

Steroids (Anabolic-Androgenic)

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.

Today, athletes and others abuse anabolic steroids to enhance performance and also to improve physical appearance. Anabolic steroids are taken orally or injected, typically in cycles of weeks or months (referred to as "cycling"), rather than continuously. Cycling involves taking multiple doses of steroids over a specific period of time, stopping for a period, and starting again. In addition, users often combine several different types of steroids to maximize their effectiveness while minimizing negative effects (referred to as "stacking").

Health Hazards ———

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 effects:

- For men—shrinking of the testicles, reduced sperm count, infertility, baldness, development of breasts, increased risk for prostate cancer.
- For women—growth of facial hair, male-pattern baldness, changes in or cessation of the menstrual cycle, enlargement of the clitoris, deepened voice.
- For adolescents—growth halted prematurely through premature skeletal maturation and accelerated puberty changes. This means that adolescents risk remaining short for the remainder of their lives if they take anabolic steroids before the typical adolescent growth spurt.

In addition, people who inject anabolic steroids run the added risk of contracting

or transmitting HIV/AIDS or hepatitis, which causes serious damage to the liver.

Scientific research also 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.¹

Research also indicates that some users might turn to other drugs to alleviate some of the negative effects of anabolic steroids. For example, a study of 227 men admitted in 1999 to a private treatment center for dependence on heroin or other opioids found that 9.3 percent had abused anabolic steroids before trying any other illicit drug. Of these 9.3 percent, 86 percent first used opioids to counteract insomnia and irritability resulting from the anabolic steroids.²

Extent of Use ———

Monitoring the Future (MTF) Survey*

MTF annually assesses drug use among the Nation's 8th, 10th, and 12th grade students. Annual** use of anabolic steroids remained stable at under 1.5 percent for students in 8th, 10th, and 12th grades in the early 1990s, then started to rise. Peak rates of annual use occurred in 2002 and 2004 for 12th-graders (2.5 percent), in 2000 and 2002 for 10th-graders (2.2 percent), and in 1999 and 2000 for 8th-graders (1.7 percent). Eighth-graders reported significant decreases in lifetime and annual steroid use in 2004, as well as a decrease in perceived availability of these drugs. A significant decrease in lifetime use was also measured among 10th-graders for 2004.

Most anabolic steroid users are male, and among male students, past year use of these substances was reported by 1.3 percent of 8th-graders, 2.3 percent of 10th-graders, and 3.3 percent of 12th-graders in 2004.

**Anabolic Steroid Use by Students
Year 2004 Monitoring the Future Survey**

	8th-Graders	10th-Graders	12th-Graders
Lifetime	1.9%	2.4%	3.4%
Annual	1.1	1.5	2.5
30-day	0.5	0.8	1.6

¹ 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.

² *The New England Journal of Medicine* 320:1532, 2000.

* These data are from the 2004 Monitoring the Future Survey, funded by the National Institute on Drug Abuse, National Institutes of Health, DHHS, and conducted by the University of Michigan's Institute for Social Research. The survey has tracked 12th-graders' illicit drug use and related attitudes since 1975; in 1991, 8th- and 10th-graders were added to the study. The latest data are online at www.drugabuse.gov.

** "Lifetime" refers to use at least once during a respondent's lifetime. "Annual" refers to use at least once during the year preceding an individual's response to the survey. "30-day" refers to use at least once during the 30 days preceding an individual's response to the survey.

Please also visit NIDA's steroids-specific Web site for further information on the effects of anabolic-androgenic steroids and information on healthy alternatives—
www.steroidabuse.org.