

JOURNAL

OF ADDICTIVE DISORDERS

Steroids in Sports: Adolescent Use, Abuse, Education and Treatment¹

ABSTRACT

Adolescent steroid use and abuse is on the rise. According to the U.S. Center of Disease Control, up to 16% of high school students have used or are using steroids -- the non mind-altering synthetic versions of testosterone, a male hormone responsible for masculinization and muscle growth.

The social and self pressure to perform, look good or "buff", thin, and lean has created a demand, from the casual to the professional, from the young to the not-so-young, for this "magic" potent called steroids. However, steroids, also known as anabolic steroids, are illegal, and with good reason: they can be very dangerous to ones health and psyche, possibly fatal.

With the rise in adolescent steroid use, and the recent national recognition of this problem, efforts are being made in the development of prevention and treatment programs targeting this population.

We will look at the history of anabolic steroids, who uses them and why, the effects of steroid use and abuse, and the education and prevention efforts underway targeting adolescents.

ARTICLE

Steroids were first developed in the 1930's by the Germans who used them on dogs and then on their soldiers in World War II to help them stay healthy as they suffered from malnutrition. In the 1956, Olympics Soviet weightlifters performed at exceptionally high levels of competition using an artificial form of testosterone and soon dominated the sport of powerlifting, crushing previous world records. Soon after, Dr. John Zeigler, the physician for the US weight-lifting team, developed the first anabolic steroid designed to strengthen athletes. Within a few years steroids were available on the market. Throughout the 1960's and 1970's steroids were the secret weapon of weight lifters, shot putters and discus throwers. It wasn't long before steroids found their way into both professional and college level football.

In 1991 anabolic steroids became controlled substances and are no longer available without a prescription. They were placed on Schedule III of the Controlled Substances Act (CSA) right along side Amphetamines and Glutethimide ("Quaaludes"). Simple possession of any Schedule III substance is a federal offense punishable by up to one year in prison and/or a minimum fine

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of \$1,000. In October of 2003 Senator Biden and Senator Hatch sponsored the Steroid Act of 2003 which seeks to ban the sale of "andro" (androstenedione), THG (tetrahydrogestrolone) and other steroid precursors adding them to the list of anabolic steroids that are classified on Schedule III of the CSA. The Steroid Act of 2003 also seeks to fund prevention programs in schools and increase the penalty for the selling of steroids. On June 3, 2004 the U.S. House passed Senator Biden's Anabolic Steroid Control Act of 2004 and the bill now goes to the U.S. Senate for action. The Secretary of Health & Human Resources, Tommy G. Thompson, stated, This piece of legislation "represents a significant step forward as we work to protect our athletes, adolescents and children from the risks posed by anabolic steroid". These acts of congress are in response to the increased and widespread use of steroids -- from the Olympic athlete to the NFL to track and field to Major League Baseball -- all throughout the sporting world and now in our communities and schools.

Illicit drug use and performance enhancing drugs in professional and amateur sports has been recorded for many years. According to an article in Reuters, it dates at least back to the Greek athletes who raised their testosterone levels by eating sheeps' testicles during the ancient Olympic games. At the 1960 Olympic summer games, a Danish cyclist died from a amphetamine overdose. Seven years later, cyclist Tommy Simpson overdosed during the Tour de France. By the 1968 Olympics, the IOC had a list of banned substances and had implemented a testing policy. But, it was not until Canadian Ben Johnson tested positive for the anabolic steroid stanozolol after winning the 1988 Seoul Olympic 100 meters final that the magnitude of the problem became apparent to the world at large. Lyle Alzado, a NFL superstar, confessed to his 20+ years of steroid abuse three months after he was diagnosed with brain cancer. Alzado was certain the drugs were responsible for his cancer and estimated that at least 75 percent of the players he played with or against used steroids. Baseball's David Wells' tell-all book alleges that half of Major League Baseball use steroids. Jose Canseco, who admitted to his own steroid use during his professional baseball career, claimed to reporters that as many of 85% of baseball players "juice". Most recently, Anton Galkin, a 25 year-old Russian runner who failed an anti-doping test was excluded from the Games of the XXVIII Olympiad in Athens in 2004 after placing fourth in the semi-final 400m event. Galkin tested positive for Stanozolol, a prohibited anabolic steroid. With competitions to win, big contracts to get and keep, and enormous pressure to excel, athletes may have several reasons for using performance-enhancing drugs. The truth is, steroids work! When supplemented with physical training, steroids allow the user to train harder, becoming bigger and stronger. It is also suggested that steroids can aide the body in a rapid recovery from strenuous exercise, thereby allowing for more intensive training and even more substantial increases in muscle size and strength². This 'edge' can be significant and almost necessary in a sports environment that encourages performances and bodies that are not conceivable without the use of some performance-enhancing substance. It is almost understandable, with millions of dollars in contracts and endorsements on the line, with fame and celebrity knocking, how these athletes could choose to take the risks of body and career to be better, more competitive and sought-after athletes.

If steroid use and abuse ended here, well, it might be look away, enjoy your sport and let the sports world worry, monitor and test their athletes. It doesn't end there though. Experts and athletes are warning that steroid use is rampant among young people in the U.S. and, according to Terry Madden, CEO of the U.S. Anti-Doping Agency, the group that tests Olympic and other

² American Council on Exercise, Personal Training Manual 3rd Edition 2003, p258

international athletes for banned substances, steroid use is creeping down into our grade schools.

The U.S. Center of Disease Control and Prevention indicates that at Louisiana high schools 11.2% of males and 5.7% of females are using or have used steroids. The national average is supposedly lower with anywhere from 6-11% of high-school aged males and 2-5% of high-school aged females using steroids.³ "If you look at national studies, there are about a half million to a million kids in high school who have used or are using steroids," said Dr. Linn Goldberg, an expert on steroid abuse at Oregon Health Sciences University in Portland. "If you look at the data on athletes, they've gone anywhere from 4 percent to 12 percent on a statewide basis -- some states have a much bigger problem than others." According to a study published in the journal, *Pediatrics*, a study of 965 Massachusetts students from four middle schools found that 2.7% were taking steroids. The study also noted that girls used steroids almost as much as boys. The reasons for this explosion in our youth's use of steroids are numerous and saddening.

Youth offer many reasons for using steroids: "to get bigger and stronger", to "improve my physique", "to impress the girls", "to be more competitive" "peer pressure". Once a user sees their body change, they can get hooked on the feeling they get from steroids – the bigger muscles, the boosted ego, the power of their aggression. In his study of former athletes, sports sociologist Michael Messner found that in their view, being an athlete was synonymous with being male and that via their athleticism, society would not question their masculinity. In her paper, *Young Athletes & Steroids: An Opportunity for Moral Dialogue & Growth*, Tracy Olrich finds that theory to hold true in the steroid users she dialogued with. They found that the feeling of "falling behind", "not keeping up" and "the fascination with getting stronger" swept these men into using steroids. One noted, "I felt like training all the time. I loved coming to the gym". Another said he felt "Incredible!" and noted his strength gains as "remarkable". Professional football player Lyle Alzado sums up the rush of using steroids, "I outran, outhit, outanythinged everybody. All along I was taking steroids and I saw that they made me play better and better." Teenagers interviewed on PBS's, *In the Mix*, the national award-winning TV series for teens and by teens, say that sometimes it is even the pressure from their parents to be better or faster or frankly, not so clumsy or weak, to use steroids. Coaches also have a significant influence on their athletes and can either directly or indirectly persuade the use or non-use of steroids. One teen expressed feeling pressure by their coach to do "whatever" they could do to perform better and felt this attitude reflected a coach looking out for themselves and not their players.

With advertisements bombarding us 400-600 times a day in magazines, billboards, television and newspapers with direct messages about "beauty", it is no question who shapes our mindset on what is beautiful. More than 8.7 million cosmetic plastic surgery procedures were performed in 2003, up 33% from 2002. Teenage cosmetic surgeries nearly doubled between 1996 and 1998. According the Centers for Disease Control and Prevention (CDC) who monitor 6 categories of health risks in adolescents, including unhealthy dietary behaviors, approximately 60% of adolescent females and 25% of adolescent males have dieted at some point in their lives:

³ The Merck Manual, Sec 22, Ch. 305, Anabolic Steroid Use

Subgroups of Dieters:	Girls		Boys	
5th-8th grade students		35.6	18.2	
9th-12th grade students		56.3	22.5	

Among these adolescent dieters, a significant percentage report unhealthy or dangerous weight-loss methods, including use of diet pills, fasting, skipping meals, or using very-low-calorie diets. Now they have another equally unhealthy option: steroids.

Mitch Finnegan, director of health and physical education at the Weston Public Schools, in eastern Massachusetts says, "There are many non-athletes who are using steroids to get the body they see on the magazines." And more and more teens are taking steroids not just to make the team but to simply look "buff" and "hot."

Dr. Linn Goldberg said girls are "taking them for different reasons. Coaches often say to girls, 'You know, you'd be faster if you lost a little weight.' It's a body-shaping thing -- you increase muscle tissue and lose fat." The doctor found that the primary reason these girls use steroids is to lose fat and gain lean muscles and the use of these drugs often goes hand in hand with eating disorders.

With the fast-acting effects that steroid use can bring a user, from a greater sense of self from being noticed more to the increased athletic performance that can be seen after only a short time of use, the temptation is clear. However, a serious look at the other side of steroid use and abuse may make ones decision a bit easier.

The price of using and abusing steroids can be high. First, you can become a criminal in your use and possession of anabolic steroids. (The exception is unless you are prescribed steroids for their medical benefits to help the "wasting" effects or AIDS or other diseases that result in loss of lean muscle mass.) The Anabolic Steroid Control Act of 2004 seeks to amend the Federal sentencing guidelines to provide for increased penalties with respect to offenses involving anabolic steroids. It also seeks to increase penalties for anabolic steroid offenses near sports facilities: *SEC. 424. (a) Whoever violates section 401(a)(1) or section 416 by manufacturing, distributing, or possessing with intent to distribute, an anabolic steroids near or at a sports facility is subject to twice the maximum term of imprisonment, maximum fine, and maximum term of supervised release otherwise provided by section 401 for that offense.*

Besides the criminal act of obtaining and taking these drugs, The National Institute on Drug Abuse states there are more than 70 physical and psychological side effects, many irreversible from steroid abuse. They include impotence, sterility, hair loss and withering testicles in men and some permanent masculine traits in women – deepening of the voice, enlargement of clitoris and hair loss. Both sexes can experience severe acne, weakened tendons, trembling, jaundice, elevated cholesterol levels, depression, aggression or "roid rage" and even more serious and long term affects such as liver cancer, increased risk of heart attack and stroke, increased blood pressure and increased risk of HIV or other blood-borne diseases (due to injections with infected needles). In young adults, steroid use can interfere with bone growth (bony epiphyses) and lead to permanent stunted growth.⁴⁵ Former boxer Bob Hazleton used

⁴ *Getting off Steroids Could Lead to Addiction* by Join Together, a project of the Boston University School of Public Health, May 2000

anabolic steroids — and they ruined him. Both his legs were amputated because of the injections and infections caused by habitual steroid use. Hazleton says the "roids" caused psychological side effects too: anger, violence and depression. Hazleton thinks of himself as "the most stupid man" who ever lived.

Studies have shown that steroid users reported major mood syndromes associated with their steroid use – mania, hypomania and major depression.⁶ The same study concluded these major mood disturbances may represent a public health problem for the athletes using the steroids and the victims of their aggression. “The guy had a split personality” reported Raiders defensive end Greg Townsend of his teammate, Lyle Alzado. Lyle admits the steroids made him so crazy at times he couldn’t deal with social stress. His second wife blamed the breakup of their marriage on his mood swings caused by steroids and called the police at least five times during their marriage because Lyle abused her. At the height of his steroid abuse, Alzado estimated he spent \$30,000 a year on the drugs.

Rex, a former NAVY Seal reported going from a hippie-type, kick-back personality to a paranoid, aggressive, war-monger after getting “booster” shots from the NAVY every two weeks during his training and duty as a Seal. His aggression was accompanied by a lean, muscular, super-strong physique and he amazed himself at what his body could do. Although Rex has no actual proof that those booster shots were steroids, he concluded that fact highly likely from his symptoms. After leaving the Navy, it took him three years to feel like normal again – to get his personality back. Rex also shared a story of a high-school friend and football teammate in Burbank, CA who started taking steroids (he estimated that 40% of his football team did take steroids) and got hooked. He began to rob houses to fund his steroid purchases and ended up killing a man in an aggressive rage who walked in on him during his robbery. His defense? The steroids made his crazy. His sentence? 16 – 35 years in prison.

One could argue that amputation, brain cancer or jail, are not typical consequences of steroid use and that would be true. However, they are definitely potential consequences of excessive steroid abuse. What is frightening experts are the more likely consequences of typical steroid use and abuse.

Although many users actually report feeling good about themselves while on anabolic steroids, depression is often seen when the drugs are stopped and may contribute to dependence on anabolic steroids.⁷

Research indicates users may turn to other drugs to help ease the negative effects of anabolic steroids thus leading to other drug dependence. In a study of 227 men admitted to a private treatment center for dependence on heroin or other opioids, roughly 10% had abused steroids before trying any other illicit drug. Of the 10%, 86% of them first used opioids to counteract the irritability and insomnia resulting from steroid abuse.⁸ Suroj Achar, a physician who has done studies on steroid use, notes some recent research in Finland following weight lifters for 12

⁵ *Physical & Psychological Risks of Anabolic Steroid Use*, The National Clearinghouse for Alcohol and Drug Information

⁶ *Psychiatric and Medical Effects of Anabolic-Androgenic Steroid Use. A controlled study of 160 Athletes*, Pope HG Jr. Katz DL. Am J Psychiatry. 1990 Apr;147(4):510-2.

⁷ *Affective and Psychotic Symptoms Associated with Steroid Use.* , Pope HG Jr. Katz DL. American Journal of Psychiatry 145(4):487-490. 1988

⁸ The New England Journal of Medicine 2000;320:1532

years: the study reveals after the lifters stopped using steroids they fell into deep depressions and 6% of them committed suicide. This is a staggering percentage and over 400 times the U.S. national suicide rate.⁹

Testing for steroids is not an effective deterrent and alone is not a valuable prevention tool. A urine screen usually detects the presence of anabolic steroids and, depending on how the steroid was administered, evidence can last in one's system from 3 weeks (oral) up to 9 months (injected). There are numerous negatives for using this kind of prevention technique however, especially if it is the only prevention used. The cost of testing can be prohibitive. A recent AP story quoted school officials saying they could not afford the \$50 it costs for each steroid test. Other school systems fear the argument that cite these tests infringe on their students' civil rights. In addition, there are literally hundreds of products one can easily purchase that claim to fool these type of tests as well as well-known methods of neutralizing any questionable compounds. These methods include: borax under fingernails to be flicked in the specimen to neutralize a urine test; using steroid creams instead of shots which leave the body within 24-48 hours; blood doping – using someone else's blood/urine or using their own blood/urine taken prior to the last round of roids and; drinking copious amounts of water and taking diuretics to flush drugs from their system. Bob Whelan¹⁰, a Certified Strength & Conditioning Specialist, has been in the sports and muscle building world for years and has this to say about the use of banned drugs, "Drug use by athletes, especially "IronGame" and strength athletes, is higher than ever. They are just not getting caught. There are now hundreds of drugs to improve sports performance. Many of them cannot be detected because a test for them has not even been developed." Athletes turn to experts, known as "drug gurus." They mix and develop custom "designer type" steroids that are "stealth-like" and undetectable due to the masking agent that has altered the original drug. Whelan states, "Every year testing is becoming more and more of a joke, and now only the dumb athletes are getting caught." These designer drugs and tricks-of-the-trades for testing are being filtered down and are finding their way to our community ranks.

Learning from 20 years of research on what works in keeping children and adolescents from using illicit drugs, the National Institute of Drug Abuse examined multiple factors that contribute to drug abuse and has released a set of Prevention Principles¹¹ that catalog what has been learned:

- Prevention programs should be designed to "protective factors" and to move toward reversing or reducing known "risk factors".
- Prevention programs should target all forms of drug use.

⁹ CDC, Morbidity & Mortality Weekly Report (MMWR)

¹⁰ Bob Whelan "Maximum" Bob Whelan, has a Masters Degree in Exercise Science and Health from George Mason University and a Masters Degree in Management from Troy State University. He is a Certified Strength & Conditioning Specialist and has completed training as an EMT. Bob served as the District of Columbia National Strength & Conditioning Association (NSCA) State Director and worked as an exercise physiologist at The National Aeronautics and Space Administration (NASA) and as the strength & conditioning coach at Catholic University

¹¹ Can be found in NIDA's *Preventing Drug Use Among Children and Adolescents*

- Prevention programs should include skills to resist drugs when offered, strengthen personal commitments against drug use and increase social competency.
- Prevention programs for adolescents should include interactive methods such as peer discussion groups.
- Prevention programs should include a parents' or caregivers' component.
- Prevention programs should be long term and should continue over the school career, with repeated interventions to reinforce original prevention goals.
- Family-focused prevention efforts have a greater impact than strategies that focus on parents only or children only.
- Community programs that include media campaigns and policy changes, such as new regulations that restrict access to alcohol, tobacco, or other drugs, are more effective when they are accompanied by school and family interventions.
- Schools offer opportunities to reach all populations and also serve as important settings for specific subpopulations at risk.
- Prevention programming should be adapted to address the specific nature of the drug use problem in the local community.
- The higher the level of risk for the target population, the more intensive the prevention effort must be, and the earlier it must begin.
- Prevention programs should be age-specific, developmentally appropriate and culturally sensitive.
- Effective prevention programs are cost-effective.

Ken Mannie is the strength and conditioning coach at Michigan State University and has authored more than 60 articles on strength and fitness. Mannie says, "The use of anabolic drugs for physical and/or performance enhancement will continue to be a major problem in athletics. Several messages must be sent to young people by all of us in athletics to help curb the dilemma:

* We do not condone nor will we tolerate nonmedical anabolic drug use.

* Anabolic drugs are not accepted as part of one's training regimen. (Collegiate and professional coaches who are well versed on these drugs do not want individuals who use them because they do not want to invest in "damaged personnel.")

* Anabolic drugs are not needed to be competitive. Most athletes -- many of them being great athletes -- do not use these drugs.

* We will continually offer educational resources to our athletes on these drugs and maintain screening programs as both a deterrent and an educational tool.

The NIDA's paper, *Research on the Nature and Extent of Drug Use in the United States*,¹² reports on NIDA's sponsored prevention intervention programs specifically for males 13-19 years old. This program was initially sponsored in 1993 and was tested in 31 schools in Oregon and Washington. The program, ATLAS (Athletes Training and Learning to Avoid Steroids), features a team-centered and multi-faceted approach. The program is typically delivered to a school sports team with instruction led by student athlete peers and facilitated by coaches. The

¹² National Institute of Health's, National Institute on Drug Abuse: "25 Years of Discovery to Advance the Health of the Public, 1999"

goals of ATLAS are to reduce the use of anabolic steroids, alcohol and other drugs and performance enhancing supplements. This is done through educational games, role-playing exercises, the creation of mock public service announcements and friendly competition between squads. Students explore the effects of steroid use, the elements of sports nutrition and how to build muscular strength and agility to achieve their athletic goals without the use of steroids. The program gives the students the knowledge and the skills to resist steroid use with practical refusal strategies making program information, such as potential negative consequences, highly accessible from memory. Team workbooks, sports menus and training guides complement the instructional materials. In the parent component, parents are given information about the ATLAS program, a sports nutrition guide and are encouraged to support and reinforce the anti-steroid and nutritional goals of the program at home. This community, peer- approach seems to be working. In SAMHSA's Model Program Report ¹³ they declare the following:

- New substance use decreased 50%
- New anabolic steroid use decreased 50%
- Occurrences of drinking and driving declined 24%
- Lower index of alcohol and drug use
- Reduced use of performance-enhancing supplements
- Improved nutrition and exercise behaviors

Dr. Linn Goldbert of Oregon Health Sciences University in Portland, who led the research team that developed and tested the program says, "The program's positive effects flow from changing the student athletes' attitudes and perceptions about steroids and then changing their nutrition and exercise behaviors. If they are trained properly, they are a heck of a lot stronger. So, it's a real positive reinforcement to them". So it seems is the ATLAS program. In use for the past three years, ATLAS, says Mitch Finnegan, Director of Health & Physical Education at the Weston Public Schools in eastern Massachusetts, is the most effective prevention program they have seen. ATLAS is recognized as a "Model Program" by SAMHSA, an "Exemplary Program" by the U.S. Department of Education and an "Effective Program" by the National Institute on Drug Abuse.

So effective in education and prevention that NIDA has funded an ATLAS-type program for adolescent female athletes called ATHENA (Athletes Targeting Healthy Exercise and Nutrition Alternatives). This program is an eating disorder and substance abuse program. Obviously a much needed program when you consider Dr. Goldberg's research that indicates one-third of the high school students who abuse steroids are girls. The doctor found that the primary reason these girls use steroids is to lose fat and gain lean muscles and the use of these drugs often goes hand in hand with eating disorders.

The cost of ATLAS and/or ATHENA with ten 3-booklet athlete packs is roughly \$350.00. This includes the Coach/Instructor Package, Squad Leader Guide and Athlete Package. Follow up sessions and on-site training is extra. This seems like such a small price to pay for a proven-effective prevention program. With 15 million coming down the pipeline from the government, let us hope our community schools take note of this grant potential and address these issues straight on.

¹³ U.S. Dept of Health & Human Services, Substance Abuse & Mental Health Services Adm (SAMHSA)

With prevention programs like ALTAS and ATHENA getting more funding and greater access across the U.S., I believe we have hope of educating and empowering our youth to make better, more informed, peer-supported decisions about their health and sports training approach. In the Anabolic Steroid Act of 2004, it is proposed to add programs as well as funding:

108th CONGRESS

2d Session

S. 2195

SEC. 4. PREVENTION AND EDUCATION PROGRAMS.

(a) *IN GENERAL*- The Secretary of Health and Human Services (referred to in this Act as the `Secretary') shall award grants to public and nonprofit private entities to enable such entities to carry out science-based education programs in elementary and secondary schools to highlight the harmful effects of anabolic steroids.

(b) *PREFERENCE*- In awarding grants under subsection (a), the Secretary shall give preference to applicants that intend to use grant funds to carry out programs based on--

(A) the Athletes Training and Learning to Avoid Steroids program;

(ATLAS)

(B) the Athletes Targeting Healthy Exercise and Nutrition Alternatives program; (ATHENA) and

(C) other programs determined to be effective by the National Institute on Drug Abuse.

(c) *USE OF FUNDS*- Amounts received under a grant under subsection (a) shall be used primarily for education programs that will directly communicate with teachers, principals, coaches, as well as elementary and secondary school children concerning the harmful effects of anabolic steroids.

(d) *USE OF FUNDS*- Amounts received under a grant under subsection (a) shall be used primarily for education programs that will directly communicate with teachers, principals, coaches, as well as elementary and secondary school children concerning the harmful effects of anabolic steroids.

(e) *AUTHORIZATION OF APPROPRIATIONS*- There is authorized to be appropriated to carry out this section, \$15,000,000 for each of fiscal years 2005 through 2010.

Parents, relatives, teachers, coaches, mentors – need not to be in denial of the lure these substances have on our youth. Society should not justify, ignore or encourage in any way, the use of steroids as the answer to increased athletic performance or muscular body shaping. Adults can learn, model and encourage healthy and nutritious eating, effective and safe muscle strengthening and agility training and support and reinforce anti-steroid goals.

ACKNOWLEDGEMENTS AND NOTICES

This article was prepared by Kathleen M. Klug, a Registered Addiction Specialist (RAS), who is a certified group exercise instructor and approved faculty with the American Council on Exercise (ACE) and Aerobics and Fitness Association of America (AFAA).

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