

ANABOLIC-ANDROGENIC STEROIDS

What are anabolic-androgenic steroids (AAS)?

Testosterone is the natural male hormone that is responsible for the primary and secondary sex characteristics such as body hair, deepening of the voice, development of the male sex organs and sex drive.

AAS are derivatives of testosterone. They assist in the growth and repair of tissues, mainly skeletal muscles ('anabolic' effects) and bones. They also have an effect on the development and maintenance of male sex characteristics ('androgenic' effects).

AAS were developed to treat medical conditions and have been found to have positive benefits to a wide variety of patients. AAS have been prescribed to restore hormone levels in hypogonadal men, increase body weight and muscle mass in wasting syndromes such as in infection with HIV, improve bone density and to treat depression.

There are a number of different brand names of AAS, which differ slightly in chemical structure. There are taken orally, some injected and some are gels or creams that are rubbed on the skin.

It is illegal to obtain, distribute or use AAS without a legitimate medical prescription. However, there are a range of veterinarian and human steroids being diverted to the blackmarket and used illicitly.

AAS are banned under the Olympic Movement's *World Anti-Doping Code Prohibited Classes of Substances and Prohibited Methods*.

What are the perceived benefits?

There is a growing body of evidence that AAS have positive anabolic actions on the musculaskeletal system, influencing lean body mass, muscle size, strength, protein metabolism, bone metabolism, and collagen synthesis.

The anabolic effects of AAS have been questioned for decades, but recent scientific investigations have found support for their effectiveness.

One reason people use AAS is to enhance performance in sports. Bodybuilders desire more lean mass and less fat. Weightlifters desire strength. Field athletes are seeking a competitive advantage in their event.

However, there are other groups of AAS users who simply want to 'look good' - which to many means looking big and muscular. For these people, AAS are used to increase muscle size and/or reduce body fat.

What are the side effects and potential harms?

When used illicitly, people take doses between 10 and 100 times higher than those doses prescribed for medical conditions. Also, AAS are often 'stacked' - meaning two or more different steroids are taken, mixing oral and injectable, human and veterinarian. When taken under medical supervision, AAS are relatively safe. However the risks of taking higher doses, stacking and combining AAS with other drugs (such as clenbuterol, caffeine, ephedrine or insulin) are not fully understood.



Physical side effects of AAS include:

- o **Acne**
- o **High blood pressure**
- o **Liver problems**
- o **Heart problems**
- o **Increased cholesterol levels**
- o **Hair loss / baldness**
- o **Hypertension**
- o **Sleeplessness**
- o **Headaches**
- o **Tendon injuries**
- o **Permanent short stature in adolescents**
- o **Tendon / ligament damage**
- o **Water retention**

Specifically for men:

- o **Gynaecomastia (abnormal growth of breasts)**
- o **Shrinking testicles**
- o **Prostate problems**

Specifically for women:

- o **Clitoral enlargement**
- o **Smaller breasts**
- o **Voice changes**

Psychological effects of AAS include:

- o **Increased aggression (eg: "roid rage")**
- o **Increased irritability**
- o **Mood swings**
- o **Depression**
- o **Dependence**

A person may be dependent on AAS if they:

- o **continue to use despite risks to health**
- o **take more of the drug to get the same effect**
- o **experience withdrawal symptoms**

Withdrawal symptoms can be both psychological and physiological. They may include feeling depressed, nervous, angry or irritable.





Risks of counterfeit products

There is an active blackmarket in AAS and in addition to the legitimate AAS preparations for medical use, there are counterfeits which may have few, if any, active ingredients and carry the risk of contamination. Some unsterile and dangerous counterfeits have also been reported.

injecting risks

Where needles, vials or other equipment are shared, there may be traces of blood, increasing the risk of transmission of blood-borne viruses (such as hepatitis or HIV).

Where the skin has not been properly cleaned, dirt or bacteria may inadvertently enter the bloodstream, carrying risk of infection, inflammation and damage to blood vessels. Injecting an unsterile substance also carries risks of infection or poisoning. In severe cases, infections from injecting can cause thrombosis, ulcers and gangrene.

Injecting into small muscle groups increases the risks of injecting into veins and nerves.

