

# HUMAN CHORIONIC GONADOTROPHIN (hCG)

## What is Human Chorionic Gonadotrophin (hCG)?

hCG is a naturally occurring hormone produced in the placenta of women during pregnancy. It is important in triggering hormonal changes in women during pregnancy, embryo development and it can increase the production of natural male and female steroids (sex hormones).

Legitimate medical uses of prescribed hCG include the treatment of delayed puberty in boys (where boys do not develop secondary sexual characteristics at the normal age of 12 - 14 years old), female infertility (hCG stimulates ovulation), low sperm count (oligospermia) and undescended testes. When taken by males, hCG can stimulate the testes to produce testosterone rapidly. hCG is typically administered via an intramuscular injection.

It is illegal to use hCG without a prescription in all parts of Australia. hCG is banned for men under the Olympic Movement's *World Anti-Doping Code Prohibited Classes of Substances and Prohibited Methods*, but is allowed for women. hCG is not banned in female athletes because it would not lead to muscle development and might occur naturally in high levels if the athlete is pregnant.

## What are the perceived benefits?

Taken for non-medical purposes, hCG is generally used to complement a cycle of anabolic-androgenic steroids (AAS). AAS are synthetic substances related to male sex hormones (androgens). They promote the growth of skeletal muscle ('anabolic effects') and the development of male sexual characteristics ('androgenic effects'). AAS are used (often illicitly) to increase muscle size and/or reduce body fat, in order to enhance performance or image. However, using high doses of AAS over sustained periods can actually switch off the body's natural production of testosterone.

The primary use of hCG among body builders and others is as part of post-cycle recovery, to 'kickstart' natural testosterone production following a long cycle of AAS. During long duration AAS cycles, the natural testosterone levels stay suppressed for a considerable time causing atrophy of the testes. By administering hCG, AAS users believe they can bring back the size of the testes and natural testosterone production. This is perceived as the main benefit of hCG.

hCG may also be used as a masking agent by those people who are attempting to avoid testing positive to other substances.

## What are the side effects and potential harms?

Use of hCG to kickstart natural testosterone is problematic and a balancing act. Using hCG for too long a period of time, or in doses that are excessively high, can block the natural production of luteinising hormone (LH) or desensitize the testicles to the effects of LH. As the body naturally converts testosterone to oestrogen, the higher level of oestrogen present in the body results in side effects like abnormal enlargement of breasts in men (gynaecomastia). For this reason, users of hCG often use it with an oestrogen blocker, further compromising the body's ability to regulate a natural hormonal balance. These effects are counterproductive to the aim of regaining and balancing natural testosterone production and sustaining any gains.

Common side effects reported include:

- o **Abnormal enlargement of breasts in men (gynaecomastia)**
- o **Over stimulation of the ovaries causing production of many ova (eggs) in women**
- o **Multiple pregnancy**
- o **Acne**
- o **Tiredness**
- o **Changes in mood**
- o **Irritation in area of use**
- o **Excessive fluid retention in the body tissues, resulting in swelling (oedema)**
- o **Hair loss**
- o **Prostate hypertrophy**

The side effects accompanied with hCG use (which usually relate to higher levels of male sex hormones, such as extreme acne), its low rate of effect and the cost deter most athletes from using it for performance and image enhancement.

### Risks of counterfeit products

There is an active blackmarket in hCG and in addition to the legitimate hCG preparations for medical use, there are counterfeits which may have few, if any, active ingredients and carry the risk of contamination. .

### 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.