



# Steroids

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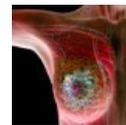
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## What are Steroids?

- The use of steroids continues to make news and sports headlines as athletes and bodybuilders use them illegally to gain an advantage on the playing field.
- Anabolic steroids refer to hormones that are either taken orally or by injection that influence the body's hormonal system to produce extra testosterone.
- The goal of taking anabolic steroids is to increase muscle mass.
- Anabolic refers to this muscle-building capability.
- Anabolic steroids should not be confused with catabolic corticosteroids, which are used routinely as anti-inflammatory medications to help treat

illnesses in which inflammation is part of the disease process.

- In today's society, anabolic steroid use has become common to augment sports performance, and abuse of these drugs begins as early as middle school.

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## Different Types of Steroids

There are two types of steroids present within the body. Corticosteroids are produced in the adrenal gland located above the kidney. These hormones include aldosterone, which helps regulate sodium concentration in the body, and cortisol, which plays many roles in the body, including serving as part of the body's [stress](#) response system to decrease inflammation. Commonly prescribed corticosteroid medications, like [prednisone](#), [prednisolone](#), and [dexamethasone](#) are available to be taken by mouth, intravenously, or by intramuscular injection and may be used to treat diseases like [asthma](#), [rheumatoid arthritis](#), [inflammatory bowel disease](#), and [systemic lupus erythematosus](#), as well as many others, in which inflammation is part of the disease process. The use of steroid ointments and creams on the skin, like [triamcinolone](#) and [betamethasone](#), is common in the treatment of [dermatitis](#) (derm=skin + itis=inflammation).

The second group of steroids, the androgenic/anabolic steroids, are hormones made in the body to regulate the manufacture of testosterone in the testicles and ovaries. The androgenic part of testosterone is involved in developing the male sex characteristics, while the anabolic part is involved in increasing the amount of body tissue by increasing protein production. The [pituitary gland](#), located at the base of the brain, helps regulate testosterone production and hormone secretion. Growth hormone and [follicle stimulating hormone](#) (FSH) are among the hormones that stimulate testis and ovary function and are two of the many hormones secreted by the pituitary.

Anabolic and androgenic steroids are available as [prescription medications](#) to be used in cases in which the body does not make enough hormone and supplementation may be required. Some hormone [supplements](#) in this pathway include growth hormone and testosterone itself. These medications are legally prescribed by health-care providers, but this group of drugs is often used illegally and abused to help increase athletic performance and improve body appearance. When used in a well-nourished body, anabolic steroids will cause weight gain primarily due to an increase in muscle mass.

While anabolic steroids may have beneficial effects when taken under medical supervision, they have many serious and sometimes irreversible side effects. These side effects are due to abnormally high levels of testosterone in the body and may include [high blood pressure](#), elevated [cholesterol levels](#), [liver](#) damage, [heart failure](#), [acne](#), [baldness](#), as well as aggressive and violent behavior.

There are a variety of common anabolic steroids. Some mimic the actions of testosterone directly, while others cause the body to produce excess testosterone by interfering with the normal hormone regulation system in the body. The end result is the same. Excess testosterone is available to affect cell and organ function in the body.

Aside from the chemical name, these steroids may also have a trade name and street name. For example, the chemical stanozolol is manufactured under the

name Winstrol but is also known on the street as "Winny." [Genotropin](#) is the manufacturer's name for human growth hormone (HGH).

There are numerous names for steroids, and each country may have its own variations on these names. Steroids may be chemically similar to testosterone, like methyl testosterone or [oxymetholone](#). They can also be so-called "designer" steroids that are manufactured to pass drug tests, like norbolethone and desoxymethyltestosterone.

A few common examples of anabolic steroids include

- Anabol,
- [Android](#),
- Androstenedione,
- Winstrol,
- Deca-Durabol,
- THG,
- Genabol, and
- HGH.

Depending upon the type, anabolic steroids may either be injected into the body or taken by pill. Because of the way these medications are metabolized, the need to have recovery time, and to prevent detection, steroids are often taken in cycles in which they are used for a few days at a time, then stopped and the cycle repeated again days or weeks later.



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## What Are the Side Effects of Prolonged Steroid Abuse?

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Initial signs that anabolic steroids are being abused may include rapid weight gain and unusual mood swings. Emotions may include increased aggressiveness. [Acne](#) is almost always seen.

The side effects of steroids can be explained by the excess [androgen](#) and

anabolic drug levels present in the body.

The use of steroids suppresses the naturally occurring testosterone in the body and, in males, may lead to a decrease in testicle size (atrophy), decreased sperm production, [infertility](#), and baldness. As well, the excess steroid can be converted to estrogen in males and may lead to enlarged breasts (known as [gynecomastia](#)). In females, the excess testosterone production may lead to a deeper voice, changes in the [menstrual cycle](#), and increased hair production. Baldness may also be seen in women.

These steroids also have direct effects on numerous organs:

- An increased number of sebaceous glands in the skin routinely leads to [acne](#).
- Liver damage may often occur, and [liver cancer](#) is a risk.
- The heart is at risk for damage in a various ways. In response to excess steroid in the body, the [heart muscle](#) may enlarge just like any other muscle in the body. This enlargement, or hypertrophy, can lead to decreased pumping ability ([cardiomyopathy](#)) as well as changes in the electrical conduction system in the heart causing rhythm changes (arrhythmias), [palpitations](#), and potentially sudden cardiac death. As well, steroids may cause [high blood pressure](#), increased [cholesterol](#) levels, and elevated blood sugars, all of which are risk factors for [heart attack](#) and [stroke](#).
- Psychiatric effects of steroids include excitation and [depression](#). Aggression is common. Manic episodes of aggressive behavior are known as "roid rage," and violence may be the outcome. [Depression](#) and [suicide](#) may also occur.

In adolescents who have yet to complete growing, the use of steroids may stunt growth and stop bones, joints, and muscles from reaching full maturity. As well, premature sexual development may occur.

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## When to Seek Medical Care for Steroid Abuse

If parents are concerned that their child is abusing anabolic steroids, it is appropriate for them to seek help from their health-care provider. Psychological counseling is also appropriate.

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## How Is Steroid Abuse Diagnosed?

Often steroids remain in the body for prolonged periods of time and can be detected by urine drug tests. It is possible that certain designer steroid drugs

may escape detection because they are built to be less detectable. However, the World Anti-Doping Agency works with many laboratories to develop tests to improve detection of performance-enhancing drugs in the body.

Sometimes the steroid itself is not found but drugs that are used as masking agents are. [Bumetanide](#) and [furosemide](#) are diuretics, or water pills, that may cause a false-negative test. For professional and elite athletes, the presence of these masking drugs in a urine sample is also considered a failed test (<http://www.wada-ama.org/en/World-Anti-Doping-Program/Sports-and-Anti-Doping-Organizations/International-Standards/Prohibited-List/>).



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## What Is the Treatment for Steroid Addiction?

Those who use anabolic steroids don't become truly addicted to them as may occur with [alcohol](#) or other drugs of abuse. However, some studies suggest that there may be some potential for steroid cravings similar to those for [caffeine](#).

The use of anabolic steroids is addictive in terms of the associated lifestyle and the pursuit of the effects that they produce. This includes issues of self-perception and the reality of increased muscle mass and body size.

Treatment needs to address not only the physical usage but also the underlying emotional needs that led to the use in the first place.

## What Is the Medical Treatment for Steroid Abuse?

Medical therapy is directed at dealing with the underlying side effects of steroid use. Many are reversible when the use of steroids is stopped, while other complications may be permanent and require long-term monitoring.

## Other Therapy for Steroid Abuse

Counseling may be needed to help with the underlying issues that led to the initial steroid use. As well, if psychiatric side effects are present, counseling may be of help.

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## Steroid Abuse Prevention

Prevention is the first step in avoiding anabolic steroid use. Whether it is associated with sports performance or the desire to improve the perception of oneself, the key to [steroid abuse](#) is to prevent the first use. Education at home and in the schools highlighting the potential risks while at the same explaining the consequences of cheating is the first step in reducing the steroid abuse problem.

Use of anabolic steroids is against the law. Both possession of anabolic steroids and providing them to others has significant legal consequences.

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## What Is the Prognosis for Steroid Abuse?

As elite athletes are caught cheating by using anabolic steroids, perhaps their perception as positive role models will fade and the use of steroids decrease. Increased pressure to test athletes at younger ages may decrease the use of steroids as well. However, as long as adolescents perceive that anabolic steroids are required to compete at sports, their use may continue in the foreseeable future.

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Medically reviewed by Joseph T. Palermo, DO; Board Certification Internal Medicine/Geriatric Medicine

REFERENCE:

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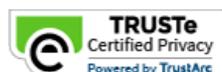
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