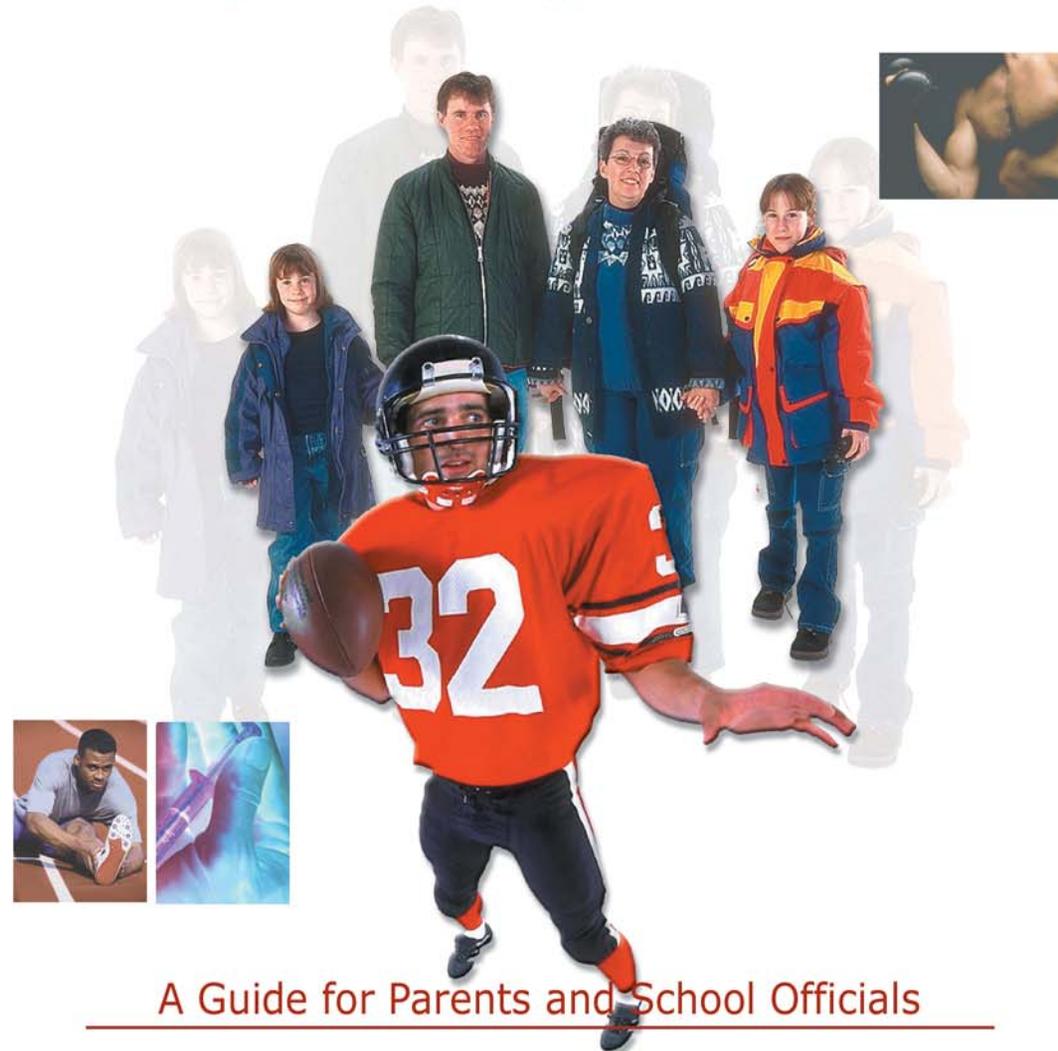


# STEROID ABUSE by School Age Children

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A Guide for Parents and School Officials

# STEROID ABUSE BY SCHOOL AGE CHILDREN

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Once viewed as a problem strictly associated with body builders, fitness “buffs,” and professional athletes, abuse of anabolic steroids by school age children has significantly increased over the past decade. The National Institute on Drug Abuse (NIDA) estimates that more than a half million 8<sup>th</sup> and 10<sup>th</sup> grade students are now using these dangerous drugs, and increasing numbers of high school seniors do not believe steroids are risky.

Students are acquiring and taking anabolic steroids without any knowledge of the dangers associated with steroid abuse. The short-term adverse physical effects of anabolic steroid abuse are fairly well known. However, the long-term adverse physical effects of anabolic steroid abuse have not been studied, and as such, are not known. In addition, this type of abuse may result in harmful side-effects as well as serious injury and death. The abuser in most cases is unaware of these hidden dangers.

This guide will help you understand why steroids are being misused, and how you can provide counseling and implement procedures to educate our youth about the dangers of these drugs. By working together we can greatly reduce the abuse of anabolic steroids. It is important to recognize this problem and take preventive measures to protect our young people.

## WHAT ARE ANABOLIC STEROIDS?

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Anabolic steroids are synthetically produced variants of the naturally occurring male hormone testosterone. Both males and females have testosterone produced in their bodies: males in the testes, and females in the ovaries and other tissues. The full name for this class of drugs is **androgenic** (promoting masculine characteristics) **anabolic** (tissue building) **steroids** (the class of drugs). Some of the most abused steroids include Deca-Durabolin®, Durabolin®,

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Equipoise®, and Winstrol®. The common street (slang) names for anabolic steroids include arnolds, gym candy, pumpers, roids, stackers, weight trainers, and juice.

The two major effects of testosterone are an androgenic effect and an anabolic effect. The term androgenic refers to the physical changes experienced by a male during puberty, in the course of development to manhood. Androgenic effects would be similarly experienced in a female. This property is responsible for the majority of the side effects of steroid use. The term anabolic refers to promoting of anabolism, the actual building of tissues, mainly muscle, accomplished by the promotion of protein synthesis.

### **WHY ARE STEROIDS ABUSED?**

Anabolic steroids are primarily used by bodybuilders, athletes, and fitness "buffs" who claim steroids give them a competitive advantage and/or improve their physical performance. Steroids are purported to increase lean body mass, strength and aggressiveness. Steroids are also believed to reduce recovery time between workouts, which makes it possible to train harder and thereby further improve strength and endurance. Some people who are not athletes also take steroids to increase their endurance, muscle size and strength, and reduce body fat which they believe improves personal appearance. A small number of youths may take steroids to increase their body size to protect themselves from others.

### **WHERE DO YOU GET STEROIDS?**

Doctors may prescribe steroids to patients for legitimate medical purposes such as loss of function of testicles, breast cancer, low red blood cell count, delayed puberty and debilitated states resulting from surgery or sickness. Veterinarians administer steroids to animals (e.g. cats, cattle, dogs, and horses) for legitimate purposes such as to promote feed efficiency, and to improve weight gain, vigor, and hair coat. They are also used in veterinary practice to treat anemia and counteract tissue breakdown during illness and trauma. For purposes of illegal use there are several sources; the most common illegal source is from smuggling steroids into the United States from other

countries such as Mexico and European countries. Smuggling from these areas is easier because a prescription is not required for the purchase of steroids. Less often steroids found in the illicit market are diverted from legitimate sources (e.g. thefts or inappropriate prescribing) or produced in clandestine laboratories.

### **HOW ARE STEROIDS TAKEN?**

Anabolic steroids dispensed for legitimate medical purposes are administered several ways including intramuscular or subcutaneous injection, by mouth, pellet implantation under the skin and by application to the skin (e.g. gels or patches). These same routes are used for purposes of abusing steroids, with injection and oral administration being the most common. People abusing steroids may take anywhere from 1 to upwards of a 100 times normal therapeutic doses of anabolic steroids. This often includes taking two or more steroids concurrently, a practice called "stacking." Abusers will often alternate periods (6 to 16 weeks in length) of high dose use of steroids with periods of low dose use or no drug at all. This practice is called "cycling."

Doses of anabolic steroids used will depend on the particular objectives of the steroid user. Athletes (middle or high school, college, professional, and Olympic) usually take steroids for a limited period of time to achieve a particular goal. Others such as bodybuilders, law enforcement officers, fitness buffs, and body guards usually take steroids for extended periods of time. The length of time that steroids stay in the body varies from a couple of days to more than 12 months.

Examples of oral and injectable steroids are as follows:

#### **Oral Steroids**

- Anadrol® (oxymetholone)
- Oxandrin® (oxandrolone)
- Dianabol® (methandrostenolone)
- Winstrol® (stanozolol)

#### **Injectable Steroids**

- Deca-Durabolin® (nandrolone decanoate)
- Durabolin® (nandrolone phenpropionate)
- Depo-Testosterone® (testosterone cypionate)
- Equipoise® (boldenone undecylenate) (veterinary product)

## **PHYSICAL & PSYCHOLOGICAL DANGERS**

Steroid users are vulnerable to physical and psychological side effects, many of which are irreversible in women. The short-term adverse physical effects of anabolic steroid abuse are fairly well known. However, the long-term adverse physical effects of anabolic steroid abuse have not been studied, and as such, are not known.

### **For Guys**

- Baldness
- Development of breasts
- Painful erections
- Shrinkage of testicles
- Loss of function of testicles

### **For Girls**

- Growth of facial and body hair
- Deepened voice
- Breast reduction
- Enlarged clitoris
- Menstrual irregularities

### **For Both**

- Acne
- Jaundice (yellowing of the skin)
- Swelling – Fluid retention
- Stunted growth (close the growth plates in the long bones and permanently stunt their growth)
- Increase in bad cholesterol levels
- Decrease in good cholesterol levels
- Mood swings
- Increase in feelings of hostility
- Increase in aggressive behavior

## **LAWS AND PENALTIES FOR ANABOLIC STEROID ABUSE**

Concerns over a growing illicit market, abuse by teenagers, and the uncertainty of possible long-term effects of steroid use led Congress in 1991 to place anabolic steroids as a class of drugs into Schedule III of the Controlled Substances Act (CSA).

Under this legislation, anabolic steroids are defined as any drug or hormonal substance, chemically and pharmacologically related to testosterone (other than estrogens, progestins, and corticosteroids) that promotes muscle growth.

The possession or sale of anabolic steroids without a valid prescription is illegal. Simple possession of illicitly obtained anabolic steroids carries a maximum penalty of one year in prison and a minimum \$1,000 fine if this is an individual's first drug offense. The maximum penalty for trafficking is five years in prison and a fine of \$250,000 if this is the individual's first felony drug offense. If this is the second felony drug offense, the maximum period of imprisonment and the maximum fine both double. While the above listed penalties are for federal offenses, individual states have also implemented fines and penalties for illegal use of anabolic steroids. State executive offices have also recognized the seriousness of steroid abuse and other drugs of abuse in schools. For example, The State of Virginia enacted a new law that will allow student drug testing as a legitimate school drug prevention program. Additional states and individual school districts are considering implementing similar measures.

The International Olympic Committee (IOC), National Collegiate Athletic Association (NCAA), and many professional sports leagues (e.g. Major League Baseball, National Basketball Association, National Football League (NFL), and National Hockey League) have banned the use of steroids by athletes, both because of their potential dangerous side effects and because they give the user an unfair advantage. The IOC, NCAA, and NFL have also banned the use of steroid precursors (e.g. androstenedione) by athletes for the same reason steroids were banned. The IOC and professional sports leagues use urine testing to detect steroid use both in and out of competition.

## **COMMON TYPES OF STEROIDS ABUSED**

The illicit anabolic steroid market includes steroids that are not commercially available in the U.S. as well as those which are available. Steroids that are commercially available in the U.S. include fluxymesterone (Halotestin®), methyltestosterone, nandrolone (Deca-Durabolin®, Durabolin®), oxandrolone (Oxandrin®), oxymetholone (Anadrol®), testosterone, and stanozolol (Winstrol®). Veterinary steroids that are commercially available in the U.S. include boldenone (Equipoise®), mibolerone, and trenbolone (Revalor®). Other steroids found on the illicit market that are not approved for use in the U.S. include ethylestrenol, methandriol, methenolone, and methandrostenolone.

## STEROID ALTERNATIVES

A variety of non-steroid drugs are commonly found within the illicit anabolic steroid market. These substances are primarily used for one or more of the following reasons: 1) to serve as an alternative to anabolic steroids; 2) to alleviate short-term adverse effects associated with anabolic steroid use; or 3) to mask anabolic steroid use. Examples of drugs serving as alternatives to anabolic steroids include clenbuterol, human growth hormone, insulin, insulin-like growth factor, and gamma-hydroxybutyrate (GHB). Examples of drugs used to treat the short-term adverse effects of anabolic steroid abuse are erythropoietin, human chorionic gonadotropin (HCG), and tamoxifen. Also, diuretics and uricosuric agents may be used to mask steroid use. The following chart illustrates how masking is accomplished:

Drug Group	Drug or Effect	How Drug Masks Steroid Use
Uricosuric Agents	Probenecid	Decreases entry of steroids into the urine
Diuretics	Spironolactone, Furosemide	Dilutes steroid concentration in the urine
Epitestosterone	Decreases Testosterone to Epitestosterone ratio	Reduces detection of testosterone usage

Over the last few years, a number of metabolic precursors to either testosterone or nandrolone have been marketed as dietary supplements in the U.S. These dietary supplements can be purchased in health food stores without a prescription. Some of these substances include androstenedione, androstenediol, norandrostenedione, norandrostenediol, and dehydroepiandrosterone (DHEA), which can be converted into testosterone or a similar compound in the body. Whether they promote muscle growth is not known.

## ARE ANABOLIC STEROIDS ADDICTIVE?

An undetermined percentage of steroid abusers may become addicted to the drug, as evidenced by their continuing to take steroids in spite of physical problems, negative effects on social relations, or nervousness and irritability. Steroid users can experience withdrawal symptoms such as mood swings, fatigue, restlessness, and depression. Untreated, some depressive symptoms associated with anabolic steroid withdrawal have been known to persist for a year or more after the abuser stops taking the drugs.

## STATISTICS

The "Monitoring the Future" study conducted in 2002, determined that since 1991 there has been a significant increase of steroid use by school age children. This annual study, supported by the NIDA and conducted by the Institute for Social Research at the University of Michigan, surveys drug use among eighth, tenth, and twelfth graders in the United States. The first year data was collected on younger students was in 1991. Since 1991 there has been a significant increase in reported steroid use by teenagers. For all three grades, the 2002 levels represent a significant increase from 1991. The following chart illustrates the increase of steroid abuse among teenagers who reported using steroids at least once in their lifetime:

### Percent of Students Reporting Steroid Use 1991 - 2002

Year	Eighth Grade	Tenth Grade	Twelfth Grade
1991	1.9%	1.8%	2.1%
1999	2.7%	2.7%	2.9%
2002	2.5%	3.5%	4.0%

The 2002 survey also indicated additional data related to steroid abuse by school age children:

### Percent of Students Reporting Steroid Use in 2002

Student Steroid Use	Eighth Grade	Tenth Grade	Twelfth Grade
Past Month Use	0.8%	1.0%	1.4%
Past Year Use	1.5%	2.2%	2.5%
Lifetime Use	2.5%	3.5%	4.0%

In addition, the 2002 survey also determined how easy it was for school aged children to obtain steroids. The survey indicated 22% of eighth graders, 33.2% of tenth graders, and 46.1% of twelfth graders surveyed in 2002 reported that steroids were "fairly easy" or "very easy" to obtain. More than 57% of twelfth graders surveyed in 2002 reported that using steroids was a "great risk." Also, another study indicated that steroids are used predominately by males. The survey determined the annual prevalence rates were two to four times as high among males as among females.

The "Monitoring the Future" study also determined that misuse and abuse of steroids is a major concern among school aged children. Some of their findings are alarming and indicate a need for concern:

- A survey in 1999 determined that 479,000 students nationwide, or 2.9 percent, had used steroids by their senior year of high school.
- A survey in 2001 determined the percentage of 12<sup>th</sup> graders who believed that taking these drugs causes "great risk" to health declined from 68 percent to 62 percent.

The Center for Disease Control and Prevention (CDC) conducts the Youth Risk Behavior Surveillance Study, a survey of high school students across the United States. A survey conducted in 2001 indicated that 5% of all high school students reported lifetime use of steroid tablets/injections without a doctor's prescription. The survey also indicated that 5.8% of ninth graders, 4.9% of tenth graders, 4.3% of eleventh graders, and 4.3% of twelfth graders reported lifetime illegal use of steroids.

A majority of the studies performed on steroid abuse indicate males are twice as likely to abuse steroids as females.

### HOW CAN WE CURTAIL THEIR ABUSE?

The most important aspect to curtailing abuse is education concerning dangerous and harmful side effects, and symptoms of abuse. Athletes and others must understand that they can excel in sports and have a great body without steroids. They should focus on getting proper diet, rest, and good overall mental and physical health. These things are all factors in how the body is shaped and conditioned. Millions of people have excelled in sports and look great without steroids. For additional information on steroids please see our website at [www.DEAdiversion.usdoj.gov](http://www.DEAdiversion.usdoj.gov)



