

ANABOLIC STEROIDS

By: Parul Kaushik, M.D., M.P.H.

THE DRUG

Anabolic steroids, sold commonly under the street names gym candy, pumpers, weight trainers, stackers, arnolds and juice, are synthetic derivatives of the male sex hormone testosterone. Athletes such as weight lifters and marathon runners use them for their strength enhancing effects and seemingly aesthetic benefits on muscle mass. The escalating use of anabolic steroids in recent years indicates increased concern for physical appearance and endurance among adolescents. Testosterone, under the brand name Striant®, and its analogues, anabolic steroids, under the brand names Anadrol®, Deca-Durabolin®, Durabolin®, Hybolin-Improved®, Kabolin®, Oxandrin® and Winstrol® have been in medical use in United States since the 1930s. They are prescribed for medical conditions such as delayed puberty in males, breast cancer, burns and various autoimmune diseases.

APPEARANCE

Anabolic steroids can be taken orally in tablet, powder or liquid form (e.g., Anadrol®, Oxandrin®, Dianabol®, and Winstrol®) or injected intramuscularly (e.g., Deca-Duabolin®, Depo-testosterone, Durabolin®, Equipose, and Winstrol®). Injectable steroids are either oil or water-based. Oils are longer lasting than water-based steroids. Taken intramuscularly, oils are stored at the site of injection, and slowly released over a few days; for example, Nandrolone is considered to remain in the body for up to 17 days.

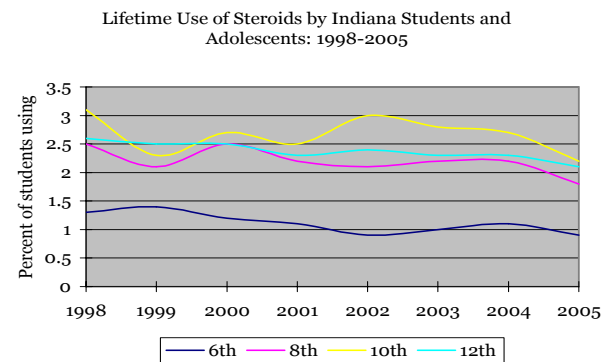
USERS

Taking steroids has long been associated with the field of sports, resulting in many ethical and medical concerns for professional athletes. Recently, the crisis of anabolic steroid use has also penetrated the vulnerable world of children and adolescents. Users usually take large doses for 6-16 weeks followed by a period

of abstinence, a process known as “cycling.” Weight lifters take 10 to 100 times the usual medical dose of 1-5 mg/day; athletes generally take slightly less than this dose. Most often, users take two or more steroids simultaneously (stacking) and tend to harbor the false and unsubstantiated belief that stacking can add to the overall effect. Another mode of administration is “pyramiding” in which either the number of drugs, dose or frequency of one or more drugs is gradually raised over the first half of a cycle and then tapered.

INCIDENCE AND PREVALENCE

The Alcohol, Tobacco and other Drug Use by Indiana Children and Adolescents survey (2005) indicates that steroid use among Indiana students is steadily decreasing. In 2002, 10th graders reported lifetime use of steroids at 3.0 percent, 12th graders at 2.4 percent and 8th graders at 2.1 percent. This has declined steadily to 1.8, 2.2, and 2.1 percent lifetime use for 8th, 10th, and 12th graders respectively in 2005. This decrease is also evident for students in 6th grade. In 2004, 2.3 percent of students in Indiana reported steroid use, which was lower than the national rate of 3.4 percent in the same year.



Source: Indiana Prevention Resource Center, 2005.

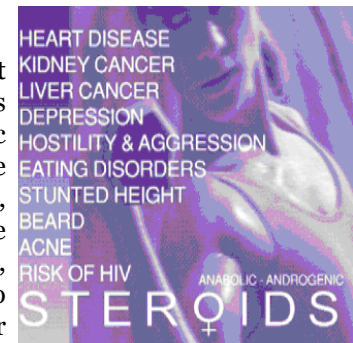
ACQUIRED

Most of the steroids found in the United States are obtained through illegal importation from Mexico and European countries where they are sold without prescription. They are also reportedly stolen from pharmaceutical labs, inappropriately prescribed and, less commonly, clandestinely produced. Acquiring steroids is not difficult, as they are sold illegally as performance enhancing drugs in gyms, fitness clubs, athletic competitions and also by mail order.

EFFECTS

Working through a set of biochemical reactions in the body, anabolic steroids produce creatine phosphate, an immediate source of energy for muscles, allowing athletes to train harder and for longer periods of time.

In addition, they augment the production of proteins by the body, thus increasing lean body mass. Short-term effects include swelling of the feet, severe acne, oily skin, hostility, aggressiveness and nervousness in both sexes. In males, anabolic steroids cause premature baldness, ejaculatory problems, testicular degeneration, impotence, breast development (gynecomastia), and decreased libido. In females, they can have an irreversible masculinizing effect, causing increased body hair, deepening of the voice, reduction of breasts, menstrual irregularities and uterine atrophy. Long-term effects include cardiovascular disease, hypertension, early heart attack and stroke. Liver damage presents as jaundice (yellowing of skin and body fluids) and the risk of developing liver cancer increases. Withdrawal symptoms are sleeplessness, fatigue, loss of appetite, and mood swings ranging from violent homicidal acts known as “roid rages” to severe depression. In adolescents and school age children steroids can cause premature closure of epiphysis (growing end) in long bones, leading to stunted growth.



THE LAW

Anabolic steroids are classified as a Schedule

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III drugs under the Controlled Substance Act. Possession of anabolic steroids, its salts, esters, or isomers without a valid prescription is illegal. The penalty for possession is one year of imprisonment and a minimum of \$1,000 fine. Involvement in anabolic drug trafficking can lead to a maximum of 10 years in prison and a fine of up to \$50 million. The International Olympic Committee (IOC) and many other national professional sports leagues have banned the use of these drugs by athletes because they are detrimental to health and provide an unfair advantage to the user. Dehydroepiandrosterone (DHEA) and androstenedione, steroid compounds similar to testosterone, can be purchased legally in the United States without a prescription. Taken in large quantities, their effects parallel those of designated anabolic steroids. Since these are available over the counter, they pose a potential public health threat.

PREVENTION

Prevention of anabolic steroid abuse can be accomplished by increasing education and awareness of the dangers of the drug, and by promotion of a healthy self-image and healthful behaviors. Youth and parents need to recognize the reasons why the drug is abused, its harmful effects, the signs and symptoms of its use, and effective means of prevention. It is equally important to identify, treat, and prevent issues of distorted body images and low self-esteem, which are common indicators for potential abuse. Promoting a healthy sense of self, maintaining a healthy diet and exercise program, and properly caring for one's physical and mental health are key components to ensuring healthy Hoosier children and adolescents.

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