

Agents with Anti-Estrogenic Activity

Side effects of the use of compounds with anti-estrogenic activity include:

- hot flushes
- weight gain
- fluid retention
- cardiovascular disorders such as thrombosis (blood clots), hyperlipidemia (excess fat in the blood)
- osteoporosis
- eye disorders
- liver toxicity

Alcohol

Alcohol can increase self confidence, which may result in the person taking risks that he/she would not normally take. This could place both the subject and other persons around him/her at risk. Furthermore, continued alcohol consumption can lead to:

- vomiting
- slurred speech
- double vision
- memory and comprehension loss
- liver damage
- Impaired judgement, co-ordination and reactions
- incontinence
- sleepiness
- shallow breathing
- sexual disorders
- addiction

Anabolic Androgenic Steroids

The use of anabolic androgenic steroids can have serious effects on a person's health. The list of potential side effects is long and varied. Many of the reported side effects are reversible if the person stops using anabolic steroids; however, those indicated by an asterisk (*) in the table below may be permanent depending on dosage or duration of use.

Anabolic steroids mimic naturally occurring hormones; they can therefore interfere with normal hormone function and may result in harmful side effects such as:

- Increased risk of liver disease
- Increased risk of cardiovascular disease
- Increased risk of contracting infectious diseases such as hepatitis and HIV/AIDS
- high blood pressure
- psychological dependence

Also In Males:

- acne
- shrinking of the testicles*
- reduced sperm production*
- Impotence*
- Infertility
- enlarged prostate gland
- breast enlargement
- premature baldness
- potential kidney and liver dysfunction*
- Increased aggression and mood swings
- libido disorders

Also In Females:

- acne
- development of male features
- deepening of the voice*
- excessive hair growth on the face and body*
- abnormal menstrual cycles
- enlarged clitoris*
- increased aggression and mood swings
- foetal damage
- alteration of libido

Also In Adolescents:

- severe acne on the face and body
- premature puberty
- stunted growth as a result of premature closure of the growth plates of the bones*

Artificial Oxygen Carriers

The harmful side effects of artificial oxygen carriers can be extremely serious, particularly as it is difficult to measure correct doses of these chemicals.

Side effects of perfluorocarbons include:

- a transient fever
- reduction in platelet count
- blood infection (if preparations are impure)
- potential overloading of the white blood cells
- irritability
- diarrhoea
- stroke
- embolism (blocked blood vessel).

Possible side effects of hemoglobin based oxygen carriers include:

- high blood pressure
- vasoconstriction (constriction of the blood vessels)
- kidney damage
- iron overload

Beta Blockers

Side effects of using beta blockers include:

- lowered blood pressure and slow heart rate
- sleep disorders
- sexual dysfunction
- feelings of tiredness and decreased performance capacity in endurance activities
- spasm of the airways
- heart failure
- constriction of blood vessels in the arms and legs

Beta2 Agonists

Possible side effects of beta2 agonists include:

- palpitations
- headaches
- nausea
- sweating
- muscle cramps
- dizziness
- mood disorders
- possible increase in morbidity in those using long-acting Beta2Agonists

Blood Doping

Blood doping carries dangerous health risks including:

- jaundice
- circulatory overload
- increased risk of contracting infectious diseases such as hepatitis and HIV/AIDS (if share needles)
- septicaemia (blood poisoning)
- blood clots, stroke or heart failure
- metabolic shock
- allergic reactions (ranging from rash or fever to kidney damage) if wrong blood type is used

Cannabinoids

Effects of cannabinoids may include:

- loss of perception of time and space
- drowsiness and hallucinations
- reduced vigilance, balance and co-ordination
- reduced ability to perform complex tasks
- loss of concentration
- increased heart rate
- increased appetite
- mood instability – rapid changes from euphoria to depression

Long-term marijuana use may result in:

- loss of attention and motivation
- impaired memory and learning abilities
- possible weakening of the immune system
- respiratory diseases such as lung and throat cancer and chronic bronchitis
- psychological dependence

Corticotrophins

The short-term side effects of ACTH use include:

- stomach irritation
- ulcers
- irritability
- infections

Other side effects may include:

- softening of the connective tissue
- high blood sugar (hyperglycaemia)
- reduced resistance to infections
- weakening of an injured area in muscles, bones, tendons or ligaments
- osteoporosis
- cataracts
- water retention

Diuretics

Some of the side effects of the use of diuretics include:

- dizziness or even fainting
- dehydration
- muscle cramps
- drop in blood pressure
- loss of co-ordination and balance
- confusion, mental changes or moodiness
- cardiac disorders

Erythropoietin (EPO)

There are some serious health risks associated with use of EPO such as:

- thickened blood
- increased risk of blood clots, stroke and heart attacks
- increased risk of contracting infectious diseases such as hepatitis and HIV/AIDS (from needles)
- risk of developing, as an autoimmune reaction, EPO antibodies that can definitively destroy the EPO that is produced naturally by the body

Gene Doping

Since most gene transfer technologies are still in experimental phases, the long-term effects of altering the body's genetic material are unknown, although several deaths have already occurred during experimentation.

Some of the potential side effects of gene doping are:

- cancer development
- allergy
- metabolic deregulations

Glucocorticosteroids

When administered into the blood stream, glucocorticosteroids have numerous side effects, involving different body systems. Possible side effects of large doses of glucocorticosteroids include:

- fluid retention
- increased susceptibility to infection
- osteoporosis (abnormal loss of bone tissue resulting in fragile porous bones)
- weakening of injured areas in muscle, bone, tendon or ligament
- disorders of the nervous system, such as convulsions and muscle cramps
- decrease in or cessation of growth in young people
- loss of muscle mass
- heartburn, regurgitation and gastric ulcers
- softening of connective tissue (such as tendons and ligaments)
- alteration to the walls of blood vessels, which could result in formation of blood clots
- psychiatric disorders, such as changes in mood and insomnia

Gonadotrophins

As hCG stimulates the production of testosterone, the side effects can be similar to those experienced from anabolic steroid use. Other side effects of gonadotrophins use include:

- bone and joint pain
- hot flushes
- decrease in libido
- impotence
- allergic reactions and rash
- nausea, dizziness
- headaches
- irritability
- gastrointestinal problems
- irregular heart beats
- shortness of breath
- loss of appetite
- depression
- tiredness

Growth Hormone and Insulin-Like Growth Factor

There are dangerous side-effects related to the use of these substances including:

- tremors, sweat, anxiety
- worsening of cardiovascular diseases
- increasing development of tumours
- cardiomegaly (abnormal enlargement of the heart)
- accelerated osteoarthritis (chronic breakdown of cartilage in the joints)
- acromegaly in adults (distorted growth of internal organs, bones and facial features and the enlargement and thickening of fingers, toes, ears and skin)
- muscle, joint and bone pain
- hypertension
- fluid retention
- diabetes in individuals who may already be prone to the disease
- gigantism in young people (excessive growth of the skeleton)

Insulin

The side effects of insulin use for non-medical purposes are severe and include low blood sugar (hypoglycemia), which in turn may cause:

- hypoglycaemic tremors
- nausea
- weakness
- shortness of breath
- drowsiness
- pancreatic disease
- coma
- brain damage and death

Narcotics

The use of narcotics to reduce or eliminate pain can be dangerous as the substance is merely hiding the pain. With the false sense of security caused by narcotics, the user may ignore a potentially serious injury, and continue activity, risking further damage or causing permanent damage. Apart from the risk of further or permanent damage, narcotics can have other dangerous side effects such as:

- slowed breathing rate
- decreased heart rate
- sleepiness
- loss of balance, co-ordination and concentration
- suppression of the respiratory system and death
- euphoria
- nausea and vomiting
- constipation
- physical and psychological dependence, leading to addiction

Stimulants

The use of certain stimulants can cause serious cardiovascular and psychological problems, as well as various other side effects, such as:

- overheating of the body
- dry mouth
- Increased and irregular heart rate
- Increased blood pressure
- dehydration
- Increased risk of stroke, cardiac arrhythmia and heart attack
- insomnia
- anxiety and aggression
- weight loss
- problems with co-ordination and balance
- tremors (involuntary trembling or shaking)

Stimulant use can also result in dependence and addiction.