

# NARCOTIC EDUCATIONAL FOUNDATION OF AMERICA

Drug Abuse Education Provider of the:

California Narcotic Officers' Association

## UNDERSTANDING ANABOLIC STEROIDS

### QUICK FACTS:

Although different types of steroids exist naturally in humans, the drugs commonly known as anabolic steroids are synthetic chemical compounds designed to create certain effects that natural hormones cause in the body. Steroid is the generic name given to compounds having a basic ring structure similar to that of cholesterol. The anabolic steroids were produced to be used to treat a rare disease in males whose bodies do not produce enough of the hormone testosterone. The problem is that this anabolic effect cannot be separated completely from the "androgenic effect," which is expressed in aggressive behavior and other side effects. Due to these serious side effects, doctors usually prescribe the minimum dosage to help their patients. High dose anabolic steroid administration in combination with intensive exercise (weight training) and high protein intake results in increased body weight, lean muscle mass and strength. However, large doses may shut down the production of the normal hormone and start producing the opposite hormones, both in males and in females. Thus, there may be physical body differences observed in the abuse of these type of drugs. Of all the drugs that are abused, anabolic steroids are perhaps the most difficult to understand.

### HISTORY OF DRUG

Steroid is a generic term given to compounds that have a basic chemical structure to that of cholesterol. Different types of steroids exist naturally in humans. However, the drugs most commonly known as anabolic steroids are synthetic chemical compounds designed to create certain known effects that the natural hormone testosterone causes in the human body. These drugs are more accurately described as anabolic-androgen steroids, commonly known as "anabolic steroids." For a better understanding of this group of drugs, remember that they are chemical copies of a natural hormone. Hormones travel through the blood stream to many receptor sites in the body. These receptor sites react to normal hormones to provide healthy growth and development. These reactions provide important physical and mental effects.

Developed in the 1930's, anabolic steroids were used to treat diseases in males whose bodies do not produce enough testosterone. These drugs are also used for conditions such as rare types of anemia and kidney disease. Many new anabolic steroids were made by changing the way the chemicals were put together so certain effects were stronger.

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### ANABOLIC STEROID EFFECT

- ◆ Improve utilization of ingested protein.
- ◆ Promote protein synthesis.
- ◆ Inhibit tissue breakdown.
- ◆ Promote growth of extra genital tissue such as muscle.
- ◆ Promote breakdown of fat and increase lean body weight.
- ◆ Increase hemoglobin levels and red blood cell number.
- ◆ Increase calcium retention in bone.
- ◆ Decrease excretion of sodium, potassium, and calcium.

### ANDROGENIC EFFECT

- ◆ Promote male phenotype development in male embryos.
- ◆ Promote growth of penis, **prostate and seminal vesicles**.
- ◆ Promote development of pubic and facial hair.
- ◆ Promote growth of larynx - deepening the voice.
- ◆ Cause proliferation of sweat glands.
- ◆ Induce aggressive behavior.

### History - *(continued from column 1, this page)*

However, the anabolic effects could not be completely separated from the androgenic effects. Due to these many serious side effects, doctors usually prescribe minimum dosage required to help their patients.

### ANABOLIC STEROIDS DANGEROUS FOR TEENS?

The younger a person is, the more damaging drug abuse can be. Physical development can change when body chemistry reacts to any chemical that doesn't help natural growth and development. Natural hormones make a teenager's body mature into an adult body. Anabolic steroids are hormones that will alter the natural process. Hormone level adjustment caused by these drugs can create radical physical, mental and emotional changes.

Example a fifteen-year-old male whose bones are not fully grown takes anabolic steroids. The skeletal system receives the hormone and this amount gives the message that it is time to stop growing. The ends of the long bones become sealed to prevent further growth, thus permanently stunting the growth of this person.



## WHY HAVE ANABOLIC STEROIDS RECEIVED SO MUCH ATTENTION LATELY?

Although it has not been scientifically proven, athletes believe that if they train hard, eat high-calorie, protein-rich diets, and take massive doses of anabolic steroids, they can improve their athletic performance. The desire to win has led many athletes to disregard the side effects of these drugs. Over the years, however, it has become obvious that the possible side effects could be deadly. This realization and the ethical issue of fair competition led all major sports organizations to ban participants' use of anabolic steroids. Some athletes continue to use these drugs, so drug testing is necessary to enforce the rules. The news media often reports athletes who test positive for steroid use.

In addition to athletes, increasing numbers of people use anabolic steroids to improve their appearance. Many people believe that a muscular body represents perfect health and makes them more attractive. These people often use the drugs hoping to speed up their muscular development. It is estimated that over 2 million people in the United States alone are using anabolic steroids. There have been several recent media presentations calling attention to this problem.

### LOSS OF IMMUNITY

Anabolic steroids can impair the user's immune "healing" system. They also reduce stress hormone levels, resulting in less endurance. When their use is stopped, the imbalance of male and female hormones that has taken place with the system may continue.

Because anabolic steroids are copies of powerful natural hormones, they influence all body systems and can be much more mentally and / or physically addictive than recreational drugs. Anabolic steroid users become dependent on them for a sense of goal achievement, security, self-esteem,

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### SHORT-TERM ADVERSE EFFECTS OF ANABOLIC STEROIDS IN MEN

- Acne
- Skin tissue damage at injection site
- Atrophy of testicles
- Decreased sperm production
- Decreased sperm mobility
- Decreased semen volume
- Gynecomastia - breast enlargement
- Elevated blood pressure
- Increased LDL - cholesterol levels
- Decreased HDL - cholesterol levels
- Fluid retention - swelling
- Abnormal liver function
- Prostate enlargement

### SHORT-TERM ADVERSE EFFECTS OF ANABOLIC STEROIDS IN WOMEN

- Deepening of the voice
- Increased body and facial hair
- Male pattern baldness
- Decreased breast size
- Menstrual irregularities
- Tissue damage at injection site
- Fluid retention - swelling
- Oily skin
- Abnormal blood cholesterol levels
- Abnormal liver function

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and a variety of hormonal influences. Users often take very large doses and this leads to greater risk of dependency. Many doctors feel this is the most dangerous part of the anabolic steroid use, because people will use these drugs until the side effects become life threatening.

Physical addiction occurs once the body adjusts to the synthetic drugs. At this time normal production of testosterone stops. When the drugs are discontinued there is a period of time for natural hormone withdrawal symptoms such as severe depression, muscle aches, fatigue, anxiety, sexual impotence and poor self-esteem. To avoid this suffering the steroid user often takes mood altering drugs or more anabolic steroids.

### ARE ANABOLIC STEROIDS SAFE WHEN USED CAREFULLY?

Anabolic steroids can usually be used safely when doctors prescribe these drugs to improve the health of patients suffering from rare, specific diseases. Special attention is given to minimize the side effects and the lowest possible dosage is used. Safety is enhanced by strict adherence to prescription instructions. However, when maximum muscle development is the reason for anabolic steroid use, massive doses are required and *there is no safe use*. Some abusers of these drugs mistakenly believe that if their doctor gives them an occasional blood test the dangerous side effects can be avoided. A blood test will not predict many of the most serious health risks. Also, since most anabolic steroids come from black market sources, the questionable quality and purity of these drugs decreases the possibility of safe and careful use.

### INJECTION IS THE MAIN METHOD OF ADMINISTRATION



### **OBJECTIVES IN SELECTING A DOSING REGIMEN**

- ◆ Obtain the maximum desired effect.
- ◆ Reduce the occurrence of adverse effects.
- ◆ Avoid detection of

### **“STACKING” STEROIDS**

“Stacking” is a term used by athletes and body builders to describe the concurrent use of two or more anabolic steroids at high doses.

Injectables may be stacked with oral preparations.

Short-acting steroids may be stacked with long-acting steroids.

### **“CYCLING” STEROIDS**

“Cycling” is a term used by athletes and body builders to describe the alternating of anabolic steroid use with drug free-periods.

Cycling periods usually vary between 6 to 14 weeks.

#### **Reasons for Cycling:**

- Reduce tolerance development.
- Reduce occurrence of adverse effects.
- Prevent detection of steroid use.
- Insure peak performance during

### **DISEASES ASSOCIATED WITH ANABOLIC STEROID ABUSE**

Peliosis Hepatitis, a condition in which liver and sometimes spleen tissue is replaced with blood-filled cysts, has been reported in patients receiving androgenic anabolic steroid therapy. These cysts are sometimes present with minimal hepatic dysfunction, but at other times they have been associated with liver failure. They are often not recognized until life-threatening liver failure or intra-abdominal hemorrhage develops. Withdrawal of the drug usually results in complete disappearance of the lesions.

Liver cell tumors are also reported. Most often these tumors are benign and androgen-dependent, but fatal malignant tumors have been reported. Withdrawal of the drug often results in regression or cessation of progression of the tumor. However, hepatic tumors associated with androgens or anabolic steroids are much more vascular than other hepatic tumors and may be silent until a life-threatening intra-abdominal hemorrhage develops.

Blood lipid changes that are known to be associated with increased risk of atherosclerosis are seen in patients treated with androgens and anabolic steroids. These changes include decreased high-density lipoprotein and sometimes increased low-density lipoprotein. The changes may be very marked and could have a serious impact on the risk of atherosclerosis and coronary artery disease.

These stated precautions have been noted in prescribed amounts by doctors' patients. Those self medicating such drugs use many times the prescribed doses.

### **“STACKING THE PYRAMID”**

“Stacking the pyramid” refers to a stacking regimen wherein there is a progressive increase in the doses and types of steroids used in order to achieve an optimal anabolic effect. Subsequently, a progressive decrease in dose and types of steroids used ensues in order to prevent detection.

### **STEROIDS ARE PERPLEXING**

Continued use of these steroids are unbelievable in their reactions upon the users. They tend to feminize the male body and produce masculine features in the female body. The male user's breasts enlarge and the female user's breasts shrink. The male testicles shrink. The female clitoris enlarges. Hair growth is stimulated on the female user's face and body, but is not retarded on the male user's body. However, male pattern balding has taken place on the female user. If use is stopped, all reactions are not stopped.

### **HOW DO PEOPLE GET ANABOLIC STEROIDS?**

Controlled by the Federal Food and Drug Administration, these drugs are legally available only by doctors' prescription. However, illegal sale, or “black market” activity, is responsible for an estimated 80% of the anabolic steroids used. The black market is supplied by illegally diverted pharmaceutical products, some secretly produced in laboratories. Some are smuggled in from foreign countries. These black market anabolic steroids are sold in some magazines, gyms, and places where weight lifters gather.

### **EFFECTS PROLONGED**

Steroids taken orally remain in the body two to four days. Those injected intramuscularly “store” in body fat and remain active, exerting harmful health effects for weeks.

## **ANABOLIC STEROIDS CAUSE INCREASED AGGRESSIVENESS**