

PERFORMANCE AND IMAGE ENHANCING DRUGS (PIEDs): THE FACTS

WHAT ARE PIEDs?

PIEDs (Performance and Image Enhancing Drugs) are substances used to improve a person's physical appearance and/or athletic performance. PIEDs are most commonly used by younger male athletes/body builders who are seeking a variety of effects. Some drugs used as PIEDs are prescribed by doctors for other medical conditions, however they can be dangerous when used without proper medical supervision as they can cause serious harms.

Commonly used PIEDs include:

- Anabolic androgenic steroids
- Insulin
- Thyroxine
- Stimulants (e.g. Ephedrine, methamphetamine, cocaine, modafinil)
- Clenbuterol
- Diuretics (e.g. Frusemide, spironolactone)
- Human chorionic gonadotrophin (HCG)
- Human growth hormone (HGH)

Because PIEDs can come from many different classes of drugs the effects (including side effects and related harms) are very different. Combining multiple PIEDs together increases the chances there will be additional side effects on the body. The risks tend to be similar for both men and women.

PIEDs are used in different ways, some are injected, while others are taken in tablet form. Injecting carries specific risks such as infection, tetanus and vein or skin damage (See further details in the injecting risks section).

Aside from their specific health risks, some general risks of PIEDs include:

- Legal risks - some PIEDs are controlled/prohibited substances and are illegal to possess
- Uncontrolled purity/dosage - buying PIEDs off the dark web/black market means you don't know what actual substances or doses will be present
- Addiction and withdrawal - some PIEDs can be physically and/or psychologically addictive.

ANABOLIC STEROIDS

Anabolic androgenic steroids* are the largest group of PIEDs and are often synthetic products based on the structure of testosterone, the natural male sex hormone responsible for the development of masculine characteristics.



**There is a separate page/fact sheet on anabolic steroids which provides more detailed information.*

INSULIN

Insulin is a hormone naturally produced by the body and is used to store energy. It is prescribed as a medicine to people with diabetes (high blood sugar) to help regulate their blood sugar.

It is usually injected under the skin into the fat.

Some people use insulin inappropriately as a PIED to enhance weight and muscle gain.

When not medically supervised, injecting insulin can lead to dangerously low blood sugar levels or even be fatal.

RISKS

- Low blood sugar can lead to hunger, tremors, sweatiness, dizziness and blurred vision
- Very low blood sugar can lead eventually to seizures, coma and brain death (“vegetative state”)
- Other potential side effects of injecting insulin include:
 - infections at injecting sites
 - scarring (lipodystrophy)
 - fluid retention

WHAT YOU NEED TO KNOW AND WHAT TO DO IF YOU’RE EXPERIENCING LOW BLOOD SUGAR FROM USING INSULIN

- Never inject insulin alone as it can cause low blood sugar
- Always consume carbohydrate containing foods when you inject insulin
- Never inject insulin before going to sleep as you may not be able to detect the early warning signs of insulin overdose
- Beware of early warning signs of low blood sugar/insulin overdose including hunger, paleness, sweatiness, fatigue, fast heart-rate, tremors, blurred vision, and confusion (these are also the signs of very low blood sugar)
- If you do notice these signs of low blood sugar, eat some food that contains complex carbohydrates (such as bread or pasta – as these will not trigger insulin release) immediately. If symptoms persist, then eat or drink something which contains sugar and seek medical attention.



THYROXINE

Thyroxine is a naturally produced hormone that regulates energy supply in the body.

Some people use thyroxine when their body doesn't need it in order to lose weight.

It is usually taken as a tablet.

RISKS

- Harmful side effects can include a rapid or irregular heartbeat, stroke, sweatiness, fever, hair loss, eye problems, diarrhoea and an enlargement of the thyroid gland in the neck (goitre).
- Regular use can also lead to mental health problems such as panic attacks and anxiety disorders.



DIURETICS

Diuretics are medications prescribed to help people remove excess fluid from their body by increasing urination.

They are usually taken as tablets.

Some people use diuretics without a prescription to reduce water weight and enhance muscle definition.

Diuretics do not lead to loss of fat.

RISKS

- When used inappropriately, diuretics can cause severe dehydration and imbalances in electrolytes (salts) in the blood.
- This may lead to cramps, fatigue, confusion and may even cause abnormal heart rhythms that can be fatal.

CLENBUTEROL

Clenbuterol, sometimes referred to as 'clen', is a medication that works similarly to adrenaline in the body and is mainly used in veterinary practice.

It comes in the form of a liquid or gel.

Some people take clenbuterol as they think it will help them build muscle and burn fat, but there is limited evidence to support this.

RISKS

- Side effects include agitation, tremor, fast heartbeat, high blood pressure, chest pain, heart attacks and muscle breakdown ("rhabdomyolysis").
- It is often taken accidentally in doses that far exceed what is considered safe for humans and can cause severe and prolonged toxicity, including abnormal heart rhythm, low blood pressure and cardiac arrest.



STIMULANTS



Stimulant drugs speed up the messages that pass between your brain and body.

Examples include cocaine, amphetamines (including “ice”), modafinil, caffeine, ephedrine and DNP or 2,4-Dinitrophenol (sold illegally as a weight loss supplement). (Go to the stimulant pages for more information on short and long term effects and potential harms).

They are usually taken as tablets or capsules, but may also be smoked or injected.

Some people use stimulant drugs to give them more energy in training or for weight loss.

While side effects can vary, all stimulants can be dangerous in overdose.

RISKS

- Side effects can include a rapid heartbeat, chest pain, tremors, dizziness, anxiety and sweatiness, muscle breakdown (“rhabdo”), heart attacks, seizure and coma. Long term use can result in high blood pressure and its complications.
- When combined with intense exercise, stimulants put a lot of strain on the heart and can lead to heart failure which can be fatal.
- Regular stimulant use can also cause mental health problems such as psychosis and anxiety, along with low mood and withdrawal symptoms when they are stopped. Regular stimulant use can lead to addiction.
- Injecting stimulants has additional risks (“See, risks of injecting below”).
- Many stimulants are illegal drugs, and others may be illegal to possess without a valid prescription.

HUMAN GROWTH HORMONE (HGH)

HGH is a naturally occurring hormone that regulates growth, cell division and cell regeneration in the body.

A synthetic form is sometimes injected under the skin and used to increase muscle mass.

While HGH can increase lean muscle mass and reduce fat, larger studies have not shown that it increases strength and it may even impair athletic performance and increase the risk of training injuries.

RISKS

Long term use of HGH is associated with lots of risks, including:

- Joint damage
- Joint swelling causing nerve damage
- Increased risk of diabetes
- Increased risk of impotence (low libido or erectile dysfunction)
- Cardiomyopathy (a weak heart)
- Elevated blood pressure
- Osteoporosis (weak bones)

OTHER HORMONAL AGENTS

Some other hormonal agents are taken to reduce the side effects of anabolic steroids. Examples include human chorionic gonadotrophin (HCG), which is used to increase the body's natural testosterone production following a steroid cycle, or tamoxifen which is used to block the effect of estrogen in the body.

The risks associated with using these drugs without medical supervision is not well understood but may result in long-term hormonal imbalances.

This could lead to a variety of problems such as impotence, low libido, osteoporosis (weak bones), low mood and fatigue.

MELANOTAN

Melanotan is an artificial hormone. It stimulates the pigment cells in skin to produce melanin (the substance that makes skin look darker).

It is made in different forms, but it is most commonly used by injection.

Melanotan and other injectable tanning products may cause serious side effects. They have not been assessed by the Therapeutic Goods Administration as safe and effective and are not registered or approved for sale in Australia.

Side effects include darkened skin, increase in moles, and freckles, nausea, vomiting, loss of appetite, flushing of the face, involuntary stretching and yawning.

WHAT SHOULD I DO IN AN EMERGENCY?

If you can't wake someone up or you are concerned that they may have sustained an injury from a drug related fall – call an ambulance immediately – dial Triple Zero (000).

If the person has been mixing steroids with other PIEDs or other drugs (e.g. stimulants like amphetamines or cocaine), tell the NSW Ambulance paramedic exactly what they have taken. Paramedics are there to help. Generally paramedics don't involve the police unless there is danger to themselves or other people/children, someone dies, or a crime (such as violence or theft) has been committed.

INJECTING RISKS

- Always use sterile injecting equipment and know how to inject; not only important to reduce risk of blood borne viruses but also other injection-related harms (e.g. skin infections and abscesses).
- In NSW, sterile injecting equipment is available from Needle and Syringe Program (NSP) outlets and from selected pharmacists. Call the Alcohol and Drug Information Service (ADIS) 1800 250 015 for the nearest NSP outlet.
- The quality and safety of black market PIEDs is unreliable. Seek help immediately if you experience adverse effects.



WITHDRAWAL SYMPTOMS

PIEDs come from many different classes of drugs and the effects (including side effects and related harms) are very different. If you are experiencing problems using PIEDs or are considering cutting back or want to stop using them, you should talk to your doctor. Suddenly stopping use of some PIEDs may have harmful side effects.

People who become dependent on stimulants such as methamphetamine may find it very hard to stop using or cut down because of withdrawal symptoms. These can include:

- tiredness
- stomach cramps
- aches
- nausea
- rapid heartbeat
- hot and cold flushes
- hunger
- wanting the drug very badly (cravings)
- chest pains
- feeling confused, anxious or agitated
- weight loss
- deep depression (feeling very down or sad)
- being nervy or restless
- feeling angry or upset
- problems sleeping

If you are experiencing problems with withdrawal from stimulants, contact your doctor or health centre.

PREGNANCY & BREASTFEEDING

PIEDs can harm the baby, pregnancy status and cause toxicity through breastmilk.

The safest option if you are pregnant or considering pregnancy is to avoid PIEDs use. Inform your doctor or midwife of PIEDs use and attend regular antenatal checkups. Some PIEDs may affect fertility and may cause secondary male characteristics in a female baby.

It is generally risky to take any drug while breastfeeding without medical advice. If a mother uses PIEDs while breastfeeding, it is possible that the drug will be present in her milk and have adverse effects on the baby.



PIEDs AND THE LAW



It is illegal to manufacture, import, possess, use or supply steroids without a prescription or medical practitioner licence. The penalties for illegally administering steroids varies for every Australian state and territory.

It is also against the law to inject another person with steroids, or for them to self-administer, without a prescription.

Medical practitioners can only prescribe steroids for legitimate medical reasons.

Steroid use is banned in competitive sport. Testing positive for steroids can result in fines, suspensions or permanent bans.

FURTHER INFORMATION AND ADVICE

For free and confidential advice about alcohol and other drugs 24 hours, 7 days a week, call the **National Alcohol and Other Drugs Hotline 1800 250 015**.

It will automatically direct you to the Alcohol and Drug Service in the state or territory you are calling from.

OTHER SUPPORT INFORMATION OR SERVICES

- **Health professionals guide to harm minimisation for patients using non-prescribed anabolic-androgenic steroids (AAS) and other performance and image enhancing drugs (PIEDs)**. Access to resource [here](#).
- **Drug and Alcohol Multicultural Education Centre (DAMEC)** provides services for people from culturally and linguistically diverse communities. For counselling and support services for CALD communities call (02) 8706 0150.
- **Nepean Youth Drug and Alcohol Service (NYDAS)** works within a holistic model of care to address a range of issues for young people (12-20 years) of age related to their alcohol and other drug use. Call (02) 4734 2129 or (02) 4734 1333.
- **Poisons Information Centre** is a 24/7 call centre service to NSW and after hours call centre across Australia. Call 13 11 26
- ahmrc.org.au for Aboriginal community controlled health services across NSW. Go to Members/ Members regional map/ Member services or Member websites.
- alcohol.gov.au provides information about related health issues and Australian government policy.
- druginfo.adf.org.au for facts and resources on alcohol and other drugs and the prevention of related harm.
- druginfo.sl.nsw.gov.au State Library of New South Wales provides up to date information for public libraries in NSW.
- headspace.org.au for mental health and wellbeing support, information and services for young people (12-25 years) and their family and friends.
- kidshelp.com.au is a free, 24 hour counselling service for young people aged 5-25 years. Counselling is offered by web, email or call 1800 55 1800.
- nuaa.org.au NSW Users and AIDS Association (NUAA) is a peak drug user organisation in NSW providing harm reduction information and blood borne virus prevention peer education.
- au.reachout.com ReachOut is an Australian online youth mental health service with a mobile-friendly site and forums where you can access help, information and support.
- shil.nsw.gov.au for free and confidential sexual health support and information.
- smartrecoveryaustralia.com.au Smart Recovery is a voluntary self-help group that assists people in recovering from alcohol, drug use and other addictive behaviours.
- Visit tafensw.edu.au for help with education, career development or personal matters. Students can contact a local TAFE / university counsellor. Follow the links to student services, careers and counselling.
- youthaction.org.au Youth Action is the peak organisation for young people in NSW. Use the search option to access a directory of NSW youth services.
- youthsolutions.com.au for services for young people 12-25 years of age and the community including prevention and health promotion, drug and alcohol education, community programs and referral. You can also call (02) 4628 2319 [provides services to young people in Macarthur & Wingecarribee].

