



## Anabolic Steroids

(Street Names: Arnolds, Gym Candy, Pumpers, Roids, Stackers, Weight Trainers, Gear, and Juice)

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### Introduction:

Anabolic steroids are a class of drugs with a basic steroid ring structure that produce anabolic effects and androgenic effects. Athletes, bodybuilders, and others abuse anabolic steroids with the intent to improve athletic performance, muscle strength, and appearance.

### Licit Uses:

In the U.S., only a small number of anabolic steroids are approved for either human or animal use. Testosterone and several of its esters, as well as methyltestosterone, nandrolone decanoate, and oxandrolone are the main anabolic steroids currently prescribed in the U.S. Some of the approved medical uses include the treatment of testosterone deficiency, delayed puberty, anemia, breast cancer, and tissue wasting resulting from AIDS. Trenbolone, boldenone and mibolerone are used only in veterinary medicine.

### Chemistry and Pharmacology:

Most anabolic steroids are synthetically manufactured variations of testosterone. No anabolic steroid is devoid of androgenic effects. Activation of androgen receptors in various cells and tissues primarily mediate the anabolic and androgenic effects. The anabolic effects include the growth of skeletal and cardiac muscle, bone, and red blood cells, whereas the androgenic effects include the development of male secondary sexual characteristics.

The adverse effects associated with anabolic steroids are dependent on the age of the user, the sex of the user, the anabolic steroid used, the amount used, and the duration of use. In adolescents, use can permanently stunt growth. In women, use can induce permanent physical changes including deepening of the voice, increased facial and body hair growth, and the lengthening of the clitoris. In men, use can cause shrinkage of the testicles, enlargement of the male breast tissue, and sterility. Anabolic steroid use can damage the liver and can cause an increase in cholesterol levels. Anabolic steroid use can also induce psychological effects such as aggression, increased feelings of hostility, psychological dependence, and addiction. Upon abrupt termination of long term anabolic steroid use, abusers may experience withdrawal symptoms including severe depression.

### Illicit Uses:

Anabolic steroids are abused with the intent to enhance athletic performance, increase muscle strength, and improve appearance. The doses used are often 10 to 100 times higher than the doses used to treat medical conditions. Users typically take two or more anabolic steroids at the same time in a cyclic manner believing that this will improve their effectiveness and minimize the adverse effects. Anabolic steroid abuse is often accompanied by the use of other drugs.

### User Population:

Anabolic steroids are abused by professional, amateur, recreational athletes, and bodybuilders. Adolescents and young adults in the general population also abuse steroids for its muscle growth effects.

In the 2012 Monitoring the Future (MTF) study, which surveys eighth, tenth, and twelfth grade students, 1.2% of eighth graders, 1.3% of tenth graders, and 1.8% of twelfth graders reported using steroids at least once in their lifetimes. Regarding the ease by which steroids can be obtained, 12.5% of eighth graders, 18.0% of tenth graders, and 25.0% of twelfth graders reported in 2012 that steroids were "fairly easy" or "very easy" to obtain. By 2017, use is now down from recent peak levels by about two thirds among 8th and 10th graders, and about six tenths among 12th graders. According to the MTF, the 'perceived availability of steroids' was relatively high prior to 2001 or 2002, but it has declined appreciably at all grades through 2017 reaching the lowest levels recorded by the study. A number of steroids have been scheduled by the DEA, no doubt contributing to the drop in availability.

### Illicit Distribution:

Anabolic steroids are available as injectable preparations, tablets and capsules, and gels and creams. Most anabolic steroids sold illegally in the U.S. come from abroad. The Internet is the most widely used means of buying and selling anabolic steroids. However, there is also evidence of diversion through unscrupulous pharmacists, doctors, and veterinarians.

New steroids, which have not undergone safety or efficacy testing in the U.S., have appeared over the years. Some of these "designer steroids" were supplied to athletes to avoid drug testing detection. Commercially available dietary supplements are sold purporting to contain novel anabolic steroids. These products, which are advertised to build muscle and increase strength, are readily available on the Internet.

The National Forensic Laboratory Information System (NFLIS) and System to Retrieve Information from Drug Evidence (STRIDE) integrated into STARLiMS, a web-based, commercial laboratory information management system, since October 1, 2014 which has replaced STRIDE indicate that testosterone, trenbolone, methandrostenolone, and stanozolol continue to be the four most frequently encountered steroids by the federal, state, and local forensic laboratories. In 2017, there were 1,951 exhibits identified as testosterone, 542 exhibits identified as trenbolone, 245 exhibits identified as methandrostenolone, and 233 identified as stanozolol. In the first two quarters of 2018, there were 117 exhibits, 29 exhibits, 19 exhibits and 9 exhibits identified as testosterone, trenbolone, methandrostenolone, and stanozolol, respectively.

### Control Status:

By enacting the Anabolic Steroid Control Acts of 1990 and 2004, Congress placed a total of 59 anabolic steroids in Schedule III of the Controlled Substances Act. The salts, esters, and ethers of these 59 anabolic steroids are also controlled. Congress provided a definition to administratively classify additional steroids as Schedule III anabolic steroids.

Comments and additional information are welcomed by the Office of Diversion Control, Drug and Chemical Evaluation Section.  
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