

PERCEPTIONS OF ATHLETIC TRAINERS AND ATHLETIC DIRECTORS
REGARDING THE PURPOSE, EFFECTIVENESS, AND NECESSITY
OF THE STATE OF TEXAS MANDATED ANABOLIC
STEROID TESTING OF HIGH SCHOOL ATHLETES

THESIS

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CHAPTER 1

INTRODUCTION

Adolescent populations are at a greater health risk for anabolic steroid use when compared to an adult population.¹ The increased risk of anabolic steroid use in adolescent athletes may explain why concerns regarding anabolic steroid use in high school athletes has increased significantly over the last few decades.^{2,3} Within the state of Texas, the issue came to the forefront with the passing of Senate Bill 8 in 2007, which in turn changed the Texas Education Code by adding section §33.091.^{4,5} This bill mandated random anabolic steroid testing of all high school athletes as well as anabolic steroid education programs for all persons coaching students in grades 7-12.

The rate of anabolic steroid use has been shown to be equal in non-athletes as well as athletes.^{1,6,7} While the risk appears to be the same, the rationale for anabolic steroid use differs between the two groups. Athletes take anabolic steroids for performance enhancing reasons, while non-athletes seem to be seeking appearance improvement. More significant risk factors that predict anabolic steroid use can include a history of other drug/alcohol use and gender. Persons who have a previous history of drug and alcohol use have a higher risk of anabolic steroid use,^{1,7-10} and men are at a much higher risk for abusing anabolic steroids than women.^{1,7-9,11-13}

The side effects of anabolic steroids on a teenager can be detrimental. Physical side effects can include acne, high cholesterol, liver damage, high blood pressure, and

renal failure.^{10,14,15} Psychologically, users can experience aggressiveness, mood swings, euphoria, irritability, psychosis, depression, and hypomania¹.

Anabolic steroid prevention took form in 1970 when the National Collegiate Athletic Association (NCAA) created their Drug Education Committee. Stemming from this program, the NCAA began the drug-testing program in 1986.¹⁶ With similar concern of anabolic steroid use growing in the state of Texas in the 2000s, the state passed a bill in 2007 to begin the random drug testing of high schools athletes governed by the University Interscholastic League (UIL). The UIL governs all of athletics, as well as band, musical competitions, academic competitions, theatre and debate.¹⁷ Although the UIL governs all of these activities, only those students classified under athletics are subject to random anabolic steroid testing.

The stated purpose of the state mandated anabolic steroid testing was the prevention of the use of illegal anabolic steroids.¹⁸ At the time, Lt. Governor David Dewhurst identified anabolic steroid testing as a major component of his campaign surrounding children's safety. Also, Don Hooton, whose son Taylor committed suicide in 2003 from what was believed to be a side effect of anabolic steroid use, established the Taylor Hooton foundation to educate about drug use and testified in support of Senate Bill 8.¹⁹ According to interviews conducted by the *Austin-American Statesman*, those who supported the bill believed it was the only way to solve the growing anabolic steroid problem.²⁰ People against the bill believed that the state of Texas was overreacting to a problem that did not truly exist, especially in smaller schools.²⁰ Testing began in the fall of 2007, and the results have varied between 0-0.00064% of athletes testing positive during any given semester²¹ while costing taxpayers around \$4,000,000 dollars per year

according to a fiscal note from the 80th Legislative Session.²² However, Senate Bill 8 did call for funding to be reexamined as needed. Currently, the annual budget is down to \$750,000.²³ Given the low number of positive test results²¹ and no previous data on the prevalence of anabolic steroid use in Texas, it is impossible to know whether the anabolic steroid testing program is a useful deterrent or whether anabolic steroid use was even an existing problem.

Generally speaking, there are two rationales provided to justify anabolic steroid testing: 1) health and safety and 2) fair play. The UIL anabolic steroid testing was proposed as a deterrent to anabolic steroid use.⁴ However, it is unclear whether the objective was to deter anabolic steroid use for athletes to promote fair play or as a means of ensuring health and safety. If the purpose of anabolic steroid testing is fair play, then testing only students involved in athletics seems appropriate. If attempting to ensure the health and safety of all students, then all students should be subjected to the same measures regardless of athletic participation.

Other states including Florida and New Jersey have mandated anabolic steroid testing only to later discontinue the program due to low positive test rates.²⁴ In addition, some preliminary research has shown that mandatory anabolic steroid testing does not decrease anabolic steroid use in adolescents, and that random anabolic steroid testing may actually lead to and increase future drug abuse.^{25,26} Although the positive test rates and financial impact associated with mandatory anabolic steroid testing in Texas has been documented, little information is known about the perceptions of key personnel in charge of enforcing anabolic steroid testing about the program. In particular, perceptions

regarding the perceived purpose and necessity of mandatory anabolic steroid testing can provide information to lawmakers to make informed decisions about changes to SB 8.

Purpose

The purpose of this study is to determine the perceptions of athletic directors and athletic trainers regarding the purpose and effectiveness of the Texas UIL anabolic steroid testing policy. The perceived purpose will be examined from two overarching rationales commonly used to substantiate drug testing policies: 1) the health and safety of the athlete and 2) the fair play ideal. The perceived effectiveness of anabolic steroid testing and anabolic steroid education programs will also be examined and the perceived necessity of anabolic steroid testing will be analyzed. I will also analyze the perceived necessity of the involvement of the state of Texas legislature in creating policy to mandate anabolic steroid testing. Demographic variables will be assessed to note response trends by athletic directors and athletic trainers.

Research Questions

1. What are the perceptions of athletic directors and athletic trainers regarding the purpose of UIL anabolic steroid testing?
2. Do athletic trainers and athletic directors believe that the Texas mandatory anabolic steroid testing program is effective in carrying out its expressed mission?
3. Do athletic trainers and athletic directors believe that state mandated anabolic steroid testing of high school athletes is necessary?

4. Do athletic trainers and athletic directors believe that legislative involvement in high school athletics anabolic steroid prevention is necessary?

Operational Definitions

1. UIL is defined as the University Interscholastic League, the governing body of Texas high school extracurricular competitions.²⁷
2. Anabolic steroids are defined as derivatives of testosterone, the male sex hormone, that increase muscle mass.^{11,28,29}
3. The UIL anabolic steroid testing program is defined as the mandatory, random drug testing of all UIL athletes, regardless of gender, sport, or participation level. Anabolic steroid testing was mandated by Senate Bill 8 of the 80th Regular Session of the Texas Legislature.^{6,30}
4. Athletics is defined as any sport which is governed by the UIL, including baseball, basketball, cross country, football, golf, soccer, softball, swimming and diving, team tennis, tennis, track and field, volleyball, and wrestling.³¹
5. Health and safety is defined as the systematic protection of high school athletes from unnecessary injury or illness.³²
6. Fair play is defined as playing in a way that shows good sport, or ensuring that everyone participates equally and impartially. The rules for each sport vary, so fair play varies from competition to competition. It also includes a level playing field, which ensures that each competitor follows the same rules.³³ Each participant must follow the same rules to ensure that competitions is fair.³⁴

7. Deterrent is defined as any given method that effectively prevents the use of illegal anabolic steroids.⁴
8. Athletic director for the purpose of this article is defined as either an athletic director or an athletic coordinator who oversees the athletics department of one or more high schools.
9. Athletic trainer is defined as a recognized allied health professional that collaborates with physicians to “optimize activity and participation of patients and clients.”³⁵
10. Non-athlete is defined as any student who is not on a roster for a UIL sanctioned sports team at their respective high school.
11. Athlete is defined as any student who is currently on a roster for a UIL sanctioned sports team at their respective high school.

Delimitations

1. The study will only include high schools within the state of Texas that are governed by the UIL.
2. Only respondents with valid, retrievable email addresses will be surveyed.
3. Athletic directors surveyed must be listed in the 2011-2012 Texas Sports Guide of High Schools and Colleges with correct contact information.

Limitations

1. Athletic trainers surveyed will include all certified and/or licensed athletic trainers within the state of Texas who are members of the National Athletic Trainers Association

(NATA). This is limited by access to contact information, which will be received from the NATA database.

2. This survey will only gather perceptions of athletic trainers and athletic directors and can only be generalized to those two populations.

Assumptions

1. It is assumed that subjects are honest and truthful when answering the surveys.
2. It is assumed that the 2011-2012 Texas Sports Guide of High Schools and Colleges contains the correct and up to date contact information for athletic directors throughout the state of Texas.
3. It is assumed that the questions within the survey are clear and concise for the subject who is responding.
4. It is assumed that the athletic trainers and athletic directors are the actual respondents of this survey.
5. It is assumed that the random sample of participants will have the same beliefs of those in the desired population.
6. It is assumed that the survey response rate will exceed 25% in both the athletic trainers and athletic directors group.

Significance of the Study

Attention to anabolic steroid use among high school athletes has increased for a variety of reasons over the last few decades.^{1,2} The state of Texas attempted to limit these concerns by implementing random anabolic steroid testing throughout the state for every

high school athlete. Included in this legislation was also a mandate that all coaches of grades 7-12 go through some type of anabolic steroid education class. While these attempts at deterring anabolic steroid use may seem appropriate, they can also become costly. In addition the success of the program has been questioned given the low numbers of positive tests. The UIL must test 30% of high schools per year, with the sample being distributed across school size.⁵ In 2007, the annual budget for this program was \$4 million.²² There were two positive tests that year.³⁰ Currently, the annual budget is down to \$750,000 with only one positive test reported in 2011.^{36,37} The cost per positive test tends to range between \$750,000 and \$2 million.

Senate Bill 8 defined the purpose of mandatory drug testing for athletes participating in UIL athletics as the prevention of the use of illegal anabolic steroids. However, the perceptions of the purpose and necessity of mandatory anabolic steroid testing from the institutional perspective has not been examined. This study is an attempt to understand the perceived purpose and effectiveness of this testing protocol from the persons most involved with its implementation within the schools, athletic trainers and athletic directors. This study is the first step in understanding the beliefs and dynamics of mandatory drug testing policy from the perspectives of high school personnel. This information in addition to other factors (cost, effectiveness, practicality) can be helpful in informing the public and legislature about the success of the policy. If athletic trainers and athletic directors believe that anabolic steroid testing is not effective or necessary, than this information can effect reexamination of funding that is called for by SB 8.

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CHAPTER II

LITERATURE REVIEW

Anabolic steroid use among high school athletes has been a growing concern over the last few decades.^{1,2} The first study examining the knowledge of adolescents regarding the risks of abusing anabolic steroids was conducted in 1995 and showed that 2.9% of adolescents had used anabolic steroids and that those who used anabolic steroids were less educated about the possible side effects than non-users.³ Anabolic steroids have many negative effects that include aggression, mood swings, social, psychological and physiological problems. These problems can be more severe in teenagers and adolescents.⁴ Research regarding the side-effects of anabolic steroid use had led the University Interscholastic League (UIL), the governing board of Texas high school athletics, to institute random drug testing among all Texas high schools as mandated by state law in Senate Bill 8, 80th Regular Session of the Texas Legislature.⁵ While anabolic steroid testing has been required in the NCAA since 1986, it is rare at the high school level and new to the UIL since 2007. This review will examine risk factors and patterns of anabolic steroid use, as well as the side effects. The history of drug testing, the purpose and effectiveness of drug testing, the role of state policy, the role of the UIL, and general perceptions will also be examined.

Anabolic Steroid Use Patterns and Risk Factors

Multiple studies have found that non-athletes are just as likely as athletes to use anabolic steroids.^{4,6,7} The two subgroups differ in their reasons for using anabolic steroids, though. Athletes typically use anabolic steroids for performance enhancing purposes while non-athletes use anabolic steroids for image improvement.¹ In addition, males are at higher risk for using anabolic steroids when compared to females.^{4,7-12}

Anabolic steroid use does follow an established pattern based on some identified risk factor. These can include athletic status, acquaintances, gender and other drug use. These factors affect the likelihood of an athlete using anabolic steroids over their lifetime.

One risk factor that has been considered important is athletic status. In particular, there is a common belief that athletes are more susceptible to the pressures of anabolic steroid use. For example, one study completed in 1996 showed that 64% of anabolic steroid users were athletes.⁹ However, this percentage is not as high as was once believed with more recent studies showing that there is no difference in athletes and non-athletes in their likelihood of using anabolic steroids.^{4,6,7} The thought that only athletes use anabolic steroids to improve athletic performance needs to be re-examined and studies need to be completed that fully understand the impact of anabolic steroids on the entire community, athletes and non-athletes alike. Therefore, athletic status may not be as great of a risk factor for anabolic steroid use as was once believed.

Another known risk factor for anabolic steroid use is having acquaintances or friends who use anabolic steroids. These real-life examples can make anabolic steroids seem acceptable or less dangerous. It was shown that 79% of people who admitted to anabolic steroid use also admitted to knowing someone else who used anabolic steroids,

while only 33% of non-users knew someone else who was using anabolic steroids.⁹ Peer influence can have a great effect on adolescents, as one survey revealed that 10% of males who has used anabolic steroids only did so because their friends were using anabolic steroids.¹ Being around others using anabolic steroids can lead to peer pressure or acceptance of anabolic steroid abuse, which can in turn lead to more adolescents taking anabolic steroids.

Gender has been considered a factor for anabolic steroid use for a long time. Studies have shown consistently that men are far more likely to take anabolic steroids than women and that 0.9-2.9% of women use anabolic steroids while 3-5.4% of men use them.^{4,7-12} One study showed that this was true in both the athletic and the non-athletic population.⁴ While this means that men are at greater risk, it does not mean that adolescent females are risk-free.

The use of other drugs and alcohol is considered a factor in anabolic steroid use. Most studies confirmed that those who abuse alcohol and other drugs are more likely to use anabolic steroids.^{4,7,10,11,13} One study compared the use of drugs and alcohol amongst athletes and non-athletes and found that athletes are less likely to abuse drugs and alcohol when compared to their non-athletic counterparts. In addition, coaches and athletic directors believe their athletes have less of a problem with drug abuse than the general school population.¹⁴ It appears that those who are willing to risk their health and safety with one drug are willing to do so with other drugs.

Adolescents may have a variety of reasons for potentially using anabolic steroids. Those involved in athletics view increased muscle mass as a means to improve athletic ability while those who simply want to change their appearance see anabolic steroids as a

way to do that without the time and effort required in the gym. Eighty four percent of users were involved in some sort of sporting activity, but as many as 27% of users were looking for purely an improvement in physical appearance. Sixty four percent of males that had used anabolic steroids wanted to be stronger.¹ With strength being a factor in athletic performance, those athletes struggling to keep up or trying to maintain their spot on the team may look to what they believe is their last resort, anabolic steroids. Anabolic steroids also have an effect on physical appearance, which is a concern of every teenager, athlete or non-athlete. Males who take anabolic steroids typically want a leaner body build, while women who are looking for a larger body build will turn to anabolic steroids.¹⁰ One study demonstrated that 27% of males that had used anabolic steroids wanted to make an improvement to their physical appearance.¹ Another study even conjectured that physical appearance reasons had more to do with anabolic steroid use than athletic performance.¹¹ No matter what the reasoning is for adolescents to use anabolic steroids, users will have the same negative effects.

Anabolic Steroid Use Side Effects

Anabolic steroids can take a toll on the body as well as on the mind. There are many types of effects and these can include physical, psychological, and emotional. The physical effects of anabolic steroids can be very harmful to the body. While anabolic steroids do build muscle tissue⁸, this does not outweigh the potentially fatal outcomes. Some of these outcomes can include acne, high blood pressure, high cholesterol, and liver damage.^{15,16} A female-only study found that the most detrimental effect for women is acute renal failure.¹³

In addition to physical side effects, anabolic steroids can also harm a person psychologically. These effects can include irritability, euphoria, excessive aggressiveness, mood swings, and psychosis.^{17,18} In the female population, depression and hypomania can be seen in those who abuse anabolic steroids.¹³ These conditions can have a significant impact on that individual's life as well as the lives of those around that person.

History of Anabolic Steroid Testing

Drug testing for anabolic steroid use has existed for decades. At the collegiate setting, drug testing began in 1970 when the NCAA formed a Drug Education Committee. Then, in 1982, the University of California Los Angeles (UCLA) opened the first International Olympic Committee-certified drug-testing lab. After much research, the NCAA established a drug-testing program in 1986.¹⁹ The purpose of NCAA anabolic steroid testing is to deter student-athletes from using performance enhancing as well as recreational drugs. The NCAA tests for anabolic steroids in order to assure fair competition and also tests for recreational drugs, such as marijuana, to protect the health and safety of the student-athlete.²⁰ The NCAA began testing student-athletes year-round in 1990 for certain sports. However, it was not until 2006 that the year-round testing included the summer months and all sports¹⁹. While this program was developed to deter student-athletes from using anabolic steroids, it has also had other positive effects.²⁰ High levels of human chorionic gonadotropin (hCG) in the body can be caused by a tumor, as with the case of Chris Lofton, a basketball player whose positive test led to the diagnoses and treatment of his testicular cancer.²⁰

While drug testing has occurred in collegiate athletics since 1986, this is not the case for high school athletics. In 2006, New Jersey began an anabolic steroid testing protocol for teams who made it to the state-championship qualifying round, with one student-athlete testing positive that year.²¹ Florida also had a two-year pilot program that began in 2007 and received one positive test result over 2 years.²¹ Florida discontinued its anabolic steroid testing program after a lack of positive test results.²²

In the state of Texas, anabolic steroid use became a rising concern in the 2000s. For example, in 2005, nine students at Colleyville High School admitted to having used anabolic steroids.²³ However, these cases are few and far between. There is no data that could be found to indicate an actual increase of anabolic steroid use of high school athletes in the state of Texas. However, due to the public's perception of anabolic steroid use and the stigma associated with it, news stories such as this were highly reported. Therefore, Texas high school athletics has begun to focus their attention on anabolic steroid use and prevention.

History of Senate Bill 8

When a bill is introduced in Texas, it is first sent to a committee in the chamber of origination (Senate or House of Representatives) and the committee must have a public hearing where individuals can testify regarding the bill and a debate ensues. During the debate process, persons can testify in favor or against the bill or they can register their opinion. Witnesses may also register their opinion by signing their name either for or against the bill; however they do not stand up and speak at the hearing. After this, the committee may vote to report a bill out and the bill is placed on the calendar to be taken

to the full chamber. Once on the floor, the bill is re-read and amendments may be voted on at that time. The bill is read again, for a total of three times, and a final vote is taken. The bill then moves to the other chamber where the process is repeated to be voted on by those representatives. Once both houses approve, it is signed and sent to the governor.²⁴

In 2007, the state legislature of Texas was presented with a bill, Senate Bill 8, which called for drug testing of UIL athletes. Supporters of the bill believed it was the only way to solve the growing anabolic steroid problem in high school adolescents. Those against the bill believed that anabolic steroid use was not a problem among smaller schools and that anabolic steroid testing is ineffective at deterring anabolic steroid use.^{25,26} Three people testified in favor of passing the bill and four people testified on the bill, meaning they simply stated facts and did not have a personal opinion. Six people registered for the bill but did not testify, and 2 people registered to speak about the bill but did not testify. Lastly, one person provided written testimony on the bill but gave no opinion. During the House debate, two people registered but did not testify for the bill and one person registered but did not testify on the bill. Throughout all of these proceedings, no one testified or registered against the bill.²⁷ Of the witnesses who testified for the bill, there were people who had their own experiences with steroid abuse, including one parent of a teen who had committed suicide. Individual cases such as this can influence a legislators vote even if the cases are the exceptional and not representative of data to the contrary.²⁸ For those voting on the bill, a vote for “no” may appear unsympathetic and therefore individual cases can be used to sway legislators since politicians would not like to appear unsympathetic.²⁷ Emotional stories of personal experiences given as testimony can influence legislators to pass bills regarding health

care issues before proper research is conducted to assure that the suggested policy is the best way to deal with the concern. In more problematic cases, a bill may be passed by legislators despite empirical evidence to the contrary of a bill's assumptions or intent. In high school athletics that means ensuring that steroid testing is the most appropriate and efficient way to prevent steroid use among high school athletes.

In the spring of 2007, Senate Bill 8 passed the Senate and then the House in Texas. This bill called for random drug testing through the UIL in all sports with all participating athletes.²³ The Texas Education Code was then changed to include random anabolic steroid testing and education of coaches.²⁹

Senate Bill 8 has many different requirements. First, all high school UIL athletes must submit to random drug testing. Approximately 3% of student-athletes from 30% of high schools under the UIL are randomly tested each year. Additionally, all coaches in grades 7-12 must undergo anabolic steroid education training⁵. This education can be the video provided by the UIL website,³⁰ or a similar program chosen by the school district.⁵ The Texas Education Agency is responsible for funding these anabolic steroid tests.⁵ A fiscal note from the 80th Legislative Session noted that it would cost \$4,000,000 taxpayer dollars per year to support the program.³¹ Lastly, any student who is prescribed anabolic steroids by a medical practitioner for a medical condition may submit an exemption.⁵ With Senate Bill 8 passed, the state of Texas began testing its student-athletes for anabolic steroid use.

Testing began in 2007 and results have been published through fall 2010. The number of students tested ranged from 18,817 in the fall of 2008 to 2,083 in the fall of 2010. When the positive tests were converted to percentages, the lowest percentage of

positive tests was 0% in the spring of 2010 and the highest number of positive tests was 0.00064% in the fall of 2009. Given these results, either athletes are being deterred from taking anabolic steroids due the random testing or not as many students are taking anabolic steroids as was once believed.³²

Anabolic steroid testing of high school athletes received many reactions nationwide. Even though the United States Supreme Court ruled that anabolic steroid testing did not invade privacy over a decade ago,²² some parents are still concerned not only about the lack of privacy necessary to give a valid test, but if the tests are worth the time and money spent on them.³³ One study in 2007 showed that schools that implemented drug testing did not deter students from using drugs when compared to schools that did not use drug testing.³⁴ It was also shown that random drug testing could actually lead to an increase in future risk-taking behaviors, such as drug use.³⁴ Another study that focused on illicit drug testing, but not specifically anabolic steroids, found that drug testing did effect illicit drug use in students.³⁵ There is little evidence about the effectiveness of random drug testing, however current evidence tends to show that drug testing is not an effective deterrent.^{34,35} Another deterrent option is educational programs. The first study to look at anabolic steroid use among adolescent males found that educational programs should begin in middle school and that both athletes and non-athletes should participate in these programs.³⁶

Purpose and Necessity of Anabolic Steroid Testing

In general, there are two different rationales used to support anabolic steroid testing: 1) health and safety and 2) fair play. The stated reason of the state of Texas

anabolic steroid testing program was to discourage the use of illegal anabolic steroids, but the UIL has not been clear as to which rationale they are using for the purpose of the anabolic steroid testing program²⁶. The deterrence of anabolic steroid use could have an effect on health and safety as well as fair play, although it is unclear which rationale seems to be the main purpose of anabolic steroid testing.

Health and safety is mentioned extensively on the UIL website. Aspects included in the health and safety section of the website include adverse weather procedures, emergency medical procedures, concussion management, information about staph infections, information on lightening procedures, information on hydration, guidelines for head and neck injuries, sudden cardiac death, AED use, and anabolic steroid testing information. According to this website, “The UIL values the healthy and safety of all student-athletes.”³² and the UIL “seeks to safeguard the health and welfare of students by requiring physical examinations for participation in athletics.”³⁷ However, all of these health and safety topics fall strictly under athletics and not under any other UIL activity. If research has shown that non-athletes are just as likely as athletes to use anabolic steroids, the health and safety risks posed by anabolic steroid use should be applied to all UIL participants. By that logic, all UIL participants should be tested for anabolic steroids.

The final aspect to be examined is fair play. Fair play is described as ensuring that everyone participating in an activity abides by the same rules. Therefore, if anabolic steroids were legal and accessible by everyone, then the use of anabolic steroids would not affect the fair play ideal.³⁸ However, since they are illegal, taking anabolic steroids gives that athlete and team an unfair advantage. A portion of the UIL’s purpose statement focuses on developing “a sense of fair play”, but it is unclear whether maintaining fair

play includes mandatory anabolic steroid testing.³⁹ Ensuring that each participant follows rules in the same manner ensures that sport is fair.⁴⁰ By only implementing anabolic steroid testing on a specific population, the testing has the effect of ensuring fair play among athletes. Each of these purposes can be attributed to anabolic steroid testing, however there is no conclusive evidence on which purpose is most prevalent.

Random anabolic steroid testing is designed to be a deterrent to prevent anabolic steroid use in adolescent athletes.²⁶ For the purpose of ensuring fair play this deterrent method seems appropriate from a theoretical perspective. However, as stated previously, evidence suggests that mandatory drug testing does not prevent anabolic steroid use, regardless of the rationale for the anabolic steroid testing policy^{34,35}. In addition, evidence shows that athletes and non-athletes are abusing anabolic steroids at a similar rate.^{4,6,7} In order to protect the health and safety of all adolescents, the UIL should examine all effective methods of deterrence and determine which would be most appropriate for all students who are at risk for anabolic steroid use.

The Role of State Policy

Senate Bill 8 required the random drug testing of high school athletes in the state of Texas.⁵ This rule was later entered into the Texas Education Code, which stated that the UIL is responsible for testing student-athletes with funds being provided by the Texas Education Agency.²⁹ The code states that in order for these tests to be statistically significant, the UIL must test 30% of high schools per year, with the sample being distributed across school size. Also included in the Texas Education Code are the mandatory drug education programs for all coaches of athletes in grades 7-12.²⁹

While Senate Bill 8 has mandated random anabolic steroid testing, the UIL is responsible for carrying out the testing. The UIL uses the National Center for Drug Free Sport in order to complete its drug testing every year.³² Given that the UIL conducts the testing, provides anabolic steroid education, handles positive tests, and is responsible for the entire anabolic steroid testing program, is it truly necessary for the state of Texas legislation to control anabolic steroid testing, or could anabolic steroid testing be left to the policy of the UIL, districts or school districts? During the 82nd Legislative Session in early 2011, HB 3009 had been introduced, which would have called for the removal of the drug testing protocol in Texas. This bill, however, never made it to the floor.⁴¹

Drug Testing Protocol

When a school is selected for drug testing, there are several steps that must be followed. First, a preselected member school representative and two (one male and one female) testing site coordinators will be notified that their school has been selected for random drug testing. Notification will be 24-48 hours before drug testing and knowledge of the testing must be kept confidential. The member school representative must provide a list of all student-athletes in grades 9-12 from which the National Center for Drug Free Sport will choose random students. The member school representative notifies the students on testing day that they must immediately report to the testing station, which has been setup by the testing site coordinators. The National Center for Drug Free Sport provides the testing crews. Testing site coordinators are allowed to give fluids to assist in the process, however diluted samples will be resampled up to three times.³²

All students must report to the testing center immediately and have photo identification. If identification is unavailable, the member school personnel can identify the student. If a student is absent and it is excused, a randomly selected substitute will be tested. If a student is absent for any other reason, it will be considered a positive test result.³²

The Role of the University Interscholastic League

The University Interscholastic League (or UIL) is an institution that has governed Texas high schools for over 100 years. The UIL was established in 1910 “to provide leadership and guidance to public school debate and athletic teachers”.³⁷ According to their website, “The UIL exists to provide educational extracurricular academic, athletic, and music contests”.³⁷ UIL member schools can compete in contests of the athletic, academic, and music nature, including, but not limited to, sports, theatre, band, and debate.

According to the UIL, their purpose “is to organize and properly supervise contests that assist in preparing students for citizenship. It aims to provide healthy, character building, educational activities carried out under rules for providing for good sportsmanship and fair play for all participants”.³⁹ The purpose of the UIL applies to all junior high and high school events in all three areas of interest; music, academics, and athletics.

The UIL governs a variety of students throughout the state. In the athletic division, sports can include baseball, basketball, cross country, football, golf, soccer, swimming and diving, team tennis, tennis, track and field, volleyball, and wrestling. The

music department includes band, marching band, concert and sight reading, state wind ensemble, solo ensemble, small ensemble and medium ensemble. The academics division includes theatre, journalism, speech and debate, A+ academics, and various contests. These contests include accounting, calculator applications, computer applications, computer science, current issues and events, literary criticism, mathematics, number sense, ready writing, science, social studies, spelling and vocabulary, and use of laptops. Academically, the UIL reaches more than half a million students.⁴²

Impact of Media on Health Care Legislation

Media can have a significant impact on the public's understanding of a health issue. If the media gives extra attention to a health issue it may seem to be a more important concern, and if they downplay the effects of a certain health issue the public may follow that lead. For example, alcohol abuse is common among young adults, however the media has portrayed alcohol use as a social norm and therefore some of the general public has accepted increased alcohol use as normal.⁴³ The public, in general, does not tend to be health literate, meaning that they have difficulty understanding health issues and determining expert sources from other sources.⁴⁴ Media and information resources, like the internet, can impact the general public's perceptions because they have difficulty determining the stories that are accurate in regards to health concerns.⁴⁴ For example, fictional television shows regularly feature themes that include health care policy issues. Stories played out on television may focus on maudlin stories or dramas that are not evidence based. These can often include controversial topics and may be the only source of information that the consumer receives on the topic.⁴⁵ In addition, news

media also affects the public's view on health care issues. In 2009, a review showed that media can have a direct affect on consumers in the health care field whether the campaigns were planned or unplanned.⁴⁶

Government representatives may be as health illiterate as the general public, so when it comes to passing laws based on health concerns decisions may be based on perceptions rather than fact Both the media and non-expert sources may be able to sway the public and government representatives more easily on health issues because the topic is something that is not fully understood by these individuals.⁴⁴ These individuals have access to a great deal of accurate information, however they choose not to access this information, as shown in a similar problem with perceptions of food-risk.⁴⁷ Consumers choose to accept what is presented to them by the media as their only source of information. For example, if there is a specific news story regarding a health concern, the public will tend to accept this news story as fact and will fail to do their own research on the issue. This can result in inaccuracies because most media outlets are privately owned and maintain their own financial agenda.

The media made cases both for and against anabolic steroid testing in the time leading up to the passing of SB 8. In 2005, a Dallas area news source posted an online article titled "The Secret Edge" that detailed the extensive anabolic steroid use in the Dallas area and the ease of obtaining anabolic steroids for high school students.⁴⁸ Leading up to the passing of SB 8, media reports all over the state covered Senate Bill 8 and the effect it would have on the athletes of the UIL, including the possibility of testing positive by simply taking over-the-counter nutrition supplements.⁴⁹ News sources from Lubbock, Fredericksburg, and Houston were involved in reporting this piece of

legislation.^{49,50,51} As early as 2005, when this bill was first introduced, the idea of random anabolic steroid testing of high school athletes was dropped in exchange for an education program. At the time, the media covering this exchange promoted this as being a possible solution. This program was to be examined in 2007 and then it would be decided if steroid testing was required.⁵⁰ In Fredericksburg, the school district shared that they would have preferred to have local control over steroid testing due to budget constraints.⁵¹ Another article out of Houston warned of the risk of a false-positive test for students who take supplements, and detailed how the tests may see more of those results than true positive tests.⁴⁹ These, along with dozens of additional Texas media articles, showed that throughout the state there were people both for and against this bill. These opinions, however, were not heard during debate due to the lack of witnesses against the bill.

Perceptions

The perception of media has played a major role in the state mandated anabolic steroid testing protocol. Due to the negative stigma associated with adolescent anabolic steroid use, media and supporters of anabolic steroid testing were quick to report anabolic steroid use in the state of Texas.^{23,26} It was presented as a large problem, although the results of UIL anabolic steroid testing have not shown a high rate of positive tests indicative of anabolic steroid use²⁹. Current evidence seems to show that anabolic steroid testing is not an effective deterrent.^{34,35} however supporters of anabolic steroid testing claim that anabolic steroid testing is used to prevent anabolic steroid use.²⁶

One example of media influencing attention on anabolic steroid use is the Bay Area Laboratory Co-Operative investigation. Nine people were charged with criminal

acts as a result of this investigation, including Olympic gold medalist Marion Jones. This case also linked another eight people to anabolic steroid use, some of whom received suspensions. When this case was released, many big names in sports were exposed as anabolic steroid users⁵². This media attention eventually trickled down from professional sports, to collegiate athletics, to high school athletics and led to news stories that were sensationalized due to the stigma created by the media.

Conclusion

Anabolic steroid use is a problem that affects both athletic and non-athletic adolescents.^{4,6,7} Males and those who abuse drugs and alcohol are more likely to abuse anabolic steroids.^{4,7-13} Adolescents who abuse anabolic steroids are at risk for potentially dangerous side effects that can at time be fatal.^{13,15-18}

Anabolic steroid testing began in the NCAA in 1970 and became a year-round test for all sports in 2006.¹⁹ The state of Texas passed a bill in 2007 to call for the random anabolic steroid testing of all high school athletes.²³ This bill was designed to prevent the illegal use of anabolic steroids among high school student-athletes in the state of Texas.²⁶

Rationales for anabolic steroid testing include health and safety, deterrence, and fair play. While each of these has its own effect on the purpose of anabolic steroid testing, the UIL remains unclear as to what the main purpose of deterring anabolic steroid use is: health and safety or fair play. Both topics are addressed as purposes of the UIL on their website, however it is not mentioned as the purpose of the anabolic steroid testing protocol.^{37,38}

This study will examine the perceptions of athletic directors and athletic trainers about the purpose and effectiveness of the UIL anabolic steroid testing protocol in the state of Texas. Rationales to be examined will include health and safety and fair play. The perceptions of the necessity of state legislative involvement will also be examined. The information gained from this study should provide some additional evidence regarding the effectiveness of the program from the perspectives of the personnel that manage the mandatory anabolic steroid testing protocol.

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CHAPTER III

METHODS

Since the purpose of this study is to understand the perceptions of athletic trainers (ATs) and athletic directors (ADs) in regards to the purpose, effectiveness and necessity of mandatory anabolic steroid testing of high schools athletes in the state of Texas, I performed a descriptive study using a cross sectional design.

Participants

I requested that the National Athletic Trainers' Association (NATA) e-mail a cover letter and link of an online survey instrument to a stratified, randomly generated list of 914 NATA "regular certified" members and "associate members" working in a high school setting in the state of Texas. I sampled both certified and associate members to include both licensed and certified athletic trainers working in the state of Texas in the secondary school setting. Using the July 2011 NATA membership statistics, I identified that there were 572 certified members employed in a high school or clinic outreach setting in the district 6 (D6) region (Texas and Arkansas). In addition, there were 342 associate members in D6. When totaled, the population working in a secondary setting was 914 athletic trainers. To have 95% confidence and 5% error rate, I needed to sample 270 athletic trainers. Since the typical response rate for online surveys is 30%, I administered questionnaires to 900 athletic trainers to ensure an adequate sample size.¹

For ADs, I used a random number calculator to generate the list of ADs that will be sampled. I used the 2011-2012 Texas Sports Guide of High Schools and Colleges to gather the names and emails of all ADs currently employed in the state of Texas. There were 1,497 Texas high schools listed in the book in alphabetical order.² Numbers generated from a random number calculator were used to select schools from the book and the athletic director of that school was contacted. To have 95% confidence and 5% error rate, I needed to sample 306 athletic directors. Since the typical response rate for online surveys is 30%, I administered questionnaires to 1,020 athletic directors.¹

The participants were instructed via a cover letter that they imply consent by completing the survey instrument, and the study was reviewed and approved by the principle investigator's university Institutional Review Board before the project began. All information was kept confidential and personal identifiers were not used.

Instrument

I developed a survey instrument to establish and understand perceptions of ATs and ADs in regards to the purpose, effectiveness and necessity of mandatory anabolic steroid testing of high schools athletes in the state of Texas. The survey contained five sections: 1.) questions that address the perceived purpose of mandatory anabolic steroid testing in the state of Texas, 2.) questions that address the perceived effectiveness of mandatory anabolic steroid testing in the state of Texas, 3.) questions that address the perceived necessity of state regulated mandatory anabolic steroid testing, and 4.) questions that address the perceived understanding of Senate Bill 8, and 5.) questions obtaining participant demographics. Most questions were created and scaled with Likert

responses while some questions (i.e. demographics) used categorical and ranking type responses. The demographic questions used categorical and ranking type responses. The survey was developed using a table of specifications (see table 1). Questions that address the perceived purpose of the mandatory anabolic steroid testing included questions surround two perceived purposes: 1.) health and safety and 2.) fair play in athletics. Questions that address the perceived necessity of state involvement in mandatory anabolic steroid testing examined whether ADs and ATs perceive that legislative involvement is necessary in anabolic steroid testing and regulation. I adjusted the language of the questions so that they apply to each respondent. For example, questions were worded “As an athletic trainer, I believe...” or “As an athletic director, I believe...”

Table 1. Table of Specifications

Content Area	Purpose of Question	Number of Questions
Purpose and effectiveness of mandatory anabolic steroid testing and education programs from 2 rationales (Health and safety, fair play)	General effectiveness	5
	State of Texas program effectiveness	4
	Purpose as perceived by participant	2
	Participant’s perception of the state of Texas	2
	Legislature’s purpose	
Necessity	Necessity of the regulation of anabolic steroid testing	4
Senate Bill 8	Perceptions regarding SB 8	7
Demographics	Job title, school size, years of employment, years with current employer, geographic location, full time/part time, number of ATs at school, UIL school representative	8

Validity

I assessed the content validity of the survey with two subject matter experts who judged the questions fit to the intended purpose of the questions. One was an expert in

health-related bills and the legislative process and the other was an expert in anabolic steroid abuse. The experts examined the content of each individual question to ensure that the questions were applicable to this topic, appropriate for the subjects to answer, and specific to the intended purpose of the question based on the table of specifications. The experts approved that there were no questions that were inappropriate and changes we made some modifications to several questions to improve question clarity based on feedback from the experts. I also met with high school athletic trainers (n=3) and athletic directors (n=3) individually to discuss the survey instrument to assess the survey's face validity. During the meeting, I discussed each item of the instrument. The discussion resolved any problems that practicing athletic trainers or athletic directors perceive with the instrument's format, language, word usage, and/or question clarity. The instrument was modified based on feedback from the group.

Data Collection

Participants were asked to access the online survey hosted by SNAP Surveys (Snap Surveys Ltd, Thornbury, Bristol BS35 3UW, UK). A six-week window was given to participants to access and complete the survey. A reminder letter was sent to all participants two weeks after the initial email, as well as 4 weeks after the initial email.³ Participants were allowed to withdraw from the survey at any time and allowed to skip questions without any penalty.

Statistical Analysis

Descriptive statistics were calculated on the data using SPSS (version 18.0; SPSS Inc, Chicago, IL). Likert-style questions were considered endorsed when “agree” or “strongly agree” was the answer choice chosen by the subject. Data resulting from the Likert-style questions are reported as percentage endorsed and shown in Tables 3-8. Tables 9-10 show answers to categorical questions regarding methods and responsibility for preventing anabolic steroid use.

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CHAPTER IV

MANUSCRIPT

Introduction

In 2007, the Texas Legislature passed Senate Bill 8 (SB 8). This bill called for the random anabolic steroid testing all Texas high school athletes due to increased concerns about anabolic steroid use.¹ Senate Bill 8 has many different requirements. First, all high school UIL athletes must submit to random drug testing. Approximately 3% of student-athletes from 30% of high schools under the UIL are randomly tested each year. Additionally, all coaches in grades 7-12 must undergo anabolic steroid education training.² This education can be the video provided by the UIL website,³ or a similar program chosen by the school district.² The Texas Education Agency is responsible for funding these anabolic steroid tests.²

Studies have shown consistently that 0.9-2.9% of women and 3-5.4% of men use anabolic steroids.⁴⁻⁹ Athletes and non-athletes abuse anabolic steroids at an equal rate. The difference between the two groups is that athletes use anabolic steroids for performance enhancement reasons while non-athletes seek to improve their appearance with anabolic steroids.^{4,10,11} Risk factors associated with anabolic steroid abuse include other high-risk behaviors, such as drug and alcohol abuse, as well as gender.^{4,6,10,12} Men are much more likely to abuse anabolic steroids than women.⁴⁻¹⁰ Given the negative side effects that

anabolic steroids have on the body^{10,12-14}, it is important that the deterrence of anabolic steroid use among adolescents is examined.

Anabolic steroid testing has been performed in the NCAA since 1986.¹⁵ At the high school level, however, only a few states perform random anabolic steroid tests on their athletes. At some point, Florida, New Jersey, and Texas have all had a form of anabolic steroid testing. Texas is the only remaining state to perform random anabolic steroid testing on their student-athletes year round.¹⁶ Limited experimental research has been conducted on the effectiveness of mandatory anabolic steroid testing. Some research has shown that mandatory anabolic steroid testing, in general, does not decrease anabolic steroid use in adolescents, and may actually lead to future anabolic steroid abuse by those tested.^{17,18} Education programs about anabolic steroid use have been shown to be more effective, particularly programs that are conducted in a peer-to-peer format.¹⁹

There are many different factors that contributed to the debate about anabolic steroid use and prevention when Senate Bill 8 was on the Senate floor. Stories of individuals who had used anabolic steroids and had negative effects could have swayed the general public and legislators to believe that anabolic steroid abuse was a problem in the state of Texas. For example, stories like that of Taylor Hooton, a high school student who committed suicide in 2003, could be found in the media.²⁰ At the same time, anabolic steroid abuse scandals, such as the BALCO cases and trials, were being highly publicized.²¹ Legislators and the public, in general, tend to be health illiterate when it comes to policy, meaning that they have difficulty understanding health issues and determining expert sources from other sources.²² Both the media and non-expert sources

may be able to sway the public and government representatives more easily on health issues because the topic is not fully understood by these individuals.²²

In the case of Senate Bill 8, not a single person throughout the legislative proceedings testified or registered against the bill.²³ Of the witnesses who testified for the bill, there were people who had their own experiences with steroid abuse, including one parent of a teen who had committed suicide. Individual cases such as this can influence a legislators vote even if the cases are exceptional and not representative of data to the contrary.²⁴ For those voting on the bill, a vote for “no” may appear unsympathetic and therefore individual cases can be used to sway legislators since politicians would not like to appear unsympathetic.²³ Emotional stories of personal experiences given as testimony can influence legislators to pass bills regarding health care issues before research is conducted to assure that the suggested policy is the best way to deal with the concern. In more problematic cases, a bill may be passed by legislators despite evidence to the contrary of a bill’s assumptions or intent. According to interviews conducted by the *Austin-American Statesman*, those who supported the bill believed it was the only way to solve the perception of a growing anabolic steroid problem.²⁵

Each year anabolic steroid testing is funded out the of the Texas Education Association (TEA) general education fund costing taxpayers approximately \$4,000,000 dollars per year.² The number of positive tests per semester in the state of Texas since 2007 have ranged from 0.0-0.00064%.²⁶ In 2007, the annual budget for this program was \$4 million.²⁷ There were two positive tests that year.²⁸ Currently, the annual budget is down to \$750,000 with one positive test reported in 2011.^{29,30} The cost per positive test ranges between \$750,000 and \$2 million. With the five-year anniversary of the bill

approaching, it is important to examine the purpose, effectiveness, and necessity of the program so decisions can be made about the future of the program.

This study was conducted to understand the perceived purpose, effectiveness, and necessity of the UIL anabolic steroid testing protocol from the views of athletic trainers and athletic directors. These participants were chosen because of their close proximity to the student-athletes as well as the implementation of the anabolic steroid testing protocol. This information, along with other factors (cost, effectiveness, and practicality) can be helpful in informing the legislature and the public about the success of the policy and possible changes during the allowed re-evaluation of funding that could improve future anabolic steroid deterrence among high school athletes in the state of Texas.

Methods

Participants

To sample the athletic trainers (ATs), we used the July 2011 National Athletic Trainer's Association (NATA) membership statistics. We identified that there were 572 certified members employed in a high school or clinic outreach setting in the district 6 (D6) region (Texas and Arkansas). In addition, there were 342 associate members in D6. When totaled, the population working in a secondary setting was 914 ATs. In order to have 95% confidence, 5% error rate, and anticipating a 30% response rate, we requested a random sample of 900 ATs' emails from the NATA.³¹

For the sample of athletic directors (ADs), we used the 2011-2012 Texas Sports Guide of High Schools and Colleges to gather the names and emails of all ADs currently employed in the state of Texas. There were 1,497 Texas high schools listed in the book in

alphabetical order.³² Numbers generated from a random number calculator were used to select schools from the book and the AD of that school was contacted. To have 95% confidence and 5% error rate, we needed to sample 306 ADs. Since the typical response rate for online surveys is 30%, we sampled 1,020 ADs.³¹

Study Design

We used a cross sectional, survey research design to examine our research question. Participants were asked to access the online survey hosted by SNAP Surveys (Snap Surveys Ltd, Thornbury, Bristol BS35 3UW, UK). A six-week window was given to participants to access and complete the survey. A reminder letter was sent to all participants two weeks after the initial email, as well as 4 weeks after the initial email.³³ Participants were allowed to withdraw from the survey at any time and allowed to skip questions without any penalty.

Survey Instrument

We developed a survey instrument to establish and understand perceptions of ATs and ADs in regards to the purpose, effectiveness and necessity of mandatory anabolic steroid testing of high schools athletes in the state of Texas. The survey contained five sections: 1.) questions that addressed the perceived purpose of mandatory anabolic steroid testing in the state of Texas (n=4), 2.) questions that addressed the perceived effectiveness of mandatory anabolic steroid testing as well as anabolic steroid education programs(n=9), 3.) questions that addressed the perceived necessity of state regulated mandatory anabolic steroid testing (n=4), 4.) questions that addressed the perceived understanding of Senate Bill 8 (n=7), and 5.) questions that obtained participant demographics (n=8). Most questions were created and scaled with Likert responses

while some questions (i.e. all demographics and 3 non-demographics) used categorical and ranking type responses. The survey was developed using a table of specifications (see table 1). Questions that addressed the perceived purpose of the mandatory steroid testing examined the two perceived purposes commonly cited as the rationales for anabolic steroid testing: 1.) health and safety and 2.) fair play in athletics. Questions that addressed the perceived necessity of state involvement in mandatory steroid testing examined whether ADs and ATs perceive that legislative involvement is necessary in steroid testing and regulation. We adjusted the language of the questions so that they apply to each set of respondents. For example, questions were worded “As an athletic trainer, I believe...” or “As an athletic director, I believe...”

We assessed the content validity of the survey with two subject matter experts who judged the questions fit to the intended purpose of the questions. One was an expert in health-related bills and the legislative process and the other was an expert in anabolic steroid abuse. The experts examined the content of each individual question to ensure that the questions were applicable to this topic, appropriate for the subjects to answer, and specific to the intended purpose of the question based on the table of specifications. The experts approved that there were no questions that were inappropriate and we made some modifications to several questions to improve question clarity based on feedback from the experts. The primary investigator (KC) also met with high school ATS (n=3) and ADs (n=3) individually to discuss the survey instrument to assess the survey’s face validity. During the meeting, each item of the instrument was discussed. The discussion resolved any problems that practicing ATs or ADs perceived with the instrument’s format,

language, word usage, and/or question clarity. The instrument was modified based on feedback from the ATs and ADs.

Data Analysis

Descriptive statistics were calculated using SPSS statistical software (version 18.0; SPSS Inc, Chicago, IL). Likert-style questions were considered endorsed when “agree” or “strongly agree” was the answer choice chosen by the participants. Data resulting from the Likert-style questions are reported as percentage endorsed (see tables 3-8). Tables 9-10 show answers to categorical questions regarding methods and responsibility for preventing anabolic steroid use.

Results

One hundred forty ATs (15.6% response rate) and 187 ADs (18.3% response rate) completed the survey. ADs were fairly distributed throughout Texas geographic locations and school sizes. ATs were fairly distributed throughout Texas geographic locations, however most respondents were at a 3A or larger school. 42.9% of ATs currently had an anabolic steroid education program at their school while 35.8% of ADs did as well. Table 2 lists all demographic characteristics of the respondents.

Perceptions of Primary Purpose of Anabolic Steroid Testing

The majority of both ATs (73.6%) and ADs (86.6%) stated that they personally believed that the primary purpose of state mandated anabolic steroid testing should be health and safety. However many ATs (66.4%) and ADs (68.1%) also stated that the primary purpose of anabolic steroid testing should be to ensure fair play. Fewer ATs (62.1%) and ADs (67.7%) believed the legislative intent of the mandatory anabolic

steroid testing was for the athlete's health and safety while even fewer ATs (57.1%) and ADs (56.5%) believed the legislative intent was to ensure fair play (see table 4).

Perceptions of the Effectiveness of Anabolic Steroid Testing and Anabolic Steroid Education

A small number of ATs (21.5%) and ADs (31.6%) believe that anabolic steroid testing, in general, is effective. An even smaller amount of ATs (19.3%) and ADs (28.6%) believed that anabolic steroid testing in the state of Texas prevents anabolic steroid use among high school athletes. A limited number of ATs (22.8%) and ADs (5.0%) believed that anabolic steroid use was a problem in their high school prior to anabolic steroid testing. Of those few who believed that anabolic steroid use was a problem at their school, a small minority of ATs (19.6%) and ADs (33.3%) believe that anabolic steroid use has decreased since the implementation of random anabolic steroid testing in 2007. Lastly, a small amount of ATs (1.4%) and ADs (5.9%) believe that anabolic steroid testing alone is the most effective method for preventing anabolic steroid use.

In regards to anabolic steroid education, a greater number of ATs (49.3%) and ADs (65.6%) believed adult led education programs were effective. Peer-to-peer programs were also perceived as effective by both ATs (54.3%) and ADs (60.8%). On the contrary, very few ATs (18.6%) and ADs (37.1%) believed the current UIL coaches education program effectively prevents anabolic steroid use amongst high school athletes.

Perceptions of Legislative Involvement in Anabolic Steroid Testing of High School Athletes

Only a small number of ATs (3.6%) and ADs (2.7%) believed that the Texas Legislature should be responsible for regulations anabolic steroid testing or anabolic steroid education programs in high school athletics. Most ATs (49.3%) and ADs (41.7%) believed that the UIL should be responsible for regulation anabolic steroid testing. Most ATs (51.4%) believed that the UIL should be responsible for regulating anabolic steroid education programs, while most ADs (44.4%) believed that individual school districts should be responsible for regulating anabolic steroid education programs. Also, few ATs (27.1%) and ADs (20.3%) believe that legislators reviewed high-quality research prior to passing Senate Bill 8. A majority of ATs (90.6%) and ADs (92.5%) believed that the opinions of those in their own profession should have been considered when debating Senate Bill 8.

Discussion

The purpose of this survey was to determine the perceptions of ATs and ADs regarding the UIL mandatory random anabolic steroid testing protocol. We found few studies regarding random anabolic steroid testing of high school athletes from the perspective of adults who are directly involved in the process of administering the tests, as well as involved with student-athletes on a daily basis.

More ATs and ADs believe that health and safety should be the primary purpose of random anabolic steroid testing when compared to ensuring fair play. The same was true for the beliefs of ATs and ADs about the legislative intent of random anabolic

steroid testing. Interestingly, both health and safety of the athlete, as well as ensuring fair play, were believed to be the legislative intent by both ATs and ADs. This means that some ATs and ADs believed that both rationales (health and safety as well as ensuring fair play) should be the primary purpose of random anabolic steroid testing, and that both rationales described the legislative intent of random anabolic steroid testing. Therefore, the perceived purpose of random anabolic steroid testing does not fall under one rationale or the other, but is rather a combination of both rationales. The UIL does not identify with one rationale or another in regards to random anabolic steroid testing.³⁴ Athletes tend to abuse anabolic steroids at the same rate as non-athletes^{4,10,11}, so the rationale chosen is significant. Based on the patterns of anabolic steroid use,^{4,10,11} if the UIL is using anabolic steroid testing to deter from steroid use to protect the health and safety of students, then all student in the UIL (band, athletics, theatre, etc.) should be subject to random anabolic steroid testing. Interestingly, ATs and ADs did not believe that all members of the UIL should be tested. However, if the UIL is deterring anabolic steroid use for the purpose of ensuring fair play amongst student-athletes, then the UIL should make that known to the public and the state so the most efficient form of anabolic steroid testing can be used. Although the incidence of anabolic steroid abuse is low (3-5.4% of men and 0.9-2.9% of women),⁴⁻¹⁰ other risk factors for anabolic steroid use include gender, with males being more likely to abuse anabolic steroids, and a previous history of abusing other drugs or alcohol.^{4-10,12}

The majority of ATs and ADs do not believe that anabolic steroid testing is an effective deterrent against anabolic steroid use. This belief applies to both the general idea of mandatory anabolic steroid testing as well as the protocol specific to high school

athletes in Texas as mandated by SB 8. Our findings align with research that random anabolic steroid testing has not been shown to be an effective deterrent to anabolic steroid use.^{17,18} Furthermore, most ATs and ADs stated that they did not believe that anabolic steroid use was a problem among their students, their athletes, Texas students, or Texas athletes. The beliefs of our participants are supported by studies that show anabolic steroid abuse rates to be low among men and women.⁴⁻¹⁰ Supporters of SB 8 were anxious to have some deterrent in place for the prevention of anabolic steroid use and believed that anabolic steroid testing was the best method.²⁵ Legislators, as well as the general public, need to be better educated on the lack of evidence that supports random anabolic steroid testing, as well as introduced to the evidence in support of anabolic steroid education in order to determine the most effective method of deterring anabolic steroid use.

ATs believed that adult-led anabolic steroid education programs are effective for preventing anabolic steroid use. About the same number of ATs also believe that peer-to-peer anabolic steroid education programs are effective. ADs also believe both programs to be effective, however slightly more ADs perceived adult-led anabolic steroid education programs to be effective. Neither ATs nor ADs found the UIL coaches anabolic steroid education program to be effective. The UIL, under the SB 8 mandate, requires that all coaches in grades 7-12 undergo anabolic steroid education training.³⁵ This education can be the video provided by the UIL website² or a similar program chosen by the school district.³⁵ This is the only required form of education about anabolic steroid use and is directly aimed at coaches but not athletes. ATs thought that the UIL should be responsible for regulating anabolic steroid education programs while athletic directors

believed that individual school districts should be responsible for regulating anabolic steroid education programs. Peer-to-peer education programs have been shown to be more effective than adult-run education programs, however both are an effective deterrence from anabolic steroid use.¹⁹ Although there is limited research on the effectiveness of anabolic steroid education programs, education programs have been proven to be effective among other health issues, including tobacco prevention and cessation.^{36,37} Athletic trainers, athletic directors, legislators, and the general public should be educated on the effectiveness of both peer-to-peer anabolic steroid education programs as well as adult-run anabolic steroid education programs. Given the ATs and ADs beliefs about the effectiveness of the current education program and research findings in favor of peer to peer education, the required form of anabolic steroid education may need to be reassessed, modified, and targeted directly to athletes.

In the state of Texas, ATs and ADs do not believe that the Texas Legislature should be responsible for regulating anabolic steroid testing or anabolic steroid education programs. The Texas Legislature took this responsibility upon themselves in 2007 with the passing of Senate Bill 8 (SB 8).² SB 8 called for the random anabolic steroid testing of high school athletes in the state of Texas.² This rule was later entered into the Texas Education Code, which state that the UIL is responsible for testing student-athletes with funds being provided by the Texas Education Agency.³⁸ When the Legislature assumed this responsibility, they also assumed the responsibility of educating themselves on research related to anabolic steroid testing. The majority of ATs and ADs, however, do not believe that legislators reviewed high-quality research prior to passing SB 8. The general public as well as legislators tend to accept media portrayals regarding a specific

health issue, instead of researching the topic on their own.²² While there is not a great deal of research regarding anabolic steroid testing and education programs in adolescents, the current research^{17,18,19} leans towards the idea that anabolic steroid education is more effective and preventing anabolic steroid use than random anabolic steroid testing. Other education programs (such as tobacco prevention) have also been proven to be effective.^{36,37} While the legislative body is responsible for regulating these programs, they could allow more flexibility in changes to anabolic steroid prevention. The UIL should be given the authority to make these decisions as more research becomes available without having to go through the legislative body.

In regards to SB 8, ATs and ADs believed that legislators passed this bill based on pressure from its community and constituents. However a greater portion of ATs and ADs believed that legislators passed this bill based on media portrayals of anabolic steroid use in athletics. Around this time, the BALCO trial was in the media and other news sources were covering anabolic steroid use from the professional level to the high school level.^{21,39-42} When the public and legislators alike received information regarding health care legislation, including information from the media, they typically do not perform their own research to back up those claims²², so the media is able to have much more control over what is being discussed during the hearing for health care legislation when compared to legislation regarding topics about which legislators have more knowledge. Athletic trainers and athletic directors can use media outlets to their advantage in the future by completing grassroots efforts and public promotions that show that current research is suggesting that anabolic steroid education programs are a better method of preventing anabolic steroid use over anabolic steroid testing.

Implications for Future Research

There have only been two experimental studies performed assessing the effectiveness of mandatory random anabolic steroid testing. Future research should investigate the effectiveness of mandatory random anabolic steroid testing, especially on adolescent athletes to produce a body of knowledge. Future research should also examine the effectiveness of anabolic steroid education programs as a deterrent to anabolic steroid use, and both adult-led programs and peer-to-peer programs need to be further examined.

The media played a role in the decision to pass SB 8.^{4,21,39-42} More research should be conducted on the effect of media on health care legislation. Also, more research needs to be conducted on the extent that legislators educate themselves on health care legislation before voting on a specific bill.

Conclusion

This study was a preliminary examination of the perceptions of ATs and ADs regarding random anabolic steroid testing of high school athletes, specifically in the state of Texas. It was found that ATs and ADs do not perceive random anabolic steroid testing to be an effective deterrent to anabolic steroid use. It was also found that ATs and ADs believe that education programs are an effective deterrent to anabolic steroid use. ATs and ADs believe that Legislatures should have reviewed more high-quality research before passing SB 8. Lastly, ATs and ADs did not believe that the Texas Legislature should be responsible for regulating either random anabolic steroid testing or anabolic steroid education programs for high school athletes.

As we approach the five-year mark of the passing of SB 8, it may be time to re-examine this policy. Positive test rates over the last five years have ranged from 0-0.0064% of student-athletes tested for anabolic steroid use.²⁶ Anabolic steroid testing, in general, has not been shown to be an effective deterrent to anabolic steroid use.^{17,18} Education programs preventing anabolic steroid use, on the other hand, have been shown to be an effective deterrent.¹⁹ SB 8 allows for a re-examination of funding,² so this funding could be allocated to education programs that are more effective and efficient than the current anabolic steroid testing protocol. This is significant to Texas because a re-evaluation of SB 8 could lead to a decrease in funding necessary to deter anabolic steroid use while simultaneously having an increase in practicality and effectiveness of the program used with student-athletes.

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Table 2. Participant Characteristics

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Sex		
Male	87 (62.1)	178 (95.2)
Female	53 (37.9)	9 (4.8)
Work Experience		
0-5 years	40 (28.6)	7 (3.7)
6-10 years	26 (18.6)	13 (7.0)
11-15 years	25 (17.9)	30 (16.0)
16-20 years	13 (9.3)	38 (20.3)
20+ years	36 (25.7)	99 (52.9)
School Classification		
1A or below	1 (0.7)	44 (23.5)
2A	6 (4.3)	24 (12.8)
3A	22 (15.7)	37 (19.8)
4A	40 (28.6)	42 (22.5)
5A	71 (50.7)	40 (21.4)
Job Title		
Head Athletic Trainer	79 (56.4)	n/a
Associate Athletic Trainer	6 (4.3)	n/a
Assistant Athletic Trainer	23 (16.4)	n/a
Athletic Trainer	32 (22.9)	n/a
Athletic Director	n/a	91 (48.7)
Associate Athletic Director	n/a	2 (1.1)
Assistant Athletic Director	n/a	2 (1.1)
Athletic Director & Coach	n/a	57 (30.5)
Athletic Coordinator	n/a	35 (18.7)
Geographic Location		
West Texas	17 (12.1)	25 (13.4)
South Texas	24 (17.1)	51 (27.3)
Central Texas	23 (16.4)	36 (19.3)
East Texas	31 (22.1)	28 (15.0)
North Texas	45 (32.1)	33 (17.6)
Texas Panhandle		14 (7.5)
My school currently provides an anabolic steroid education program for students	60 (42.9)	67 (35.8)

Table 3. Endorsed Beliefs Regarding the Primary Purpose of State Mandated Anabolic Steroid Testing in all UIL Sanctioned Interscholastic Athletes

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Should be to improve “health and safety”	103 (73.6)	162 (86.6)
Should be to ensure “fair play”	93 (66.4)	126 (68.1)

Table 4. Endorsed Beliefs of the Legislative Intent for State Mandated Anabolic Steroid Testing in all UIL Sanctioned Interscholastic Athletes

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
“Health and safety”	87 (62.1)	126 (67.7)
“Fair play”	80 (57.1)	105 (56.5)

Table 5. Endorsed Beliefs of the Effectiveness of Anabolic Steroid Prevention Education Programs at Preventing Anabolic Steroid Use Amongst UIL Student Athletes

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Student anabolic steroid prevention programs instructed by adults are effective	69 (49.3)	122 (65.6)
Peer-to-peer anabolic steroid prevention programs could be effective	76 (54.3)	93 (60.8)
State mandated anabolic steroid education programs for UIL coaches effectively prevents anabolic steroid use	26 (18.6)	69 (37.1)

Table 6. Endorsed Beliefs of the Effectiveness of Anabolic Steroid Testing at Preventing Anabolic Steroid Use Amongst UIL Student Athletes

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Anabolic steroid testing, in general, prevents anabolic steroid use	29 (21.5)	56 (31.6)
Anabolic steroid use was occurring in my high school prior to UIL anabolic steroid testing	45 (22.8)	9 (5.0)
Anabolic steroid use in my high school has decreased since UIL anabolic steroid testing was implemented	9 (19.6)	5 (33.3)
Anabolic steroid testing in the state of Texas prevents anabolic steroid use among high school athletes	26 (19.3)	53 (28.6)
All UIL participants (music, academics, and athletics) should be required to undergo anabolic steroid testing	38 (28.1)	57 (31.0)

Table 7. Endorsed Beliefs of Anabolic Steroid Use as a Problem Among High School Athletes

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
I believe that anabolic steroid use is a problem...		
Among Texas high school students	11 (7.9)	8 (4.3)
Among Texas interscholastic athletes	18 (12.9)	27 (14.5)
Among high school students at my school	4 (2.9)	3 (1.6)
Among interscholastic athletes at my school	3 (2.2)	3 (1.6)

Table 8. Endorsed Beliefs of Senate Bill 8

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Legislative intent was to prevent anabolic steroid use	109 (77.9)	134 (71.7)
Legislators reviewed high-quality research prior to passing Senate Bill 8	38 (27.1)	38 (20.3)
Legislators passed Senate Bill 8 primarily under pressure from its community/constituents	91 (65.0)	93 (50.0)
Legislators passed Senate Bill 8 primarily based on media portrayals of anabolic steroid use in athletics	106 (75.7)	137 (74.1)
The opinion of those in my profession should have been considered when debating Senate Bill 8	126 (90.6)	173 (92.5)

Table 9. Beliefs Regarding Methods for Preventing Anabolic Steroid Use

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
The following method is most effective for preventing anabolic steroid use...		
Education Program	54 (38.6)	81 (43.3)
Anabolic Steroid Testing	2 (1.4)	11 (5.9)
Education program + anabolic steroid testing	75 (53.6)	84 (44.9)
None of the above	6 (4.3)	9 (4.8)

Table 10. Beliefs Regarding Responsibility for Preventing Anabolic Steroid Use

Variable	Frequency, Percentage n (%)	
	AT (n=140)	AD (n=187)
Which institution is responsible for regulating anabolic steroid testing...		
Texas Legislature	5 (3.6)	5 (2.7)
The UIL	69 (49.3)	78 (41.7)
Individual School Districts	40 (28.6)	67 (35.8)
I don't believe it is necessary to regulate anabolic steroid testing	20 (14.3)	25 (13.4)
None of the above	5 (3.6)	10 (5.3)
Which institution is responsible for regulating anabolic steroid education programs...		
Texas Legislature		
The UIL	5 (3.6)	5 (2.7)
Individual School Districts	72 (51.4)	81 (43.3)
I don't believe it is necessary to regulate anabolic steroid testing	52 (37.1)	83 (44.4)
	7 (5.0)	13 (7.0)
None of the above		
	3 (2.1)	3 (1.6)

APPENDIX A

ATHLETIC DIRECTORS' COVER LETTER

Dear Athletic Director,

You are being invited to participate in a research study examining the perceptions of athletic trainers and athletic directors regarding the purpose, effectiveness, and necessity of the state-mandated anabolic steroid testing protocol of all high school athletes in Texas. This study is being conducted by Kristina Creinin ATC, LAT, CES, a graduate student in the M.S. in Athletic Training program at Texas State University.

You were selected as a possible participant in this study because you are an athletic director working in a high school setting in the state of Texas.

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The information you provide will be used to understand the purpose, effectiveness, and necessity of mandatory anabolic steroid testing of high school athletes. The questionnaire will take about 10 minutes of time to complete. The information collected may not benefit you directly, but the information gathered in this study, in addition to other factors, will help in informing the public and legislature about the success of the state-mandated anabolic steroid testing policy. By participating, you will have the option to be entered into a raffle for one of three \$25.00 Visa gift cards. Entry into the raffle will include entering your email address, however this link will not be linked to your answers.

This survey is anonymous. We will not collect IP addresses and the information is encrypted; however we cannot guarantee absolute anonymity over the internet. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Should the data be published, no individual information will be disclosed.

By clicking on the link, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason. You may opt out of the survey by selecting the link to opt out.

If you have any questions about the study, please contact Kristina Creinin at (956) 459-4711 or at KC1537@txstate.edu, or Dr. Luzita Vela at (512) 245-1971.

If you have any questions about your rights as a research subject or if you feel you've been placed at risk, you may contact the Texas State University Institutional Review Board (IRB) by phone at (512) 245-2314, or by e-mail at ospirb@txstate.edu.

APPENDIX B

ATHLETIC TRAINERS' COVER LETTER

Dear Fellow Athletic Trainer,

You are being invited to participate in a research study examining the perceptions of athletic trainers and athletic directors regarding the purpose, effectiveness, and necessity of the state-mandated anabolic steroid testing protocol of all high school athletes in Texas. This study is being conducted by Kristina Creinin ATC, LAT, CES, a graduate student in the M.S. in Athletic Training program at Texas State University.

You were selected as a possible participant in this study because you are an athletic trainer working in a high school setting in the state of Texas.

There are no known risks if you decide to participate in this research study. There are no costs to you for participating in the study. The information you provide will be used to understand the purpose, effectiveness, and necessity of mandatory anabolic steroid testing of high school athletes. The questionnaire will take about 10 minutes of time to complete. The information collected may not benefit you directly, but the information gathered in this study, in addition to other factors, will help in informing the public and legislature about the success of the state-mandated anabolic steroid testing policy. By participating, you will have the option to be entered into a raffle for one of three \$25.00 Visa gift cards. Entry into the raffle will include entering your email address, however this link will not be linked to your answers.

This survey is anonymous. We will not collect IP addresses and the information is encrypted; however we cannot guarantee absolute anonymity over the internet. No one will be able to identify you or your answers, and no one will know whether or not you participated in the study. Should the data be published, no individual information will be disclosed.

By clicking on the link, you are voluntarily agreeing to participate. You are free to decline to answer any particular question you do not wish to answer for any reason. You may opt out of the survey by selecting the link to opt out.

If you have any questions about the study, please contact Kristina Creinin at (956) 459-4711 or at KC1537@txstate.edu, or Dr. Luzita Vela at (512) 245-1971.

If you have any questions about your rights as a research subject or if you feel you've

been placed at risk, you may contact the Texas State University Institutional Review Board (IRB) by phone at (512) 245-2314, or by e-mail at ospirb@txstate.edu.

This student survey is not approved or endorsed by NATA. It is being sent to you because of NATA's commitment to athletic training education and research.

Please click the following link to begin the survey:

<https://snap.txstate.edu/snapwebhost/surveylogin.asp?k=132397669077>

Sincerely,

Kristina Creinin, ATC, LAT, CES
Texas State University
KC1537@txstate.edu

APPENDIX C

ATHLETIC DIRECTORS' SURVEY

Thank you for agreeing to participate. The purpose of this survey is to examine your perceptions regarding the purpose, effectiveness, and necessity of the state-mandated anabolic steroid testing program of University Interscholastic League (UIL) high school athletes in Texas. This survey should take approximately 10 minutes to complete. Please answer each question as candidly as possible. Thank you for your time.

The first set of questions will elicit your perceptions about the purpose of the state-mandated anabolic steroid testing protocol in Texas high school athletics.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

1. I personally believe that the *primary purpose* of the state of Texas mandated anabolic steroid testing program should be to improve the **“health and safety”** of all UIL sanctioned interscholastic athletes.

SA A N D SD

2. My perception is that the legislative intent regarding the *primary purpose* of the state mandated anabolic steroid testing is to improve the **“health and safety”** of all UIL sanctioned interscholastic athletes.

SA A N D SD

3. I personally believe that the *primary purpose* of the state of Texas mandated anabolic steroid testing should be to **ensure fair play** in UIL interscholastic athletics.

SA A N D SD

4. My perception is that the legislative intent regarding the *primary purpose* of the state mandated anabolic steroid testing is to **ensure fair play** amongst all UIL sanctioned interscholastic athletes.

SA A N D SD

This set of questions will elicit your perceptions about the effectiveness of anabolic steroid prevention educational programs.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

5. I believe that student anabolic steroid prevention education programs instructed by adults (ex. coach, athletic director, athletic trainer, etc.) are effective at preventing anabolic steroid use amongst UIL student-athletes.

SA A N D SD

6. I believe that peer-to-peer anabolic steroid prevention education programs (ex. team captain, senior-level students, etc.) could be effective at preventing anabolic steroid use amongst UIL student-athletes.

SA A N D SD

7. I believe that the state mandated anabolic steroid education program for UIL coaches effectively prevents anabolic steroid use among Texas high school student-athletes.

SA A N D SD

This set of questions will elicit your perceptions about the effectiveness of anabolic steroid testing programs in general, as well as the effectiveness of anabolic steroid testing within the state of Texas.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

8. I believe that anabolic steroid testing, in general, prevents anabolic steroid use.

SA A N D SD

9a. I believe there was anabolic steroid use among student-athletes at my high school prior to state-mandated anabolic steroid testing.

___ True

___ False

If FALSE, SKIP TO 10.

IF TRUE:

b. I believe that anabolic steroid use in my high school's UIL athletes has decreased since the mandatory anabolic steroid testing policy has been implemented.

SA A N D SD

10. I believe that mandatory anabolic steroid testing in the state of Texas prevents anabolic steroid use among high school interscholastic athletes.

SA A N D SD

11. I believe that all UIL participants (music, academics and athletics) should be required to undergo state mandated anabolic steroid testing.

SA A N D SD

12. Which of the following methods do you believe is the most effective option for preventing anabolic steroid use among adolescent athletes? (check one)

___ Education program

___ Anabolic steroid testing

___ Education program + anabolic steroid testing

___ No method is needed to prevent anabolic steroid use

___ Other _____

This set of questions will elicit your perceptions about the necessity of the mandatory anabolic steroid testing program in the state of Texas.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

13. I believe anabolic steroid use is a problem among all Texas **high school students.**

SA A N D SD

14. I believe anabolic steroid use is a problem among Texas **interscholastic athletes.**

SA A N D SD

15. I believe that anabolic steroid use is an overall problem **among all** students in my high school.

SA A N D SD

16. I believe that anabolic steroid use is a problem **among interscholastic athletes** in my high school.

SA A N D SD

This set of questions will elicit your perceptions regarding Senate Bill 8 (SB 8). SB 8 was passed in 2007 and, once enacted, required the mandatory random anabolic steroid testing of all UIL athletes in the state of Texas. These questions are aimed at understanding your perceptions of the passing of SB 8.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

17. I believe that the Texas Legislature intended to prevent anabolic steroid use when they passed Senate Bill 8, which mandated anabolic steroid testing in UIL athletics.

SA A N D SD

18. I believe that legislators reviewed high-quality research before Senate Bill 8 was passed.

SA A N D SD

19. I believe that Senate Bill 8 was passed by legislators primarily under pressure from its community/constituents.

SA A N D SD

20. I believe that Senate Bill 8 was passed by legislators primarily based on media portrayals of anabolic steroid use in athletes.

SA A N D SD

21. I believe that the opinions of ADs should have been considered by legislators when debating Senate Bill 8.

SA A N D SD

22. Which institution do you believe should be responsible for regulating **anabolic steroid testing** in high school interscholastic athletics? (check one)

- ☐ Texas Legislature
- ☐ The UIL
- ☐ Individual school districts
- ☐ I don't believe it is necessary to regulate anabolic steroid testing.
- ☐ None of the above

23. Which institution do you believe should be responsible for regulating **anabolic steroid education programs** for high school interscholastic athletes?

- ☐ Texas Legislature
- ☐ The UIL
- ☐ Individual school districts
- ☐ I don't believe it is necessary to regulate anabolic steroid education programs.
- ☐ None of the above

Demographic questions.

Please check the most appropriate answer.

24. What is your job title? Please choose the most appropriate

- ☐ Athletic Director
- ☐ Associate Athletic Director
- ☐ Assistant Athletic Director
- ☐ Athletic Director & Coach
- ☐ Athletic Coordinator
- ☐ Other _____

25. What is your school classification?

- ☐ 1A or below
- ☐ 2A
- ☐ 3A
- ☐ 4A
- ☐ 5A

26. How many years have you worked in this career?

- ☐ 0-5
- ☐ 6-10
- ☐ 11-15
- ☐ 16-20
- ☐ 20+

27. What is your geographic location within the state of Texas?

- ☐ West Texas
- ☐ South Texas
- ☐ Central Texas
- ☐ East Texas
- ☐ North Texas
- ☐ Texas Panhandle
- ☐ Other _____

28. My school requires an anabolic steroid education program for students.

- ☐ True
- ☐ False

29. My gender is:

- ☐ Male
- ☐ Female

30. I have been previously employed as an athletic trainer.

- ☐ True
- ☐ False

31. I have previously been employed as a coach.

- ☐ True
- ☐ False

APPENDIX D

ATHLETIC TRAINERS' SURVEY

Thank you for agreeing to participate. The purpose of this survey is to examine your perceptions regarding the purpose, effectiveness, and necessity of the state-mandated anabolic steroid testing program of University Interscholastic League (UIL) high school athletes in Texas. This survey should take approximately 10 minutes to complete. Please answer each question as candidly as possible. Thank you for your time.

The first set of questions will elicit your perceptions about the purpose of the state-mandated anabolic steroid testing protocol in Texas high school athletics.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

1. I personally believe that the *primary purpose* of the state of Texas mandated anabolic steroid testing program should be to improve the **"health and safety"** of all UIL sanctioned interscholastic athletes.

SA A N D SD

2. My perception is that the legislative intent regarding the *primary purpose* of the state mandated anabolic steroid testing is to improve the **"health and safety"** of all UIL sanctioned interscholastic athletes.

SA A N D SD

3. I personally believe that the *primary purpose* of the state of Texas mandated anabolic steroid testing should be to **ensure fair play** in UIL interscholastic athletics.

SA A N D SD

4. My perception is that the legislative intent regarding the *primary purpose* of the state mandated anabolic steroid testing is to **ensure fair play** amongst all UIL sanctioned interscholastic athletes.

SA A N D SD

This set of questions will elicit your perceptions about the effectiveness of anabolic steroid prevention educational programs.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

5. I believe that student anabolic steroid prevention education programs instructed by adults (ex. coach, athletic director, athletic trainer, etc.) are effective at preventing anabolic steroid use amongst UIL student-athletes.

SA A N D SD

6. I believe that peer-to-peer anabolic steroid prevention education programs (ex. team captain, senior-level students, etc.) could be effective at preventing anabolic steroid use amongst UIL student-athletes.

SA A N D SD

7. I believe that the state mandated anabolic steroid education program for UIL coaches effectively prevents anabolic steroid use among Texas high school student-athletes.

SA A N D SD

This set of questions will elicit your perceptions about the effectiveness of anabolic steroid testing programs in general, as well as the effectiveness of anabolic steroid testing within the state of Texas.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

8. I believe that anabolic steroid testing, in general, prevents anabolic steroid use.

SA A N D SD

9a. I believe there was anabolic steroid use among student-athletes at my high school prior to state-mandated anabolic steroid testing.

___True

___False

IF FALSE, SKIP TO 10.

IF TRUE:

b. I believe that anabolic steroid use in my high school's UIL athletes has decreased since the mandatory anabolic steroid testing policy has been implemented.

SA A N D SD

10. I believe that mandatory anabolic steroid testing in the state of Texas prevents anabolic steroid use among high school athletes.

SA A N D SD

11. I believe that all UIL participants (music, academics and athletics) should be required to undergo state mandated anabolic steroid testing.

SA A N D SD

12. Which of the following methods do you believe is the most effective option for preventing anabolic steroid use among adolescent athletes? (check one)

___Education program

___Anabolic steroid testing

___Education program + anabolic steroid testing

___No method is needed to prevent anabolic steroid use

___Other_____

This set of questions will elicit your perceptions about the necessity of the mandatory anabolic steroid testing program in the state of Texas.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

13. I believe anabolic steroid use is a problem among all Texas **high school students.**

SA A N D SD

14. I believe anabolic steroid use is a problem among Texas **interscholastic athletes.**

SA A N D SD

15. I believe that anabolic steroid use is an overall problem **among all students** in my high school.

SA A N D SD

16. I believe that anabolic steroid use is a problem **among interscholastic athletes** in my high school.

SA A N D SD

This set of questions will elicit your perceptions regarding Senate Bill 8 (SB 8). SB 8 was passed in 2007 and, once enacted, required the mandatory random anabolic steroid testing of all UIL athletes in the state of Texas. These questions are aimed at understanding your perceptions of the passing of SB 8.

SA = strongly agree

A = agree

N = neither agree nor disagree

D = disagree

SD = strongly disagree

(circle one)

17. I believe that the Texas Legislature intended to prevent anabolic steroid use

when they passed Senate Bill 8, which mandated anabolic steroid testing in UIL athletics.

SA A N D SD

18. I believe that legislators reviewed high-quality research before Senate Bill 8 was passed.

SA A N D SD

19. I believe that Senate Bill 8 was passed by legislators primarily under pressure from its community/constituents.

SA A N D SD

20. I believe that Senate Bill 8 was passed by legislators primarily based on media portrayals of anabolic steroid use in athletes.

SA A N D SD

21. I believe that the opinions of ATs should have been considered by legislators when debating Senate Bill 8.

SA A N D SD

22. Which institution do you believe should be responsible for regulating **anabolic steroid testing** in high school interscholastic athletics? (check one)

☐ Texas Legislature

☐ The UIL

☐ Individual school districts

☐ I don't believe it is necessary to regulate anabolic steroid testing.

☐ None of the above

23. Which institution do you believe should be responsible for regulating **anabolic steroid education programs** for high school interscholastic athletes?

☐ Texas Legislature

☐ The UIL

☐ Individual school districts

☐ I don't believe it is necessary to regulate anabolic steroid education programs.

☐ None of the above

Demographic questions.

Please check the most appropriate answer.

24. What is your job title? Please choose the most appropriate

- ☐ Head Athletic Trainer
- ☐ Associate Athletic Trainer
- ☐ Assistant Athletic Trainer
- ☐ Athletic Trainer
- ☐ Other _____

25. What is your school classification?

- ☐ 1A or below
- ☐ 2A
- ☐ 3A
- ☐ 4A
- ☐ 5A

26. How many years have you worked in the high school setting?

- ☐ 0-5
- ☐ 6-10
- ☐ 11-15
- ☐ 16-20
- ☐ 20+

27. What is your geographic location within the state of Texas?

- ☐ West Texas
- ☐ South Texas
- ☐ Central Texas
- ☐ East Texas
- ☐ North Texas
- ☐ Texas Panhandle
- ☐ Other _____

28. My school requires an anabolic steroid education program for students.

- ☐ True
- ☐ False

29. My gender is:

- ☐ Male
- ☐ Female

VITA

Kristina Lynn Creinin was born in Mesa, Arizona, on May 10, 1988, the daughter of Arnold Ira Creinin and Kelly Jean Creinin. After graduating from Los Fresnos High School, Los Fresnos, Texas, in 2006, she entered the University of Texas at Austin. In the summer of 2009, she studied abroad in Australia with George Mason University, Fairfax, Virginia. She received the degree of Bachelor of Science in Athletic Training from the University of Texas at Austin in May 2010. She entered into the Graduate College of Texas State in August 2010.

Permanent Address: kcreinin@gmail.com

This thesis was typed by Kristina L. Creinin.

