience sampling was used in this quantitative study because of the readily available archival data within the group

sampled. Convenience sampling allowed the researcher in the study, an employee of the district, to collect data and study the junior class of the high school. The junior class at District J was selected for the study due to the familiarity to the researcher, the understanding of the school dynamics, and accessibility of the archival data. The sample consisted of high school juniors from the 2015-2016, 2016-2017, and 2017-2018 school years. The total number of students in this study was 332. Of this sample, 164 were male students and 168 were female students. This 3-year research project studied 137 athletes and 195 non-athletes during their junior years.

**Measurement**

The measurement of each of the variables within the study are described in this section. In addition, the measurement tools are described in detail and the reliability and validity are established.

**Gender.** Gender was identified by a student and their parents, during the enrollment process. Gender was recorded with a "F" for female and a "M" for male.

**Athletics participation**. The term of athletic participation refers to a student who participates in at least one organized athletic program (Stephens & Schaben, 2002). In addition, the athletic program includes any sport endorsed by the MSHSAA (Missouri State High School Activities Association) where the student's name was on the roster to start the season. Athletics participation was recorded with a "Y" for yes, the student was involved in a sport, and a "N" for no, the students was not active in any sport.

**GPA.** GPA is the average grade of each student based on a 4.0 scale. The GPA result is calculated by dividing the total amount of grade points earned by the amount of credits attempted (National Center for Educational Statistics, 2011). The GPA in this

study was calculated by the total number of grade points divided by the number of credits taken. District J uses the four-point system for semester grades: A=4, B=3, C=2, D=1, F=0 (District J, 2016). The GPAs in this study also include a weighted GPA. Weighted GPAs that take the difficulty of a class into account and allow for a higher GPA than a standard four-point system. The GPAs in this study were a reflection of each student at the end of their junior year in high school. GPAs are a consistent reflection of a student's academic success and progress which is why it is used as a dependent variable in this study.

**ACT.** The ACT (American College Testing) is a standardized test that measures a high school student's skill in five core areas: English, math, reading, science and writing. The ACT scores are used as a high school benchmark and scores are submitted to colleges for the application process (Study Point, 2019). The format of the ACT questions are four timed sections including: 75 English questions, 60 Math questions, 40 Reading questions, and 40 Science questions with a total testing time of 2 hours and 55 minutes. In each of these four sections, each student is scored with a scale ranging from 1 to 36. All four area scores are averaged to give the student an overall composite score that also ranges from 1 to 36. A high or low score on the ACT is evaluated by the university reviewing the score. As a reference point, the national average student composite score on the ACT is 21 for the 2019 school year. Above average ACT scores will increase the chances of being accepted into a more selective university while a low score, usually considered below a 15, can result in not being accepted into most colleges. If a student is selected with a low ACT score, the university may ask the student to take additional courses.

The validity of a test refers to the ability of the test to measure what the test claims to measure. A test with high validity is closely linked to the test's intended focus (PTI, 2006). The ACT utilizes established guidelines to ensure that the test meets the standards and shows evidence in three key areas, construct-related, criterion-related, and content-related (ERIC Clearinghouse, 2016). These guidelines allow the tester to trust the results. The test-retest reliability is the consistency of the test over time, each test will produce consistent results each time the test is taken or anywhere the test is taken. Reliability estimates as noted on the website of the ACT organization are high. The internal consistency levels are over 0.9 in English, Math, STEM, ELA, and the composite score. The internal consistency levels are over 0.8 for Reading and Science.

ACT scores are submitted by the ACT testing company to the high school counselors and inputed to the Tyler SIS system. During the 2015-2017 school years all high school juniors were required to complete the ACT test on a statewide testing date in April of each year. However, some students were absent on the testing date and did not take the test. The ACT scores in this study were the best score of each student at the end of their junior year in high school. Juniors had the opportunity to re-take the ACT test during each school year, but this was done during their own time and financed individually. The ACT was selected as a dependent variable due to the consistency of the test, tested areas, and the ACT was a required test for that student grade level.

**Data Collection Procedures**

District J approved a request form, completed by the researcher, prior to the beginning of research. The completed form was submitted to the Superintendent of Schools for approval. Approval to conduct research was received on January 29, 2020

(Appendix A). Request for the study was then submitted to the Baker University Institutional Review Board. Approval to conduct research was given to the researcher on March 2, 2020 (Appendix B).

The data for this study were collected using specific data targets selected in the Tyler SIS 360 portal by District J's School Data Coordinator, at the request of the researcher for study purposes. After the collection of data, the students' names were removed and each student was assigned a number for confidentiality purposes. Data were organized and exported into an Excel document and then inputed into SPSS for analysis.

**Data Analysis and Hypothesis Testing**

The following section presents the research questions, hypothesis statements, and the analysis of this research study.

RQ1**.** Is there a difference in the GPAs of high school juniors who participated in athletics and those who did not participate in athletics?

H1. There is a difference in the GPAs of high school juniors who participated in athletics and those who did not participate.

An independent-samples *t* test was conducted to test H1. The mean GPA for the athletic participant group was compared to the mean GPA for the non-athletic participation group. An independent-samples *t* test was chosen for the hypothesis testing to examine the mean difference between two mutually exclusive independent groups. In addition, both means of two groups are continuous variables. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ2**.** Is there a difference in the ACT score performance of high school juniors who participated in athletics and those who did not participate in athletics?

H2. There is a difference in ACT score performance for high school juniors who participated in athletics and those who did not participate in athletics.

An independent-samples *t* test was conducted to test H2. The mean of the ACT score for the athletic participant group was compared to the mean of the ACT score for the non-athletic participation group. An independent-samples *t* test was chosen for the hypothesis testing to examine the mean difference between two mutually exclusive independent groups. In addition, both means of the two groups are continuous variables. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ3. Is there a difference in GPAs between males and females of high school juniors who participated in athletics?

H3. There is a difference in GPAs between males and females of high school juniors who participate in athletics.

An independent-samples *t* test was conducted to test H3. The mean GPA for the female group of athletes was compared to the mean GPA for the male group of athletes. An independent-samples *t* test was chosen for the hypothesis testing to examine the mean difference between two mutually exclusive independent groups. In addition, both means of the two groups are continuous variables. The level of significance was set at .05. When appropriate, an effect size is reported.

RQ4. Is there a difference in ACT scores between males and females of high school juniors who participated in athletics?

H4. There is a difference in ACT scores between males and females of high school juniors who participate in athletics.

An independent-samples *t* test was conducted to test H4. The mean of ACT scores for the female group of athletes was compared to the mean of ACT scores for the male group of athletes. An independent-samples *t* test was chosen for the hypothesis testing to examine the mean difference between two mutually exclusive independent groups. In addition, both means of the two groups are continuous variables. The level of significance was set at .05. When appropriate, an effect size is reported.

**Limitations**

Limitations are defined by Luenburg and Irby (2008) as factors that are out of the researchers' control. A limitation in this study was that the rosters used reflected the beginning roster of each sport and not who actually finished the year participating in the sport. Another limitation for this study related to transgender or gender transition students. These students defined their gender in Tyler SIS, but identified or could identify as another gender during the duration of the study (2015-2017 school years). Another limitation to this study was that even though the state of Missouri had provided free ACT testing for juniors during the 2015-2016, 2016-2017, and 2017-2018 school years, some students did not complete the ACT test and those students have absent scores. The limited participants in this study were from a specific school district in mid-Missouri. As a result, this study is limited to juniors in that defined school with that school's available athletic programs. A final limitation is that students who participate in club sports outside the school are not noted for athletic participation in this study.

## Summary

Chapter 3 focused on the specific methodology that was used for this study that addressed the problem statement directly. A quantitative approach was used with a sample of the junior class from District J in the 2015-2016, 2016-2017, and 2017-2018 school years. Sampling procedures and measurement were also discussed in this chapter. In the final sections of this chapter the data analysis, data collection procedures, hypothesis testing, and limitations of the study were presented. Chapter 4 will present the results from the data analysis.

# Chapter 4

## Results

The primary purpose of this study is to examine the impact of athletic participation on academic achievement among high school juniors. Specifically, the study was designed to examine the impact of athletic participation on a student's GPA and ACT scores. Another purpose of the study was to examine the extent, if any, of the difference in GPA and ACT scores between male and female athletes. The previous three chapters of this study provided background information, review of relative literature, presented the research questions and described the methodology for this study. The purpose of chapter four is to present the results of the study.

### Descriptive Statistics

The sample for this research study consisted of 332 11$^{th}$ grade students from the school years 2015-2016, 2016-2017, and 2017-2018 at District J. Of these students, 164 were male and 168 were female and 195 of these students did not participate in athletics and 137 did participate in athletics. All 332 students recorded a GPA with a mean of 2.86 (*SD* = .78) and ranged from 0.00 to 4.16. 241 students attempted the ACT test with a mean of 19.96 (*SD* = 4.59) and ranged from 11.00 to 33.00.

### Hypothesis Testing

This study's purpose was to analyze the four research questions through hypothesis testing and the results of the hypotheses testing are presented below. The level of significance was set at .05 and was used for each of the hypothesis tests.

RQ1. Is there a difference in the GPAs of high school juniors who participated in athletics and those who did not participate in athletics?

H1. There is a difference in the GPAs of high school juniors who participated in athletics and those who did not participate.

Outliers were detected and 15 outliers were found. The 15 outliers were excluded from the following analysis. The results of the independent samples *t* test indicated a statistically significant difference between the two means, $t(315) = -4.74$, $p < .001$, $d = 0.53$ The mean of GPAs for the non-athletes group ($M = 2.81$, $SD = .67$, $n = 182$) was lower than the mean of GPAs for the athletes group ($M = 3.15$, $SD = .58$, $n = 135$). The hypothesis was supported. There was a significant difference between athletic participants and non-athletic participants in reported GPAs with the athlete GPAs being higher than the non-athletes. The effect size indicated a medium effect.

RQ2. Is there a difference in the ACT score performance of high school juniors who participated in athletics and those who did not participate in athletics?

H2. There is a difference in ACT score performance for high school juniors who participated in athletics and those who did not participate in athletics.

Outliers were detected and 8 outliers were found. The 8 outliers were excluded from the following analysis. The results of the independent samples *t* test indicated no significant difference between the two means, $t(231) = -.59$, $p = .557$. The mean ACT score for the non-athletes group ($M = 19.43$, $SD = 4.37$, $n = 118$) was not different from the mean ACT score for the athletes group ($M = 19.76$, $SD = 4.04$, $n = 115$). The hypothesis was not supported. There was no significant difference between athletic participants and non-athletic participants in reported ACT scores.

RQ3. Is there a difference in GPAs between males and females of high school juniors who participated in athletics?

H3. There is a difference in GPAs between males and females of high school juniors who participate in athletics.

Outliers were detected and 2 outliers were found. The 2 outliers were excluded from the following analysis. The results of the independent samples *t* test indicated a statistically significant difference between the two means, $t(133) = -4.26$, $p < .001$, $d = 0.74$. The mean GPAs for the male athletes group ($M = 2.96$, $SD = .57$, $n = 72$) was lower than the mean GPAs for the female athletes group ($M = 3.36$, $SD = .52$, $n = 63$). The hypothesis was supported. There was a significant difference between male and female athletes in reported GPAs with the female athletes having a higher GPA than the male athletes. The effect size indicated almost a large effect.

RQ4. Is there a difference in ACT scores between males and females of high school juniors who participated in athletics?

H4. There is a difference in ACT scores between males and females of high school juniors who participate in athletics.

Outliers were detected and 3 outliers were found. The 3 outliers were excluded from the following analysis. The results of the independent samples *t* test indicated a statistically significant difference between the two means, $t(113) = -3.07$, $p = .003$, $d = 0.58$. The mean ACT for the male athletes group ($M = 18.63$, $SD = 4.07$, $n = 57$) was lower than the mean ACT for the female athletes group ($M = 20.86$, $SD = 3.72$, $n = 58$). The hypothesis was supported. There was a significant difference between male and female athletes in reported ACT scores with the female athletes having a higher ACT score than the male athletes. The effect size indicated a medium effect.

**Summary**

Four research questions and four hypotheses regarding athletic participation, gender, ACT scores and GPAs were analyzed using an independent samples *t* test. Results of the hypothesis testing indicated a statistically significant difference in GPAs between athletes and non-athletes with the athletes having a statistically significant higher GPA, however there was no statistically significant difference in ACT scores between athletes and non-athletes. In addition, a statistically significant difference was found between male and female athletes in both ACT scores and GPAs with the female athletes having a statistically significant higher ACT and GPA than male athletes.

Chapter 5 provides a summary of the study, overview of the problem, purpose statement, review of methodology, and major findings. Chapter five also includes findings related to literature and the conclusion that presents implications for action and recommendations for future studies with closing remarks.

# Chapter 5

## Interpretation and Recommendations

Chapter 5 provides a summary of this study and its findings. An overview of the problem, purpose statement, review of the methodology and major findings are reviewed. This chapter also presents the findings related to literature, implications for action, and recommendations for further research.

### Study Summary

The beginning section of this chapter includes a synopsis for this study. First, the summary provides an overview of the problem. Next, the purpose statement and research questions are presented. The review of the methodology is explained. Finally, the major findings from this study are presented.

**Overview of the problem.** Many school districts around the nation are working to find ways to increase student achievement and raise ACT scores among the entire student body. There is a large volume of research examining both positive and negative impacts of athletic participation. For example, many researchers have found that participation in athletics has a positive impact on student academics (Fleming, 2015; Heil, 2013; Lumpkin & Favor, 2012; Whitley, 1996). Other researchers have found a negative impact or no impact on student academics (Ganim, 2014; Miles, 2015; Oswald, 2006). However, the majority of these studies focus on larger suburban schools (Fleming, 2015; Heil, 2013; Lumpkin & Favor, 2012; Whitley, 1996; Miles, 2015). Few studies examine smaller, rural, and agricultural school districts where there is a large economic gap.

**Purpose statement and research questions.** The primary purpose of this study is to examine the impact of athletic participation on academic achievement among high school juniors. Specifically, the study was designed to examine the impact of athletic participation on a student's GPA and ACT scores. Another purpose of the study was to examine the extent, if any, of the difference in GPA and ACT scores between male and female athletes. The following are the research questions and hypothesis statements for this study.

RQ1. Is there a difference in the GPA of high school juniors who participated in athletics and those who did not participate in athletics?

H1. There is a difference in the GPAs of high school juniors who participated in athletics and those who did not participate.

RQ2. Is there a difference in the ACT score performance of high school juniors who participated in athletics and those who did not participate in athletics?

H2. There is a difference in ACT score performance for high school juniors who participated in athletics and those who did not participate in athletics.

RQ3. Is there a difference in GPAs between males and females of high school juniors who participated in athletics?

H3. There is a difference in GPAs between males and females of high school juniors who participate in athletics.

RQ4. Is there a difference in ACT scores between males and females of high school juniors who participated in athletics?

H4. There is a difference in ACT scores between males and females of high school juniors who participate in athletics.

**Review of the methodology.** The research design for this study was quantitative. The sample was 332 high school juniors from District J in the school years 2015-2016, 2016-2017, and 2017-2018. High school juniors were identified for the purpose of this study. As part of this quantitative study, data were collected to analyze the participation, ACT scores and GPAs over three years. A variety of sources were used to collect the necessary data for this study including data from Tyler Student Information System which identified gender, ACT score and GPA. MSHSAA participation rosters were used to identify student participation in sports. Four research questions and four hypotheses regarding athletic participation, gender, ACT scores and GPAs were analyzed using an independent samples *t* test.

**Major findings.** Results of the hypothesis testing indicated a statistically significant difference in GPAs between athletes and non-athletes with the athletes having a statistically significant higher GPA. There was no statistically significant difference in ACT scores between athletes and non-athletes. In addition, a statistically significant difference was found between male and female athletes in both ACT scores and GPAs with the female athletes having a statistically significant higher ACT score and GPA than male athletes.

## Findings Related to the Literature

This section provides a discussion of the results of this study regarding the literature presented in chapter two in regard to athletes, GPA, ACT scores and gender. Limited research has been found on rural school districts as it relates to data on this study. However, many studies have been conducted on urban school districts. A brief

review of the findings of this study is presented and a comparison of this study to previous studies is included.

A review of the literature indicated that students who participated in athletics have been found to attain a significantly higher GPA than students who do not participate in athletics (Fleming, 2015; Lumpkin & Favor, 2012; Whitley, 1996). Specifically, Whitley (1996) using data from three years and over 285,000 students, found that there was a consistent difference in athletes and non-athletes GPA with the athletes scoring much higher. Miller (2005) reported that the GPA of a student athlete was higher than non-athletes, but that a student's social economic status and race had a larger impact on GPA than did participation in athletics. The current study analyzed student GPAs who participated in athletics and students that did not participate in athletics. The results of this study indicated that the students who participated in athletics had a significantly higher GPA than the students that did not participate in athletics. This finding supports previous studies by (Fleming, 2015; Lumpkin & Favor, 2012; Whitley, 1996).

The studies of athletes' and non-athletes' ACT scores were inconclusive. Students who participate in athletics do not have a higher ACT composite score than non-athletes (Heil, 2013; Lemke, 2015). However, it was reported that athletes have a higher national composite average than non-athletes with athletes scoring higher on the Science and Math portions of the ACT, while the non-athletes scored higher on the Reading portions (Lumpkin & Favor, 2012). The review of literature also revealed that many student athletes entering college reported an ACT score in the single digits (Ganim, 2014). The current study analyzed student ACT scores who participated in athletics and students that did not participate in athletics. The results indicated that there was no

significant difference in ACT scores between students that participated in athletics and those that did not at District J. The findings of the study support the findings of previous researchers (Heil, 2013; Lemke, 2015).

The research and literature regarding the difference in ACT scores for males and females is inconsistent. Research indicating that female students have higher ACT scores than male students is supported by Buddin (2014). However, other researchers, Perry (2016) analyzed scores and found that female students scored higher in English and Reading while the male students scored higher in Math and Science. Moore, Pedro and Sanchez who work with The Association for Test Prep, Admissions, and Private Tutoring (2018) found similar results as Perry (2016) but some researchers have found the average composite scores to be identical for females as well as males. The current study analyzed ACT scores for athletes and compared the scores for male athletes and female athletes. The results of this study indicated that the female student athletes had a significantly higher ACT score than male athletes. This finding supports earlier research (Buddin, 2014).

Research has indicated that female students have higher GPAs than male students (Lumpkin & Favor, 2012; Miller, 2005). Research by McCarthy (2000) indicated that female participants have a significantly higher GPA than male participants. In addition, Barden (2002) found that students who participated in athletics had a higher GPA and it was also affected by gender. The current study analyzed GPAs for athletes and compared the scores for male athletes and female athletes. The results of this study supported previous research that stated that the female student athletes had a significantly higher

GPA than male athletes. This finding supports the research of previous researchers within this field (Lumpkin & Favor, 2012; Miller, 2005).

## Conclusions

This study was the first of this type of research done at District J and the first of its kind in a rural setting. In addition, this is one of the only studies done in Missouri that focused on GPA and ACT scores for high school juniors who participated in athletics and those that did not participate in athletics. The results of this study can be used by school leaders and educators to examine the correlation between athletics, student achievement, and male athletes compared to female athletes.

**Implications for action.** The findings of this study should be encouraging to school leaders, teachers, parents and community members as the study indicates that participation in athletics can positively impact a student's GPA. Teachers now have data showing that athletics can positively affect GPA and can encourage students to participate. In addition, it is important to give parents the knowledge needed to understand that the time involved in athletics will not always affect student achievement negatively. The results of this study, can help parents be positive and encouraging of athletic programs and not to be as concerned about possible academic instability. Creating the awareness that participation can positively impact a student's GPA, school districts can continue to expand and provide athletic opportunities for students with a wide array of sports. There are several sports that rural school districts do not offer for a variety of reasons including funding, numbers of participants, and willing coaches. These districts need to identify new sports that students may be interested in based on student interest surveys and consider adding them to the school sports options. Finally,

with the economic and budget difficulty many rural school districts face, this data should impact any potential monetary cuts to athletic programs considering the positive impact to student achievement shown in this study.

However, there is a call for action concerning other aspects of this study. First, the school must find ways to motivate the male athlete population. This study found that male students have significantly lower ACT and GPAs than female athletes. This is a K-12 problem and studies from early ages need to be conducted to determine how to identify and address issues for male student athletes. School district administrators should create expectations for coaches of male sports to have rigorous grade checks and to make time for academics during the season. Collective accountability and an emphasis on team GPA could help motivate male athletes who are competitive, to achieve at higher levels in the classroom. Coaches should dedicate days or times that are for homework help or test preparations that would not dramatically impact the performance of the team. School districts and coaches should also celebrate post season academic honors such as academic all-conference and academic all-state for athletes who perform at a high level in the classroom. Many school districts have equity checks to ensure that all students are being reached academically and that students from all backgrounds have the same opportunity to succeed. Through these efforts, school districts should ensure that there is no existing gender bias by teachers when grading and teaching. This effort could help motivate and improve male student athlete performance academically.

This study found that athletes had a significantly higher GPA than non-athletes, however this study did not find a significant different in the ACT scores of the two groups. This is concerning due to the variables included in GPA. The main variable is

that teachers may have varying student work expectations and input each student score into the computer-based grading system. School districts should ensure that student athletes are not given additional opportunities or more flexibility due to their participation status or a perceived team importance. School athletic administrators should ensure that ACT testing dates are not filled with athletic competitions that eliminate multiple testing opportunities for student athletes. A K-12 curriculum review should be conducted to determine the alignment of the curriculum to aspects of the ACT. In addition, additional ACT prep time should be created and supported by the school district during the school day. ACT test prep professional development at the high school should be conducted so teachers are familiar with the test questions, testing strategies, and how the test is administered. Finally, this review could determine that additional course offerings such as AP classes should be added.

This study will provide district leaders at District J and other districts valuable data regarding the impact of athletics on student achievement. This data will help leaders make difficult fiscal choices concerning the creation, maintenance, and growth of its athletic programs. This study will also assist district leaders in future recommendations for athletic programs and the areas that they may benefit the students' achievement.

**Recommendations for future research.** This study allowed the researcher to explore and present athletic participation and examine the impact on student achievement of high school juniors. The following are recommendations for other researchers who may complete future studies involving the impact that athletic participation status has on the achievement of a student.

The first recommendation is to create a study that explores the amount of activities and time for each student athlete. This study would answer the question of how much time and how many athletic events is too many and at what point student achievement begins to drop due to the extreme time involved in athletics. Additionally, we have seen students' time stretched too thin. This study would also answer to what extent, if any, student athletes' grades, mental health, and testing scores are negatively impacted by too many activities. This would assist school districts in determining how many sports are truly needed in order to offer a comprehensive program and could be helpful to school leaders in times of budget and program reductions.

The second recommendation is to replicate the study using an urban school district setting that would allow for a more diverse student environment. The urban school setting presents a different set of challenges for students that wish to participate in athletics. These challenges include possible economic barriers for students to have the needed items to participate such as shoes and clothes, transportation home after practices and games, and the needed medical insurance to participate. This study would allow the researcher to see if the results are mirrored in a non-rural setting and what environmental factors could impact the results in a different way. Urban school district tends to offer a broader range of sports and athletic opportunities for students.

The third recommendation is for future studies to include all MSHSAA accepted grade levels (7-12) in order to explore the changes, if any, in the achievement of middle school student athletes. This would allow for identification of the impact on student achievement based on grade level. The results could allow for growth and encouragement for middle-school-age students to become involved in athletics. There

would also be a need to identify if the impact of athletics is different based on age and grade of the student. This study could answer at what age if any, athletics can negatively impact young students' grades and mental health.

The fourth recommendation is for a qualitative study to be created to survey female student athletes to determine how they prepare for school and the ACT. The results could help explain why there is a significant difference in ACT scores and GPAs of high school female athletes compared to male athletes. This study could also answer questions regarding how flexible teachers are for female students or if there is any gender bias existing in the classroom.

The fifth recommendation is for a qualitative study to be created to survey male student athletes on what variables in education are negatively impacting their achievement as reflected in their GPAs and ACT scores. This survey could explore the personal motivational aspects of male athletes to determine if male athletes have a lack of motivation or if there are other external factors that contribute to the lack of achievement as compared to female student athletes.

The sixth recommendation is a study of how school districts are preparing students for the ACT test. This study is important to identify the extent that school districts prioritize the ACT and in what ways they are providing teachers with professional development to increase student ACT scores. This is a K-12 issue that requires a scope and sequence of the curriculum to ensure that it supports the key concepts tested by the ACT. In addition, this study would examine the individual roles for teachers in ACT prep and possibly their perception of importance of the ACT for college and non-college bound students. Finally, this study could show how ACT testing

dates and ACT proctored preparation information is being distributed and communicated to students to encourage their participation.

The seventh recommendation is for a perception study of parents who have student athletes and those that do not. This study could show the attitudes that parents have about how athletics impact student achievement and what they feel is best practice concerning athletics and the classroom. This study could also expose pre-conceived perceptions about the impact of athletics. In addition, the study could examine how their student's academic performance is impacted by possible reluctance from parents on allowing student to participate in sports.

The final recommendation is to expand the sample size and include other rural school districts in the state of Missouri. A larger sample size might provide more information on student achievement in order to make changes for some school districts.

**Concluding remarks**. Athletic participation in high schools, presented in this study, indicates that school districts need to continue to expand athletic programs to accommodate and attract students to participate. A focus of schools in the nation should be in creating an environment that gives students the opportunity to be motivated, have positive role models, and achieve at high levels. A substantial body of research suggests that there is a positive connection between student achievement and athletic participation. It is the hope of the researcher that the data presented in this study will be considered by school districts when reviewing athletic programs importance in the future.

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# Appendices

# Appendix A: Request to do Research

**Wednesday, January 29, 2020 at 9:05:12 AM Central Standard Time**

**Subject:** Re: Dissertation Data
**Date:** Wednesday, January 29, 2020 at 8:41:02 AM Central Standard Time
**From:** Mike Hough, Superintendent
**To:** Joe Parkhurst, Assistant Principal

Sure, can't wait to see the results.

Sent from Mike Hough's iPhone

On Jan 28, 2020, at 8:26 PM, Joe Parkhurst, Assistant Principal <JParkhurst@holdenschools.org> wrote:

Dr. Hough,

I am writing to ask for permission to collect, chart and analyze archival student data from Holden High School during the school years: 2015-2016, 2016-2017, and 2017-18. Approximately 400 total students and individuals will not be contacted as a part of this study.

The purpose of study is to examine the impact of athletic participation on academic achievement among high school juniors. More specifically, the study is designed to examine the impact of athletic participation on a student's GPA and ACT scores. An additional purpose of the study was to examine the extent, if any, of the difference in GPA between male and female athletes.

Thank you, I look forward to hearing back from you.

Thank you,

-

**Joseph Parkhurst**
Holden R-III School District
Assistant Principal / Activities Director
Office (816) 732-5523
https://holdenactivities.weebly.com/
@Activities_HHS

## Appendix B: Baker Univeristy IRB Form

BAKER UNIVERSITY

**IRB Request**

Date 2/10/2020

IRB Protocol Number _____
(IRB use only)

**I. Research Investigator(s)** (students must list faculty sponsor)

Department(s) School of Education

| | Name | Signature | |
|---|---|---|---|
| 1. | Joseph Parkhurst | | Principal Investigator |
| 2. | Dr. James Robins | | ☐ Check if faculty sponsor |
| 3. | Dr. Denis Yoder | | ☐ Check if faculty sponsor |
| 4. | Dr. Li Chen-Bouck | | ☐ Check if faculty sponsor |

Principal investigator contact information

Phone 816-718-1699

Email jparkhurst@holdenschools.org

Address 1316 Norfolk Dr.
Harrisonville, Mo
64701

Note: When submitting your finalized, signed form to the IRB, please ensure that you cc all investigators and faculty sponsors using their official Baker University (or respective organization's) email addresses.

Faculty sponsor contact information

Phone 816-604-8045

Email james.robins@bakeru.edu

**Expected Category of Review**: ☐ Exempt ☑ Expedited ☐ Full ☐ Renewal

**II. Protocol Title**

**The Effects of Participating in Athletics on the Academic Success of High School Juniors**

**III. Summary**:
The following questions must be answered. Be specific about exactly what participants will experience and about the protections that have been included to safeguard participants from harm.

**A. In a sentence or two, please describe the background and purpose of the research.**

The purpose of study is to examine the impact of athletic participation on academic achievement among high school juniors. More specifically, the study is designed to examine the impact of athletic participation on a student's GPA and ACT scores. An additional purpose of the study was to examine the extent, if any, of the difference in GPA between male and female athletes.

B. **Briefly describe each condition, manipulation, or archival data set to be included within the study.**

There are no conditions or manipulations in this study. The archival data included in this study is student gender, ACT scores, GPA, and athletic participation status.

**IV. Protocol Details**

**A. What measures or observations will be taken in the study? If any questionnaire or other instruments are used, provide a brief description and attach a copy.**

The data for this study will be student archival and obtained with permission through the district student database, Tyler Student Information System including gender, athletic participation, GPA, and ACT. There will be no instrument used in this study.

**B. Will the subjects encounter the risk of psychological, social, physical, or legal risk? If so, please describe the nature of the risk and any measures designed to mitigate that risk.**

There are no psychological, social, physical, or legal risk in this study.

**C. Will any stress to subjects be involved? If so, please describe.**

There will not be any stress to subjects in this study.

**D. Will the subjects be deceived or misled in any way? If so, include an outline or script of the debriefing.**

In this study, no subjects will be deceived or misled.

**E. Will there be a request for information which subjects might consider to be personal or sensitive? If so, please include a description.**

For this study there will be no requests for personal or sensitive information from any subject. The GPA and ACT data will not be associated with any individual student.

**F. Will the subjects be presented with materials which might be considered to be offensive, threatening, or degrading? If so, please describe.**

For this study no subject will be presented with materials that might be considered offensive, threatening, or degrading.

**G. Approximately how much time will be demanded of each subject?**

For this study no subjects will be under demand for time completion.

**H. Who will be the subjects in this study? How will they be solicited or contacted? Provide an outline or script of the information which will be provided to subjects prior to their volunteering to participate. Include a copy of any written solicitation as well as an outline of any oral solicitation.**

The subjects will be junior high school students between the years of 2015 and 2017 at District J. No students will be contacted during this study. There is no need for a script or request for participation or written solicitation.

**I. What steps will be taken to ensure that each subject's participation is voluntary? What if any inducements will be offered to the subjects for their participation?**

Subject participation will be in the form of archival data. There was not a pursuit of participation or inducement of any kind to participate in this study.

**J. How will you ensure that the subjects give their consent prior to participating? Will a written consent form be used? If so, include the form. If not, explain why not.**

Since only archival data will be used in this study, no written consent is needed.

**K. Will any aspect of the data be made a part of any permanent record that can be identified with the subject? If so, please explain the necessity.**

No aspect of the data will be made part of any permanent record.

**L. Will the fact that a subject did or did not participate in a specific experiment or study be made part of any permanent record available to a supervisor, teacher, or employer? If so, explain.**

No subject participation in this study will be made part of permanent record.

**M. What steps will be taken to insure the confidentiality of the data? Where will it be stored? How long will it be stored? What will be done with the data after the study is completed?**

The researcher was granted permission to conduct research at District J by the superintendent of schools. Tyler SIS data will not be used for any other purpose concluding this study. No students will be identified during or after the study. All data will be stored on a district issued computer by the researcher. In addition, one member of the Baker University staff will have the saved data during the duration of the study for analysis assisting. All data collected and results found will be shared with District J and Baker University. Per Baker University guidelines the data collected from the study will be stored on a compact disc for at least five years following the study and then will be destroyed by breaking it up and placing it in the garbage.

**N. If there are any risks involved in the study, are there any offsetting benefits that might accrue to either the subjects or society?**

There are no known risks for participants involved in this study.

**O. Will any data from files or archival data be used? If so, please describe.**

Yes, archival data from ACT scores, GPA's, and athletic participation status will be used. Tyler SIS is used to generate a report for the purpose of this study.

## Appendix C: Baker Univeristy IRB Approval

*Baker University Institutional Review Board*

March 2nd, 2020

Dear Joe Parkhurst and Jim Robins,

The Baker University IRB has reviewed your project application and approved this project under Exempt Status Review. As described, the project complies with all the requirements and policies established by the University for protection of human subjects in research. Unless renewed, approval lapses one year after approval date.

Please be aware of the following:

1. Any significant change in the research protocol as described should be reviewed by this Committee prior to altering the project.
2. Notify the IRB about any new investigators not named in original application.
3. When signed consent documents are required, the primary investigator must retain the signed consent documents of the research activity.
4. If this is a funded project, keep a copy of this approval letter with your proposal/grant file.
5. If the results of the research are used to prepare papers for publication or oral presentation at professional conferences, manuscripts or abstracts are requested for IRB as part of the project record.
6. If this project is not completed within a year, you must renew IRB approval.

If you have any questions, please contact me at npoell@bakeru.edu or 785.594.4582.

Sincerely,

*Nathan Poell,* MLS
Chair, Baker University IRB

Baker University IRB Committee
Scott Crenshaw
Sara Crump, PhD
Jamin Perry, PhD
Susan Rogers, PhD