

A Performance & Image Enhancing Drugs (PIEDs) Webinar

Introduction to PIEDs

Prevalence, what, why, and how

Presented by
Dr Katinka van de Ven
16 November 2020



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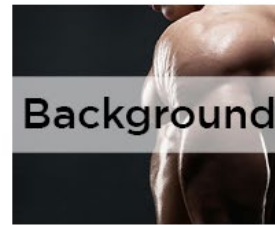


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GP Guide to harm minimisation for patients using non-prescribed Anabolic-Androgenic Steroids (AAS) and other Performance and Image Enhancing Drugs (PIEDs)

The Guide and PIEDs webinars are available [here](#) on the Sydney North Health Network (SNHN) website



Project Team: Dr Katinka van de Ven, Dr Beng Eu, Dr Eva Jackson, Dr Esther Han, Dr Nicole Gouda, Craig Parsons, and Pat Simmonds

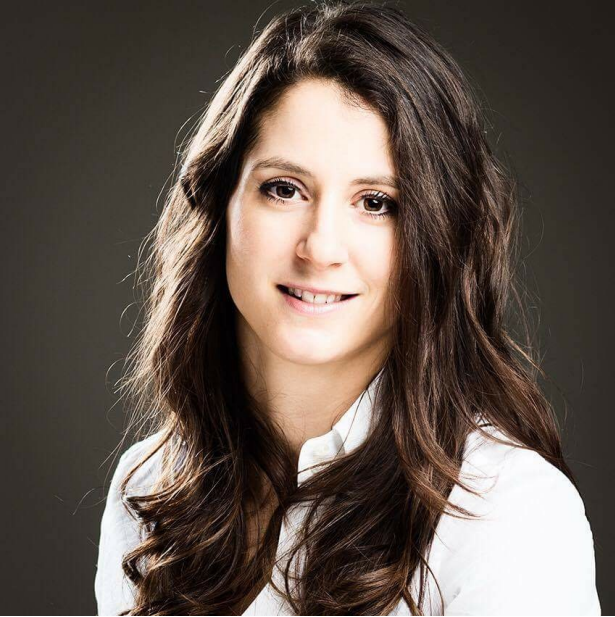
PERFORMANCE AND IMAGE ENHANCING DRUGS WEBINARS

- ◆ **Introduction to PIEDs: Prevalence, what, why, and how?** - Types of Performance and Image Enhancing Drugs (PIEDs) - Prevalence, why people use non-prescribed Anabolic-Androgenic Steroids (AAS) and methods of administering.
- ◆ **How to identify non-prescribed Anabolic-Androgenic Steroid (AAS) use** - Red flags, screening, and assessment.
- ◆ **How to manage non-prescribed Anabolic-Androgenic Steroid (AAS) use** – Adverse effects and managing withdrawal.
- ◆ **How to manage a patient who does not want to stop non-prescribed Anabolic-Androgenic Steroids (AAS)** – engaging pre-contemplative patients and harm minimisation.

SPEAKER INTRODUCTION

DR KATINKA VAN DE VEN

Senior Lecturer, Centre for Rural Criminology, University of New England
Visiting Fellow, Drugs Policy Modelling Program, SPRC, University of New South Wales



Katinka specializes in the use and supply of performance and image enhancing drugs (PIEDs), which includes projects surrounding anabolic-androgenic steroids and drugs policy, harm minimization, and improving health services for people who use enhancement drugs. She also conducts research in relation to alcohol and other drug (AOD) treatment services systems more broadly, amongst others around funding mechanisms, workforce characteristics, client outcomes and rurality.

Katinka is the Founder and Director of the Human Enhancement Drugs Network (HEDN), is the Editor-in-Chief of Performance Enhancement & Health, has co-edited the Routledge published book Human Enhancement Drugs, and (co-)authored numerous peer-reviewed papers within the enhancement field.

LEARNING AIM AND OUTCOMES

Learning Aim

Have a general understanding of the non-prescribed use of AAS and other PIEDs

Learning Outcomes

- Identify commonly used PIEDs and their use in the community.
- Understand prevalence of PIEDs, reasons for use, and commonly used substances.
- Understand mode of action, and how they are administered.

WHAT ARE PIEDS?

- ◆ **Performance and image enhancing drugs (PIEDs)** are drugs used to enhance the appearance of a person and/or to improve their physical capabilities such as strength or endurance.
- ◆ The term represents a wide range of substances, but the oldest and largest group used are non-prescribed anabolic-androgenic steroids (AAS) (used since the at least the late 1940s).
- ◆ The term PIEDs is generally used as people who use non-prescribed AAS commonly use other enhancement substances.



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INFORMATION PAMPHLET

	Type of HEDs	Description	Examples	General Effects*	High-Risk Groups**
	'Muscle Drugs'	Drugs to enhance the appearance and function of skeletal muscle (e.g. increase strength or muscle mass).	Anabolic Androgenic Steroids (AAS), Human Growth Hormones (HGH), Insulin, Erythropoietin (EPO), Peptide Hormones, Non-steroidal Selective Androgen Receptor Modulators (SARMs)	Intended effects: Muscle growth and to decrease amount of fat. Side effects: Changes in mood and behavior (e.g. depression and aggression), suppression of the Hypothalamic-pituitary-testicular-axis (HPTA), liver damage, cardiovascular disease, insulin resistance and musculoskeletal disorders.***	Sports competitors (especially power sports), bodybuilders, gym members, high school students, occupational users (e.g. security guards, police officers and actors), and ageing men.
	Weight-Loss Drugs	Drugs used to enhance weight loss.	Sibutramine, DMAA, Dinitrophenol (DNP), Ephedrine, Liothyronine Sodium (T3), Levothyronine Sodium (T4), Orlistat, Clenbuterol.	Intended effects: Decreases amount of fat and suppresses appetite. Side effects: Changes in mood and behavior (e.g. anxiety and aggression), insomnia, cardiovascular disease, and reduces absorption of dietary fat.***	Gym members, students, individuals, young and middle-aged women, bodybuilders, sports competitors, and occupational users (e.g. models).
	Image Enhancing Drugs	Drugs used to enhance the appearance of the skin and hair.	'Cosmetics' containing Mercury compounds or Hydroquinones, Corticosteroids, Melanotan 1 & II, Bimatoprost, Finasteride, Dermal Fillers (e.g. Botox), Botulinum Toxin (e.g. Botox), Isotretinoin (e.g. Roaccutane).	Intended effects: Darken or lighten skin color, increase the growth of eyelashes, increases the growth of scalp hair and reduce wrinkles. Side effects: Nausea, abnormal pigmentation, skin rash and chronic inflammation.***	Occupational users (e.g. erotic dancers, porn actors and celebrities), bodybuilders, ageing men and women, and tanning and beauty salon customers.
	Sexual Enhancers	Drugs used to enhance sexual function and behavior.	Sildenafil citrate (e.g. Viagra), Tadalafil (e.g. Cialis), Vardenafil Hydrochloride (e.g. Levitra), Yohimbe and Bremelanotide (PT-141).	Intended effects: Increases blood flow to penis causing erection. Side effects: Headache and memory problems.***	Night clubbers (incl. women), ageing men, gay communities, and porn industry. Night clubbers (incl. women), ageing men, gay communities,
	Cognitive Enhancers	Cognitive enhancers, also known as 'smart drugs' and 'study drugs', are used to enhance cognitive functions including short-term memory, concentration, comprehension and alertness.	Modafinil (e.g. Provigil), Methylphenidate (e.g. Ritalin), Amphetamine tablets (Adderall), Piracetam and Atomoxetine Hydrochloride (Strattera).	Intended effects: Promotes wakefulness, increased concentration and focus, improves short-term memory, and suppresses physiological sensations. Side effects: Skin reactions, changes in mood and behavior (e.g. anxiety and agitation), suppressed appetite, headaches, suicidal thoughts, psychosis and mania.***	Students, occupational users (e.g. surgeons, pilots and stock traders), and 'stay-at-home moms'.
	Mood & Social Behavior Enhancers	A drug taken for the purpose of altering and/or improving one's state of mind or feeling.	Selective Serotonin Reuptake Inhibitors (SSRIs), Beta-blockers (e.g. Propranolol), Benzodiazepines (e.g. Diazepam), Opiates (e.g. Morphine and Oxycodone).	Intended effects: Suppress physiological sensations, pain relief, relieve anxiety or depression. Side effects: Dizziness, vomiting, insomnia and headache.***	Students, sports competitors, and occupational users (e.g. musicians, public speakers).

* This table has presented HED categories as rigid and fixed, however it is important to note that many of the drugs identified as examples under specific categories may well appear in others. For instance, Clenbuterol may be used as both a weight loss drug and a muscle enhancer. For the sake of this table we have chosen to include Clenbuterol as an example under the weight loss category as the drug is most often consumed to achieve this goal.

** This table serves as a general guideline and as there are numerous drugs available to meet a variety of performance goals the effects will vary widely depending on the type, quantity, duration of use and mix of drugs consumed.

*** Studies and/or media reports have reported that the type of enhancer is frequently found within these groups.

**** Names also result from the fact that these drugs often are adulterated, wrongly labeled (under- or over-dosed) and/or not tested for human consumption.

MORE INFORMATION IS AVAILABLE AT WWW.HUMANENHANCEMENTDRUGS.COM



Source: HEDN



WHAT ARE PIEDS?

- ◆ **Number 1** is anabolic androgenic steroids (AAS): e.g. boldenone, nandrolone, stanozolol and testosterone.
- ◆ Other types of PIEDs are often used to:
 1. Achieve augmented effects;
 2. Minimise adverse effects of AAS use; and
 3. For recreational purposes.
- ◆ Examples (see table)

Drug	Trade/other names	Purported reasons for use (by patients)
Tamoxifen	Nolvadex®	Tamoxifen (oral) is used as an oestrogen blocker. This is used to prevent gynaecomastia (growth of glandular breast tissue in males)
Anastrozole	Arimidex®	Anastrozole (oral) is used as an oestrogen blocker. This is used to prevent gynaecomastia
Human chorionic gonadotroph in (HCG)	Pregnyl®	HCG (injected) is used to minimise depressive symptoms upon AAS cessation/withdrawal, to improve testosterone production, to prevent weight-loss, to stop testicular atrophy, and to increase strength.
Clomiphene citrate	Clomid	Clomid (oral) is taken to 'kick start' the endogenous production of testosterone during an 'off cycle', as testosterone production is often shutdown due to high-levels of exogenous AAS.
Human growth hormone (HGH)	Somatropin®	HGH (injected) is used for its anabolic effects and strength, to burn fat, and for weight loss.
Ephedrine		Ephedrine (oral) is used to increase energy and boost training, and to enhance weight loss

EXAMPLES OF AAS



Stanozolol or Winstrol: Water-based injectable AAS.

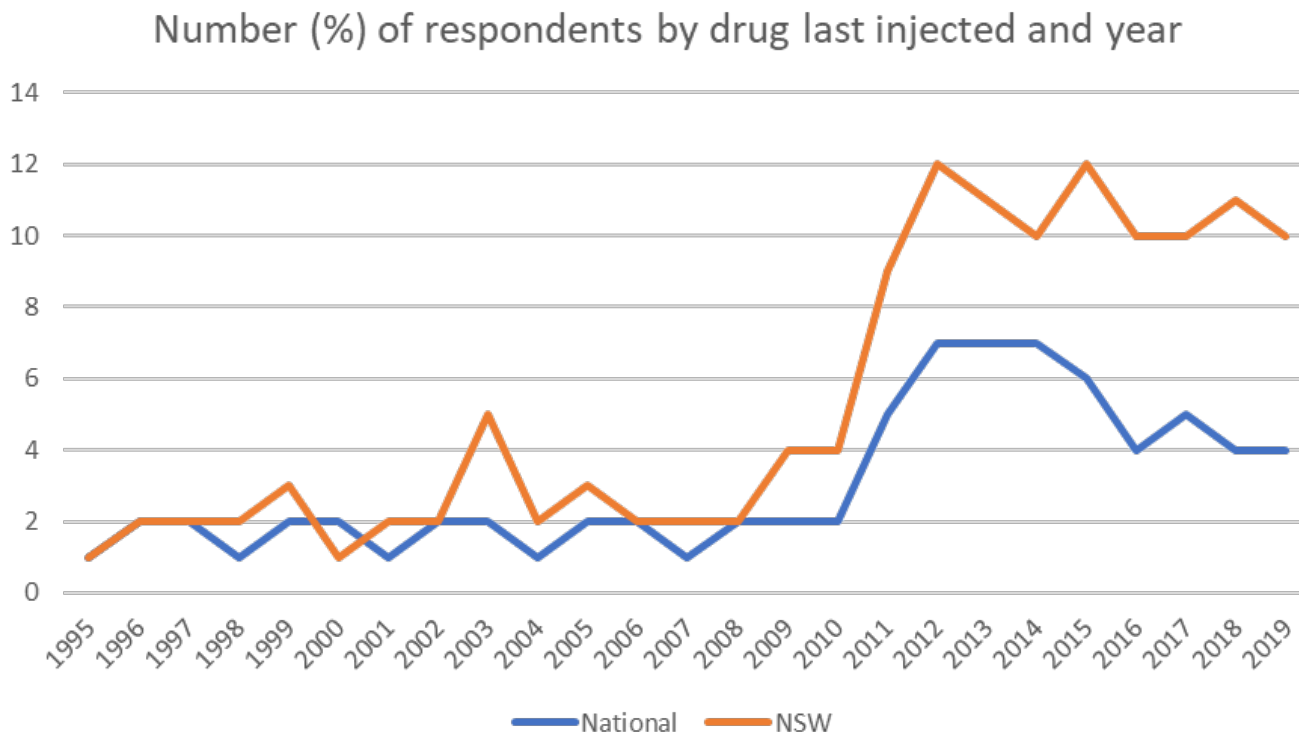


Sustanon or sust: Oil based AAS (mix of 4 types of testosterone)



Dianabol or Dbol: oral AAS

PREVALENCE



Source: [Australian Needle Syringe Program survey National Data](#)

Prevalence:

- Population studies show that PIED use in Australia is relatively low.
 - NDSHS: <1 in 100 people aged 14+ reported steroid use for non-medical purposes in 2016 (0.3% in 2001, 0.6% in 2016)
- BUT** there are indicators that PIED use is rapidly growing over the period 2005-2015, then stabilised or declined in recent years.
 - ANSPS: significant increase in PIEDs as 'last drug injected' over the period 2010-2014 (7%), followed by small decline to 2019 (4%)
 - NSW: 10-12%

WHY DO PEOPLE USE NON-PRESCRIBED AAS

At what age do people usually start using?

- Between the ages of 20 and 24 years old
- Older men (40 and over)



Source: [IPEDInfo](#)

AAS TERMINOLOGY

What are on and off cycles?

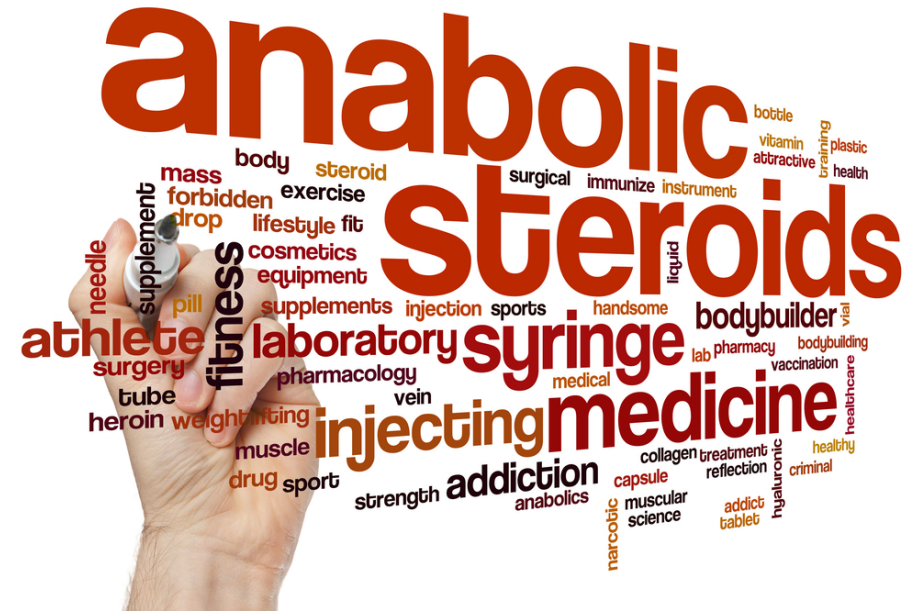
AAS are mostly used in cycles with a duration between 6 and 18 weeks, termed an 'on cycle'. This is usually followed by a similar period of AAS-free training termed the 'off cycle'.

Blast and cruise

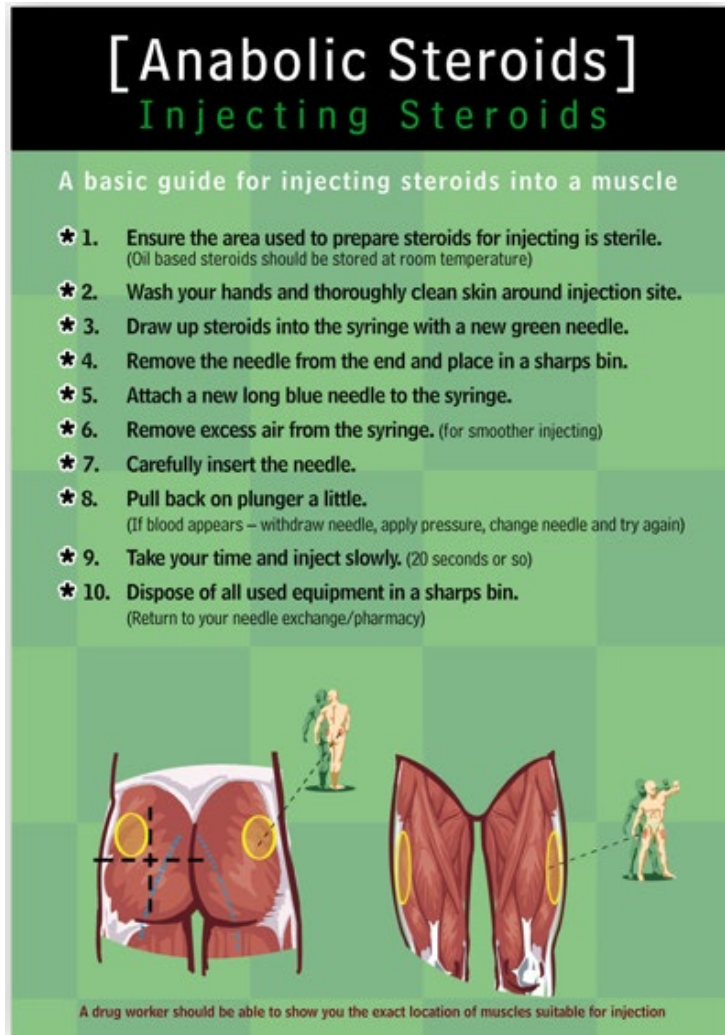
‘Blast and cruise’ is the continuous use of AAS involving a higher dose – the blast – for a set period, followed by a lower dose – the cruise – for a set period

Post-cycle Therapy (PCT)

A primary concern of AAS use is its potential to suppress natural testosterone production. In response, some consumers will use other pharmaceutical substances during or after cessation of use of AAS (i.e. off/post cycle) to help restart natural testosterone production.



HOW DO PEOPLE ADMINISTER NON-PRESCRIBED AAS



Source: [Exchange Supplies](#)

- AAS are mainly injected or taken orally, depending on the product, and it is common to see people using a mixture of both injectable and oral products.
- Both routes of administration carry risks, either via the injecting process (e.g. infection), or from extra strain on the liver caused by oral products.
- Injectable AAS are injected intra-muscularly, typically into the gluteus (i.e. buttocks), outer thigh or shoulder.

SUMMARY

- ◆ Although population studies show that PIED use in Australia is relatively low, there are other indicators which indicate that their use is growing.
- ◆ The most common type of PIEDs are anabolic-androgenic steroids;
- ◆ Other PIEDs are often used to achieve augmented effects; minimise adverse effects of AAS use; and for recreational purposes.
- ◆ AAS are mainly injected or taken orally.
- ◆ AAS are used by both younger and older people.
- ◆ Motivations for use vary but the main driver is for aesthetic purposes.



Sydney North HealthPathways

List of pathways related to PIEDs

Addiction and Drug Misuse

[Alcohol](#)
[Benzodiazepines](#)
[Cannabis](#)
[Codeine - Chronic Use and Deprescribing](#)
[Drug Seekers](#)
[Methamphetamine \(Ice\)](#)
[Opioids](#)
[Opioid Treatment Program \(OTP\)](#)
[Problem Gambling](#)

Addiction and Drug Misuse Requests

[Drug and Alcohol Treatment](#)
[Drug and Alcohol Support](#)
[Drug and Alcohol Advice](#)
[Problem Gambling Counselling](#)

Mental Health

[Anxiety in Adults](#)
[Depression in Adults](#)

Sexual Health Requests

- [Sexual Health Review](#)
- [HIV Support](#)

Eating Disorders

[Eating Disorders](#)
[Eating Disorders Specialised Review](#)



<https://sydneynorth.communityhealthpathways.org>

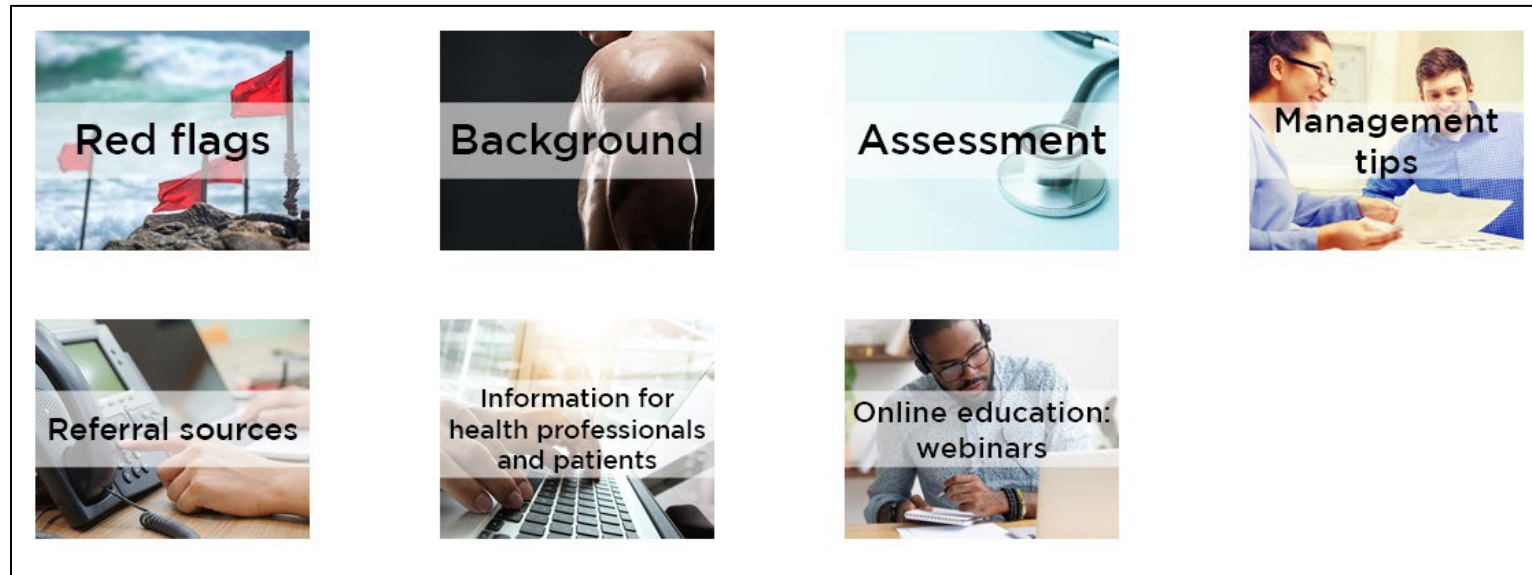
Primary care username:
healthpathways

Primary care password:
gateway

For more information contact
healthpathways@snhn.org.au

GP GUIDE TO HARM MINIMISATION FOR PATIENTS USING NON-PRESCRIBED ANABOLIC-ANDROGENIC STEROIDS (AAS) AND OTHER PERFORMANCE AND IMAGE ENHANCING DRUGS (PIEDS)

The Guide is available [here](#) on the Sydney North Health Network (SNHN) website



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