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## STEROIDS

**What Are Anabolic-Androgenic Steroids?** Anabolic-androgenic steroids are man-made substances related to male sex hormones. “Anabolic” refers to muscle building, and “androgenic” refers to increased masculine characteristics. “Steroids” refers to the class of drugs. These drugs are available legally only by prescription, to treat conditions that occur when the body produces abnormally low amounts of testosterone, such as delayed puberty and some types of impotence. They are also prescribed to treat body wasting in patients with AIDS and other diseases that result in loss of lean muscle mass. Abuse of anabolic steroids, however, can lead to serious health problems, some irreversible.<sup>1</sup>

**Why Do People Abuse Anabolic Steroids?** One of the main reasons people give for abusing steroids is to improve their performance in sports. Among competitive bodybuilders, steroid abuse has been estimated to be very high. Among other athletes, the incidence of abuse probably varies depending on the specific sport. Another reason people give for taking steroids is to increase their muscle size and/or reduce their body fat. This group includes some people who have a behavioral syndrome (muscle dysmorphia) in which a person has a distorted image of his or her body. Men with this condition think that they look small and weak, even if they are large and muscular. Similarly, women with the syndrome think that they look fat and flabby, even though they are actually lean and muscular.<sup>2</sup>

| Commonly Abused Steroids                |  |
|---|--|
| <b><u>Oral Steroids</u></b>             | <b><u>Injectable Steroids</u></b>                    |
| <b>Anadrol</b><br>(oxymetholone)        | <b>Deca-Durabolin</b><br>(nandrolone decanoate)      |
| <b>Oxandrin</b><br>(oxandrolone)        | <b>Durabolin</b><br>(nandrolone phenpropionate)      |
| <b>Dianabol</b><br>(methandrostenolone) | <b>Depo-Testosterone</b><br>(testosterone cypionate) |
| <b>Winstrol</b><br>(stanozolol)         | <b>Equipose</b><br>(boldenone undecylenate)          |

**How Are Anabolic Steroids Used?** Some anabolic steroids are taken orally, others are injected intramuscularly, and still others are provided in gels or creams that are rubbed on the skin. Doses taken by abusers can be 10 to 100 times higher than the doses used for medical conditions. Steroid abusers typically “stack” the drugs, meaning that they take two or more different anabolic steroids, mixing oral and/or injectable types and sometimes even including compounds that are designed for veterinary use. Abusers think that the different steroids interact to produce an effect on muscle size that is greater than the effects of each drug individually, a theory that has not been tested scientifically.

Often, steroid abusers also “pyramid” their doses in cycles of 6 to 12 weeks. At the beginning of a cycle, the person starts with low doses of the drugs being stacked and then slowly increases the doses. In the second half of the cycle, the doses are slowly decreased to zero. This is sometimes followed by a second cycle in which the person continues to train but without drugs. Abusers believe that pyramiding allows the body time to adjust to the high doses and the drug-free cycle allows the body’s hormonal system time to recuperate. As with stacking, the perceived benefits of pyramiding and cycling have not been substantiated scientifically.<sup>2</sup>

**What Are Steroidal Supplements?** In the United States, supplements such as dehydroepian-drosterone (DHEA) and androstenedione (street name Andro) can be purchased legally without a prescription through many commercial sources including health food stores. They are often referred to as dietary supplements, although they are not food products. They are often taken because the user believes they have anabolic effects. Steroidal supplements can be converted into testosterone (an important male sex hormone) or a similar compound in the body. Whether such conversion produces sufficient quantities of testosterone to promote muscle growth or whether the supplements themselves promote muscle growth is unknown. Little is known about the side effects of steroidal supplements, but if large quantities of these compounds substantially increase testosterone levels in the



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For questions on substance use, abuse and related problems, call NCADA's help Line at (314) 962-3456.

body, they also are likely to produce the same side effects as anabolic steroids.<sup>2</sup>

**What Are The Health Consequences Of Steroid Abuse?** The major side effects from abusing anabolic steroids can include liver tumors and cancer, jaundice (yellowish pigmentation of skin, tissues, and body fluids), fluid retention, high blood pressure, increases in LDL (bad cholesterol), and decreases in HDL (good cholesterol). Other side effects include kidney tumors, severe acne, and trembling. In addition, there are some gender-specific side effect.<sup>1</sup> Most are reversible if the abuser stops taking the drugs, but some are permanent.<sup>2</sup>

**What Effects Do Anabolic Steroids Have On Behavior?** Case reports and small studies indicate that anabolic steroids, particularly in high doses, increase irritability and aggression. Some steroid abusers report that they have committed aggressive acts, such as physical fighting, committing armed robbery, or using force to obtain something. Some abusers also report that they have committed property crimes, such as stealing from a store, damaging or destroying others' property, or breaking into a house or a building. Abusers who have committed aggressive acts or property crimes generally report that they engage in these behaviors more often when they take steroids than when they are drug-free. Anabolic steroids have also been reported to cause other behavioral effects, including euphoria, increased energy, sexual arousal, mood swings, distractibility, forgetfulness, and confusion.<sup>2</sup>

Scientific research shows that aggression and other psychiatric side effects may result from abuse of anabolic steroids. Many users report feeling good about themselves while on anabolic steroids, but researchers report that extreme mood swings also can occur, including manic-like symptoms leading to violence. Depression often is seen when the drugs are stopped and may contribute to dependence on anabolic steroids. Researchers report also that users may suffer from paranoid jealousy, extreme irritability, delusions, and impaired judgment stemming from feelings of invincibility.<sup>3</sup>

**What Treatments Are Effective for Steroid Abuse?** Few studies of treatments for anabolic steroid abuse have been conducted. Current knowledge is based largely on the experiences of a small number of physicians who have worked with patients undergoing steroid withdrawal. The physicians have found that supportive therapy is sufficient in some cases.

Patients are educated about what they may experience during withdrawal and are evaluated for suicidal thoughts. If symptoms are severe or prolonged, medications or hospitalization may be needed. Some medications that have been used for treating steroid withdrawal restore the hormonal system after its disruption by steroid abuse. Other medications target specific withdrawal symptoms. For example, antidepressants to treat depression, and analgesics for headaches and muscle and joint pains. Some patients require assistance beyond simple treatment of withdrawal symptoms and are treated with behavioral therapies.<sup>2</sup>

<sup>1</sup>The New England Journal of Medicine 320:1532, 2000.

<sup>2</sup>Source: NIDA Research Report – Steroid Abuse and Addiction: NIH Publication No. 00-3721, 4/2000; 2004 Monitoring the Future Survey, funded by NIDA, NIH, DHHS, & conducted by the Univ. of Michigan's Institute for Social Research. The latest data are online at [www.drugabuse.gov](http://www.drugabuse.gov).

<sup>3</sup>Pope, H.G., and Katz, D.L. Affective and psychotic symptoms associated with anabolic steroid use. *American Journal of Psychiatry* 145(4):487-490, 1988.

## Health Consequences of Anabolic Abuse

### Hormonal System

#### MEN

- shrinking of testicles
- reduced sperm count
- infertility
- breast development
- increased risk of prostate cancer

#### WOMEN

- enlargement of clitoris
- growth of face/body hair
- menstrual cycles stop
- voice deepens

#### BOTH SEXES

- male-pattern baldness

### Musculoskeletal System

- growth stature stops
- tendon rupture

### Cardiovascular System

- heart attacks
- enlarged left heart ventricle

### Liver

- cancer
- peliosis hepatis

### Skin

- acne and cysts
- oily scalp

### Infection

- HIV/AIDS
- Hepatitis

### Psychiatric Effects

- homicidal rage
- mania; mood swings
- delusions