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LONG-TERM IMPACT OF ATHLETIC PARTICIPATION ON PHYSICAL CAPABILITIES

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ABSTRACT

Friery KB, Bishop, P. Long-term Impact of Athletic Participation on Physical Capabilities. *JEPonline* 2007;10(1):34-47. Collegiate athletes undergo training regimens that place them under chronic stress, consequently increasing susceptibility to injuries and overtraining. The purpose of this study was to investigate the effects of prior participation in collegiate athletics on limitations in daily life and limitations during exercise in the years following. Former Division I college athletes, and a demographically similar group of non-athlete alumni (controls), were surveyed via e-mail (n=15,000) concerning injuries incurred during participation in all varsity sports. Also included were questions about current health and activity status, and physical limitations. Of former athletes, 50% had major injuries while in college compared to 10% of controls (p<0.01), while 52% of athletes reported chronic injuries while only 11% of controls reported the same (p<0.01). Of the alumni controls, 4% reported limitations in daily life, and 6% reported limitations during exercise, while the athletes reported 21% and 36%, respectively (p<0.01 for each). These data suggest that prior collegiate athletics participation may result in a substantial physical cost, and are a first step in determining the potential long-term risks associated with participation in athletics.

Key Words: Limitations, college athletes, injuries

INTRODUCTION

It is well documented that cardiorespiratory exercise, as well as muscular strength and endurance exercise, have a positive impact on health. Many positive health benefits arise from moderate intensity exercise. Most notable of these effects is the decreased risk of heart disease, cancer, stroke, osteoporosis, and diabetes found in individuals who engage in regular physical activity. Chronic diseases are directly linked with obesity, and body fat is controlled, in part, through physical activity. The cardiovascular system functions more effectively and the body is better suited to fight disease when it is physically fit (5). However, there is a point of diminishing returns for these benefits, where overtraining and high-intensity exercise may actually increase the risk of traumatic injury, reduce health benefits, and impair immunity due to the extreme stress put on the body.

College level athletes undergo training regimens that place them under chronic stress, increasing susceptibility to injuries and overtraining. In order to compete at an elite level, training at very high intensities for prolonged periods of time is often necessary. The athlete will be prone to injury as well as other effects of overtraining.

Prior research indicates that former athletes have more degenerative changes in their joints and spine than control populations (1, 7). Good muscle function related to high physical activity level may compensate for the effects of degenerative changes on function; and disability may be reduced or avoided (2, 7). Research has indicated that muscle degeneration among athletes begins later and progresses slower than in non-athletes, if the athlete maintains activity (3, 6). However, injuries that occur during college competitive years may limit an athlete's ability to participate in physical activity as they age. Strenuous or intense physical activity may increase the risk of lower-limb osteoarthritis but the same activity done in moderation may delay the onset of disability (2). Therefore, the overall purpose of this study was to investigate the effect that competing in college athletics has on physical capabilities, primarily quantifying how previous sports injuries impact later exercise habits. We hypothesized that athletes would have more disability than non-athletes in daily life and limitations during physical activity. We also believed that athletes would have more injuries than non-athletes, and that power athletes would have more disability than other athletes. A specific purpose was to help to determine whether athletes suffer impaired functional capabilities and consequently are forced to restrict activity after competition. Another specific purpose of the study was to determine whether athletes exercise more or less than controls in later life. This study is an effort to establish the "physical costs" of athletic participation.

METHODS

Subjects

The sample was made up of alumni from the University of Alabama (n=15,000). The athletes were selected through the University of Alabama's alumni department and through the athletic department's alumni list. The athletic sample was made up of former University of Alabama athletes from men's and women's basketball, tennis, track and field, cross country, swimming, men's football, women's soccer, baseball, softball, volleyball, and women's gymnastics. The survey was constructed using a web-based survey (Online Survey Solutions, Perseus Express, Perseus Development Solutions, USA) administered online. The subjects were emailed a link to the survey along with instructions and an informed consent form. By choosing to click on the link to participate in the survey, participants provided informed consent for this minimal risk study. In the email instructions, varsity athletes were instructed to follow the link to the athlete survey, while controls were directed to the non-athlete alumni survey. One survey per email address was allowed so that duplicate surveys were not submitted.

Procedures

A questionnaire was constructed to measure injuries incurred due to participation in athletics of male and female athletes, across all varsity sports and of a non-athlete control group. Former varsity college athletes and age-matched alumni controls from the University of Alabama were asked to complete the questionnaire indicating athletic history, injuries, limitations due to exercise, and their current exercise habits. This initial survey had to be limited to one university due to the protected nature of personal contact information.

The survey included questions to determine the exercise habits of the athletes and non-athletes. Current exercise was classified as aerobic or anaerobic exercise (defined below). They were asked about their cardiovascular endurance exercise and how often this exercise was performed each week. They were asked whether they perform muscular strength and endurance exercise, and how often they performed the exercises weekly. The survey asked questions to determine whether each respective group's exercise habits were affected by former injuries and to determine which sports were impacted the most by former injuries.

For the purposes of this questionnaire, an athlete was defined as a person who competed in a National Collegiate Athletics Association (NCAA) sanctioned sport at the University of Alabama. A non-athlete control was defined as one who did not participate in a NCAA-sanctioned sport at the University of Alabama, but may have played intramurals or club sports. Endurance sports were defined as men's and women's cross-country, track and field distance events, and swimming. Mixed sports were defined as men's baseball, women's softball, men's and women's tennis, women's soccer, and men's and women's basketball. Power sports were defined as men's football, women's gymnastics, and men's and women's track sprinting and field events. Aerobic exercise was defined as activities such as walking, running, cycling, swimming, golfing with no cart, aerobic dance, or using cardio equipment at the gym. Lifting weights, sprinting, interval training, circuit training, plyometric training, basketball, racquetball, tennis, and competing in a sport were classified as anaerobic activities on the survey, although some of these activities could also be classified as mixed activities.

Statistical Analyses

Statistical analysis included descriptive statistics and frequency distributions, Chi-square tests, and cross-tabulations. The alpha level was set at $p < 0.01$. Chi-square tests were employed to evaluate significant differences between athletes and non-athletes. Chi-square was also used to test individual sports for significant differences. Chi-square was used to determine if there was a difference between athletes and non-athletes for limitations and injuries. T-tests were also used in analyzing the significance of age on reported activity limitations in the athletes vs, controls. The alpha level was set at $p < .05$.

RESULTS

This study was conducted at the University of Alabama, using contact information obtained from the Alumni Association. The survey was administered to a sample of University of Alabama alumni, ages 22-85 years. Of the 15,000 email addresses, 3550 emails were invalid. The alumni control group completed 2991 surveys, while the athletes returned 374. The return rate was approximately 29%. The ratio of athlete surveys to control group surveys exemplifies the fact that a very small percentage of alumni were varsity athletes. Descriptive statistics are reported in Table 1. Results are summarized in Table 2. Table 3 breaks down the returned surveys by sport.

Table 1: Descriptive Statistics

Category	Surveys Returned	Mean Age	Gender (M/F)	Major Injuries (%)	Chronic Injuries (%)	Physical Activity Limitations (%)	Daily Limitations (%)	Aerobic Exercise (hrs/week)	Anaerobic Exercise (hrs/week)
Athletes*	374	41.1	76%/24%	50%	52%	36%	21%	3.9	2.1
Controls	2991	43.5	52%/49%	10%	11%	6%	4%	1.4	3.0

*Athletes from a single NCAA Division I University. Controls were alumni who did not compete in an NCAA sport at that University.

Table 2: Summary of Results

Condition	Comparison	Percent	Pearson Chi-Square	Significance
Major Injuries	Athletes vs. Controls	50%/10%	404.337	p<.001
Chronic Injuries	Athletes vs. Controls	52%/11%	449.906	p<.001
Daily Limitations	Athletes vs. Controls	21%/4%	154.885	p<.001
Physical Activity Limitations	Athletes vs. Controls	36%/6%	306.169	p<.001
Daily Limitations	Chronically injured vs. uninjured athletes	28%/10%	17.404	p<.001
Physical Activity Limitations	Chronically injured vs. uninjured athletes	47%/21%	26.506	p<.001
Daily Limitations	Athletes with major injuries vs. uninjured athletes	30%/10%	24.217	p<.001
Physical Activity Limitations	Athletes with major injuries vs. uninjured athletes	50%/19%	38.227	p<.001
Daily Limitations	Power* vs. other athletes	30%/15%	12.605	p<.001
Physical Activity Limitations	Power *vs. other athletes	47%/29%	12.660	p<.001

*Power athletes were men's football, women's gymnastics, and men's and women's track sprinting and field events.

Table 3 Athlete Response to Variables by Sport

Sport	Total Surveys returned	Total Surveys returned (%)	Major Injuries	Major Injuries (%)	Chronic Injuries	Chronic Injuries (%)	Daily Limitations	Daily Limitations (%)	Physical Activity Limitations	Physical Activity Limitations (%)
Football	150	40%	93	64%	74	54%	44	30%	69	47%
Basketball	25	7%	10	40%	13	54%	1	4%	2	8%
Baseball	44	12%	23	52%	24	56%	5	11%	14	32%
Softball	6	2%	6	100%	3	60%	2	33%	3	50%
Golf	15	4%	3	20%	4	29%	1	7%	3	20%
Track Field Events	15	4%	5	33%	7	54%	2	13%	5	33%
Track Sprints	9	2%	4	44%	6	67%	2	22%	3	33%
Track long distance	7	2%	4	57%	5	83%	2	29%	3	43%
Cross-country	8	2%	4	50%	7	88%	0	0%	1	13%
Swimming	20	5%	7	35%	11	58%	5	25%	7	35%
Gymnastics	14	4%	9	64%	9	64%	2	14%	5	36%
Volleyball	7	2%	3	43%	5	71%	3	43%	4	57%
Soccer	10	3%	7	70%	8	80%	2	20%	4	40%
Tennis	20	5%	5	25%	9	47%	4	20%	5	25%
Other	21	6%	5	24%	11	55%	1	5%	4	19%

Former athletes were asked to indicate the number of years they competed in their sport. Of athletes, 55% reported they competed four years in college. The next highest percent of athletes reported they competed for five years (17%), 12% reported competing for three years, while 10% indicated they competed for two years. The athletes were asked about the years they competed prior to college and 17% reported competing for six years, and 10% indicated they competed for 12 years. The majority of the athletes competed between four and 13 years before they entered college athletics. The athletes were also asked about professional competition. While 21% indicated they spent between one and nine years competing in professional athletics, the majority of athletes reported that they never competed at the professional level (78%).

The majority of athletes reported that they practiced with an injury while they were competing in college athletics (77%). Only 15% of alumni controls reported participating in physical activity with an injury. Results indicated that 50% of former athletes had major injuries while competing in collegiate athletics, and 52% reported chronic injuries during college athletics. Of the alumni controls, 10% reported a major injury during college physical activity, and 11% reported chronic injuries during their college physical activity. Figures 1.0 and 2.0 show a breakdown of the above data.

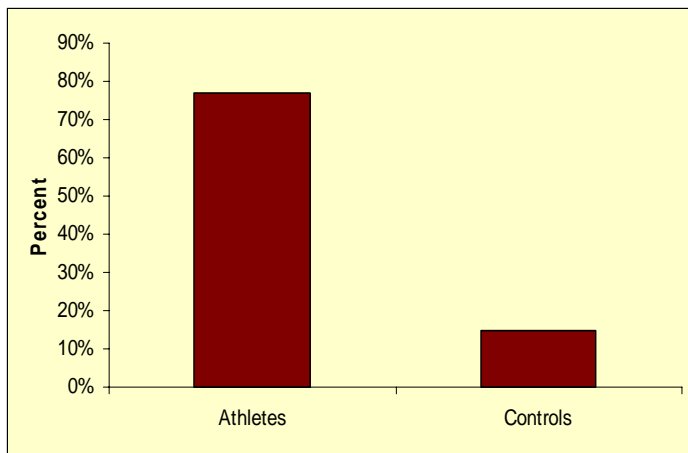


Figure 1. Percent of Athletes vs. Controls Reporting Physical Activity during Illness or Injury

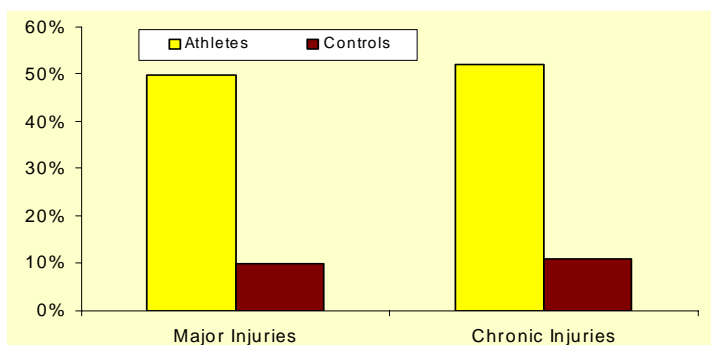


Figure 2. Major vs Chronic Injuries Reported in Athletes vs. Controls

Of the athletes, 21% reported that a former injury affects their daily living, and only 4% of the alumni reported limitations due to a former injury (Pearson Chi-Square=154.885, $df=1$, $p<0.001$). When examining physical activity limitations, 36% of the athletes and 6% of the alumni reported a former injury affects their physical activity. The athletes reported doing more (t-test, $F=11.98$, $p<0.001$) aerobic exercise (3.9 hours per week) than anaerobic exercise (2.1 hours per week). An independent samples test indicated this was a significant difference. Figures 3.0 and 4.0 illustrate this data.

When examining individual sports for the percent of major injuries, crosstabulations indicated that football reported 50% of the major injuries reported by all sports. Of the former football players, 64% reported a major injury. Table 3.0 indicates the major injuries across each sport. The Pearson Chi-Square value for sport*major injuries was 39.662 ($df=14$, $p<0.001$).

While examining each sport for the number of chronic injuries within each, football reported 38% of the total injuries and 54% of the

football players reported a chronic injury. Table 3.0 reports the number of chronic injuries for each sport.

Daily limitations for each sport, and for each category, were examined with crosstabulations. Power sports, including football, track sprint and field events, and gymnastics reported daily limitations more

often (Pearson Chi-Square= 12.605, $df=1$, $p<.001$). Of power sports, 30% reported daily limitations, and 15% of other sports reported daily limitations. Football reported 58% of the total daily limitations, while 30% of the football players, 22% of track sprinters, 14.3% of gymnastics athletes reported daily limitations. Table 3.0 indicates the daily limitations across sport. Physical activity limitations across sport are also reported in Table 3.0. Of power sports, 47% reported physical activity limitations, while 29% of other sports reported physical activity limitations (Pearson Chi-Square=12.660, $df=1$, $p<0.001$). Former football players reported 52% of the physical activity limitations.

Cross-tabulations for the chronic injuries of athletes and their effect on daily limitations reported a Pearson Chi-Square of 17.404 ($df=1$, $p<0.001$). Of the athletes who reported a chronic injury, 79% reported daily limitations. When examining chronic injuries and physical activity limitations, 75% of athletes with a chronic injury reported physical activity limitations (Pearson Chi-Square=26.506, $df=1$, $p<0.001$). When examining major injuries and daily limitations, 77% of the athletes who reported a major injury reported daily limitations (Pearson Chi-Square=24.217, $df=1$, $p<0.001$). Of the athletes who reported major injuries, 73% also reported limitations during physical activity (Pearson Chi-Square=38.227, $df=1$, $p<0.001$).

The overall major injuries reported for athletes and alumni had an impact on daily limitations. Of the subjects who reported major injuries, 58% had daily limitations (Pearson Chi-Square=259.879, $df=1$, $p<0.001$). The major injuries had an impact on physical activity limitations, with 64% of subjects who reported a major injury having physical activity limitations (Pearson chi-Square=510.783, $df=1$, $p<0.001$).

Chronic injuries impacted daily activity, with 48% of subjects who reported a chronic injury reporting daily limitations (Pearson Chi-Square=159.240, $df=1$, $p<0.001$). Chronic injuries also impacted physical activity limitations, with 40% of subjects with chronic injuries reporting physical activity limitations (Pearson Chi-Square=384.716, $df=1$, $p<0.001$). When examining major injuries, 51% of athletes and 11% of alumni reported major injuries (Pearson Chi-Square=404.337, $df=1$, $p<0.001$). With chronic injuries, 56% of athletes and 11% of alumni reported chronic injuries (Pearson Chi-Square=449.906, $df=1$, $p<0.001$).

The mean age of the athletes reporting daily limitations was 41.8 years, while the mean age of the controls reporting daily limitations was 45.2 years. This was a significant difference ($p<.05$). The

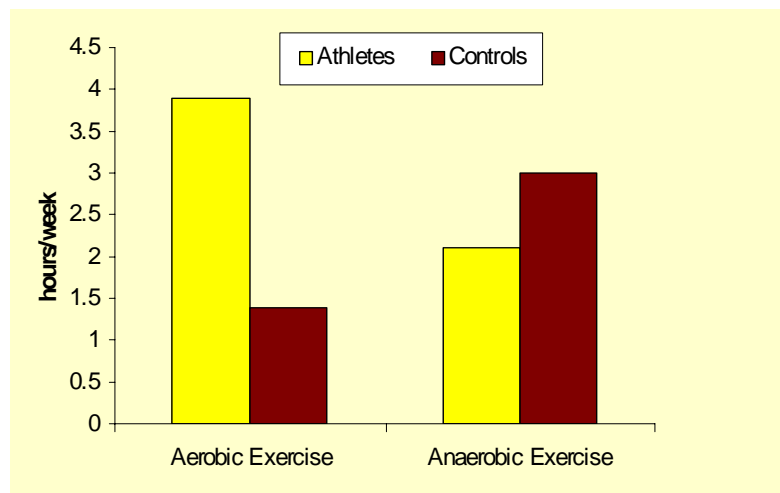


Figure 3. Physical Activity and Daily Limitations Reported in Athletes vs. Controls

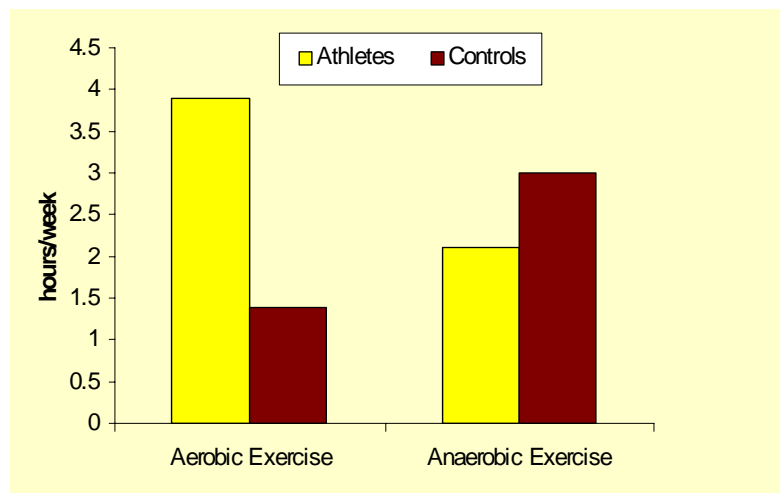


Figure 4. Aerobic and Anaerobic Exercise Reported in Athletes vs. Controls

mean age of athletes and controls reporting physical activity limitations was 41.8 and 41.2, respectively. This was not a significant difference.

DISCUSSION

One of the key motivations for this study was to determine the “physical costs” of sport participation. That is, what were the risks of incurring a long-term disabling condition as a result of competitive collegiate athletic participation? Disability is often thought of in terms of reduced ability to perform the activities of daily living. From a physical activity perspective, disability may include a reduced ability to perform physical activity, since activity is essential to both health and quality of life.

Limitations are recognized in this study. As in most surveys, subjects interpreted the questions themselves. Problems could have arisen in the interpretation of intensity of their exercise habits. They may also have difficulty recalling facts from several years ago. The athletes may feel they were limited in what they would like to do in regards to physical activity, but they may have had a much different idea about what amount of physical activity should be performed. Athletes who train intensely for several years may continue to train at a higher level than the average person. Athletes may have a much different idea about what moderate activity is than non-athletes, and they may have much different perspectives on intensity than the average person.

Problems with sampling occurred due to monetary limitations and understandably limited access to personal contact information. The number of athletes who potentially received the survey is unknown since the athletes were part of the alumni database. Return rate of surveys cannot be compared between groups. There were problems with obtaining a large enough sample to compare each sport or gender.

The number of surveys returned by the control group was much larger than the number returned by the athletes. There are many more non-athletes than athletes in any given school year. The smaller athletic sample size exemplifies this.

Graduate students were included in the alumni database. Former college athletes from different universities who attended the University of Alabama for graduate school did not meet the criteria for filling out the athlete survey, restricting us to former University of Alabama athletes. This limitation should work against the original hypotheses, thus making these results more conservative. Likewise, high school athletes who were injured before they entered college, but who may have been able to compete in college athletics had the injury not occurred, were part of the control group sample. This should also make these results conservative.

Larger universities such as this also have extensive intramural programs which expose participants to injury. Consequently, many of our “control” alumni may have suffered injury in previous or non-collegiate athletics including intramurals. Likewise, we restricted our definition of sport to exclude things such as water skiing, rock climbing, marching band, and others that could result in injury. This could also make our results more conservative.

Compared to non-athletes, athletes in our sample reported substantially more limitations, more major injuries, and more chronic injuries than non-athletes. Our hypothesis that athletes would incur disability in activities of daily living due to a prior injury was confirmed in that five times more athletes reported limitations than the control group. Likewise our hypothesis that athletes would be hampered in their physical activity pursuit was confirmed, with six times more athletes than the control group reporting physical activity limitations. This suggests athletes sustain more injuries due to physical

activity participation, which was confirmed in that 52% of athlete respondents reported chronic injuries and 50% reported major injuries. This is about five times higher than the 11% of control group reporting chronic injuries and 10% who reported major injuries.

The higher reported rates of injury by athletes supported our hypothesis that athletes would report more injuries than non-athletes. The athletes may receive injuries that are more severe, which may be one reason for the higher rates of disability. Another important point is that athletes often feel pressure to return to their sport as soon as possible. About five times athletes more reported practicing with an injury or illness than control group who reported performing physical activity with an injury or illness. Add to this the fact that practices in collegiate athletics are typically more strenuous than an average college student's physical activity. Athletes may not have adequate healing time; this could lead to future injury (1). Osteoarthritis is highly associated with joint injury and could be a major factor in the limitations that athletes' experience (2).

The rate of reported disability was approximately five times higher in athletes. This would be expected to shorten average life expectancy since the scientific literature has shown that continued physical activity helps prevent chronic diseases, which are the leading cause of death in the United States (5). This may be an unanticipated and overlooked cost of athletics.

The number of athletes reporting injury was high; it is likely that the "physical cost" of these injuries in the future may be very high based on the evidence in this study. Some of these athletes could be sacrificing their future physical activity for approximately four years of collegiate participation. Paffenbarger (4) found that competing in athletics during college was not protective against cardiovascular disease (CVD) unless an active lifestyle was maintained following competitive years. Sedentary students who became active later had a lower risk of CVD than former student athletes who reduced or stopped activity. Current physical activity level seems to be more important than prior participation in athletics for disease prevention (4). Wyshek (8) compared the long-term health of women college graduates, college athletes, and a comparison group of non-athletes. Those not engaging in regular exercise at the time of the study had a high risk of disease, regardless of group.

Because we know prior athletic participation is not protective against disease (3, 4, 5, 6, 8), the price an athlete pays for a few years of athletic competition may be higher than we realize. If the athlete is unable to exercise due to the limitations, not only are they unable to compete in athletic events as they once did, they now run the risk of becoming overweight or obese. They may be occupationally or vocationally limited if they experience chronic physical disabilities. They may also pay another price in their personal life in that they may not be able to teach their children the sport they love, if, for example, they have trouble throwing a ball. Although it is very difficult to definitively measure quality of life, if all things are equal, certainly chronic injury with its attendant limitations, pain, detracts not only from productivity but from overall enjoyment of life.

We also found that athletes reported exercising aerobically more than anaerobically. Athletes reported 3.9 hours per week of aerobic exercise and 2.1 hours of anaerobic exercise. The control group only reported 1.4 hours per week of aerobic exercise but reported 3.0 hours of anaerobic exercise. We included activities such as sprinting, racquetball, tennis, and basketball, in addition to resistance training in the anaerobic category. Athletes may be staying away from stressful activities that include changes of direction or fast movements. Athletes also may have possibly gained a more favorable view towards aerobic exercise in the years since collegiate competition.

The power athletes (men's football, women's gymnastics, and men's and women's track sprinting and field events) reported disability more frequently than other athletes. Because football players made up

58% of the total reported limitations, and 30% of all football players reported disability, these results may not be indicative of gymnastics or track sprint and field events. The number of reported limitations and injuries was high in sports that are classified as endurance or mixed sports, but the fact that the football players made up 40% of the returned surveys may have impacted the numbers. The number of surveys returned by other sports was not high enough to draw sport-specific conclusions about the extent of limitations.

The popularity of youth sports raises the question of what age is too young to begin an athletic career. This study did not take into consideration injuries that occurred during childhood sports participation. The number of athletes who ended their competitive participation while competing in youth sports, or in secondary school, and their resultant limitations is unknown. Youth sports promote physical activity, which helps the battle against childhood obesity, but the risk of participation-ending injuries of some children should be considered. These children may be unable to be active as they age. Moderate physical activity should be promoted. The question at hand is whether or not a child should be placed in sport-competitive situations at an early age. Again the physical costs of participating through the years may be higher than we realize.

CONCLUSIONS

The price many athletes pay to compete is high. Based on these data, some athletes sacrifice their future quality-of-life for their athletic participation in youth athletics, high school, and collegiate sport. Sports are an important part of American culture, but the long-term risks are rarely considered. Increased risk of disability, obesity, and chronic disease may be what a competitive athlete, especially a football player, will face. Future studies should focus on the result of the increase in disability.

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APPENDIX A**Athlete Survey of Prior Injuries and Physical Capabilities**

Survey of Former Athletes
 University of Alabama
 Department of Kinesiology
 Box 870312
 Tuscaloosa, AL 35487

Please take a moment to help with research in the Department of Kinesiology at the University of Alabama. Thanks for your help.

Background Information

Gender:

- Male
 Female

Age: ____ years

Competition Weight: ____ lbs

Current Weight: ____ lbs

Competition Height: ____ feet ____ inches

Current Height: ____ feet ____ inches

Primary sport you competed in:

- Football
 Basketball
 Baseball
 Track Field events
 Track Sprints
 Track Long Distance
 Cross-Country
 Swimming
 Gymnastics
 Volleyball
 Soccer
 Tennis
 Other

Number of years you competed in college:

Number of years you competed prior to college:

Number of years you competed after college professionally:

Did you have any major injuries while competing or training for your sport during college?

- Yes
 No

If yes, did you require surgery?

- Yes
 No

What part of your body was injured? (Mark all that apply)

- Knee
 Ankle
 Shoulder
 Back

Did you experience any chronic (repetitive or overuse) injuries while competing or training for your sport during college?

- Yes
 No

If yes, did this chronic injury require surgery?

- Yes
 No

What type of chronic injury did you have? (Mark all that apply)

- Tendonitis
 Shin splints
 Plantar Fasciitis
 Muscle strain of sprain

- Leg
- Arm
- Elbow
- Other

- Chronic pain of a body part
- Repeated illness
- Meniscus injury
- Ligament
- Joint separations
- Other

Health Status

Did you have any problems related to overuse or overtraining?

- Yes
- No

Did you compete/practice with an illness or injury?

- Yes
- No

Do you have osteoarthritis?

- Yes
- No

Specify Joint(s):

Current Lifestyle

How many hours a week do you spend doing aerobic exercise (running, walking, swimming, etc.)?
_____ hours

How many hours a week do you spend doing anaerobic exercise (lifting weights, sprinting, tennis, etc.)?
_____ hours

Days per week you perform aerobic exercise:

Days per week you perform anaerobic exercise:

Average length of your daily aerobic exercise session:

Average length of your daily anaerobic exercise session:

What type of aerobic exercise do you perform?
(Check all that apply)

- Walking
- Running
- Swimming
- Biking
- Golf (no cart)
- Using various cardio equipment at the gym
- Aerobic dance
- Other

What type of anaerobic exercise do you perform?
(Check all that apply)

- Lifting weights
- Sprinting
- Interval Training
- Basketball
- Racquetball
- Tennis
- Competing in a sport
- Other

How intense do you feel your aerobic exercise is:

- Low Intensity
- Moderate Intensity
- High Intensity

Does an injury you received while practicing/competing in college athletics limit your current ability to perform activities in your daily life?

- Yes
- No

If yes, in what way are you limited?

How intense do you feel your anaerobic exercise is:

- Low Intensity
- Moderate Intensity
- High Intensity

Does an injury received while practicing/competing in college athletics limit your current ability to perform physical activity or exercise?

- Yes
- No

If yes, in what way are you limited?

APPENDIX B

Alumni Survey of Prior Injuries and Physical Capabilities

Alumni Survey
 University of Alabama
 Department of Kinesiology
 Box 870312
 Tuscaloosa, AL 35487

Please help me by taking a moment to help with research in the Department of Kinesiology at the University of Alabama. Thanks for your help.

Background Information

Gender:

- Male
 Female

Did you participate in any intramurals, extramurals, or other athletic events during college?

- Yes
 No

Age: ____ years

Weight during college: ____lbs

Current Weight: ____lbs

Height during college: ____feet ____inches

Current Height: ____feet ____inches

Did you have any major injuries while participating in physical activity during college?

- Yes
 No

Did you experience any chronic (repetitive or overuse) injuries while participating in physical activity in college?

- Yes
 No

If yes, did the injury require surgery?

- Yes
 No

If yes, did the injury require surgery?

- Yes
 No

What part of your body was injured? (Mark all that apply)

- Knee
 Ankle
 Shoulder
 Back
 Leg
 Arm
 Elbow
 Other

What type of chronic injury did you have? (Mark all that apply)

- Tendonitis
 Shin splints
 Plantar Fasciitis
 Muscle strain or sprain
 Chronic pain of a body part
 Repeated illness
 Meniscus injury
 Ligament
 Joint separations
 Other

Health Status

Do you have osteoarthritis?

- Yes
 No

Specify Joint(s):

Did you engage in physical activity with an illness or injury?

- Yes
 No

Current Lifestyle

How many hours a week do you spend doing aerobic exercise (running, walking, swimming, etc)?

Days per week you perform aerobic exercise:

Average length of your daily aerobic exercise session:

What type of aerobic exercise do you perform (Check all that apply)?

- Walking
 Running
 Swimming
 Biking
 Golf (no cart)
 Using various cardio equipment at the gym
 Aerobic dance
 Other

How intense do you feel your aerobic exercise is:

- Low Intensity
 Moderate Intensity
 High Intensity

Does an injury you received in college, during physical activity, limit your current ability to perform activities of daily living?

- Yes
 No

If yes, in what way are you limited?

How many hours a week do you spend doing anaerobic exercise (lifting weights, sprinting, tennis, etc.)?

Days per week you perform anaerobic exercise:

Average length of your daily anaerobic exercise session:

What type of anaerobic exercise do you perform (Check all that apply)?

- Lifting weights
 Sprinting
 Interval Training
 Basketball
 Racquetball
 Tennis
 Competing in a sport

Other

How intense do you feel your anaerobic exercise is:

- Low Intensity
 Moderate Intensity
 High Intensity

Does an injury you received in college, during physical activity, limit your current ability to exercise?

- Yes
 No

If yes, in what way are you limited?

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