

PERFORMANCE AND ENHANCING DRUGS (PEDS)

Update on Emerging Trends

**Norma Harnedy, HSE National Liaison Pharmacist
M.Pharm. MSc. MPSI**



Contents

- Current trends in the use of PEDs
- Facts about PEDs
- Potential harms of using PEDs

Current trends

- What do we know?....very little...
- 2008 National report on New Trends in drugs use European Monitoring Centre (EMCDDA) - no mention of steroids
- Pharmacy: requests for needles from needle exchange pharmacies



Irish data: Needle exchange services

- Bodybuilders (semi/professional)
 - Profile:
 - Men (20s to 50s)
 - Mostly earning
 - Educated
 - Collecting for others
 - Very health conscious
 - Knowledgeable about training
 - Knowledgeable about PEDs use?
 - Report PEDs use coming up to competitions



Irish data: Merchant's Quay Ireland

10% of the drug users accessing the needle exchange were using steroids.



Merchants Quay Ireland
Homeless & Drugs Services



*It all starts with a
cup of tea...*

ANNUAL REVIEW 2013

Current trends: UK data

- Poor engagement with healthcare services
“underground/illicit use”
- Young people, age of first use is 22-24 years
- Long duration of drug use and use of complex drugs in complex regimens
- Sexual health concern (0.8% HIV rate)

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Steroids and Image Enhancing Drugs 2013 Survey Results

Martin Chandler and Jim McVeigh



Current trends: UK data

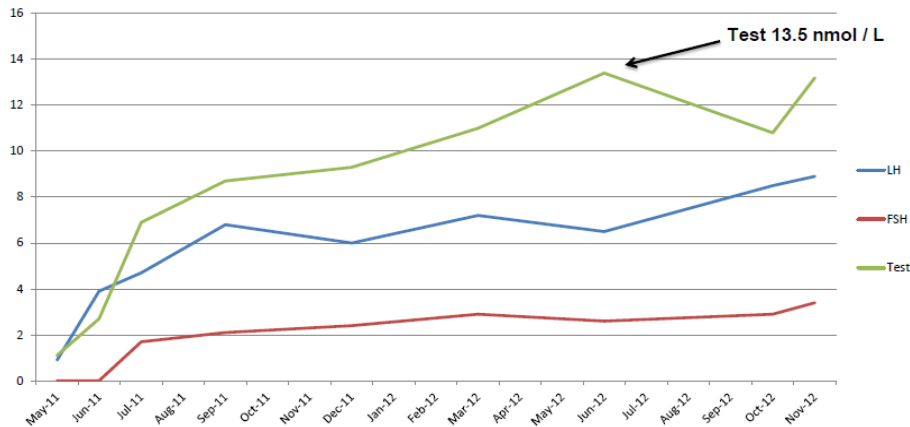
NICE National Institute for
Health and Care Excellence

- NICE Recommendation 10: Blood borne virus prevention, equipment, testing and advice for Image and Performance Enhancing Drugs users
- Performance Enhancing Drug clinics e.g.
 - Manchester: The Pump Clinic
 - Scotland: Glasgow clinic; Inverness clinic

The Pump Clinic Manchester



- 20-30 clients/week
- Professional/amateur bodybuilders, power lifters, power sports (hockey, volleyball)
- Non-competing bodybuilders- largest group
- All socio-economic backgrounds, age, ethnicity, sexual orientation



The Glasgow Clinic

- Established in 2009
- Drop in service – 1 evening per week
- Staffed by 2 workers and a nurse
- 272 new clients registered 380 transactions/year
 - Needle & paraphernalia provision including water for injection
 - Consultations
 - Safer injecting advice and demonstrations
 - Alternatives such as diet and exercise
 - Wound identification
 - Blood tests

US data

- “Among athletes, steroid abuse has been estimated to be less than 6 percent according to surveys, but anecdotal information suggests more widespread abuse.” August 2006



The Facts about Testosterone

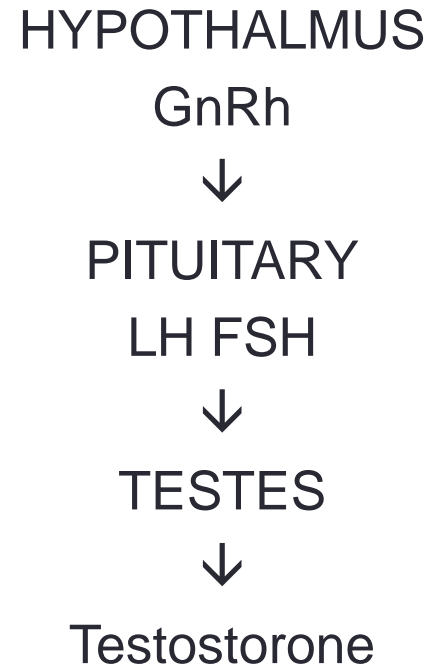
Natural Testosterone

- Primary male sex hormone
 - Males: 7-11mg/day (49-77mg/week)
 - Women: 0.25mg/day
- Amount released varies throughout the lifespan, greatest effects seen during puberty until approximately 23 years of age
- Used medically (therapeutic doses) for testosterone deficiency



Formation of Testosterone

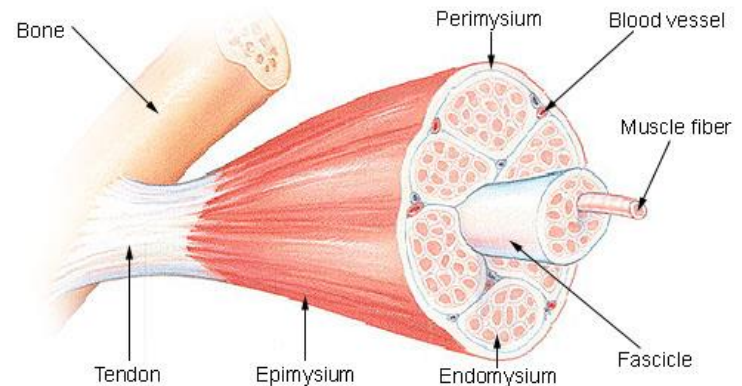
- GnRH :Gonadotrophin Releasing Hormone
- LH: Lutenising hormone
- FSH: Follicle stimulating hormone
- Self-regulating:
SWITCHES OFF with high testosterone levels



Testosterone

- Anabolic and androgenic effects by acting on an androgen receptor
- **Anabolic effects**
 - Increase in production of contractile proteins in skeletal muscle: actin and myosin
 - Changes in nutrient transport e.g. increases in insulin levels
 - Anti-catabolic: prevent breakdown of muscle tissue

Structure of a Skeletal Muscle



Testosterone

- **Androgenic effects**

- Development of male characteristics:
 - deepening of voice,
 - body and facial hair,
 - increased oil secretion in skin
 - development of sexual organs
 - sperm maturation
 - increased libido
- Cause local hormone release in muscles
 - Growth hormone, GH
 - Insulin-like growth factor-1 (ILGF-1)
- Increase in creatine synthesis in muscles



Oestrogen



- Oestrogen is made from testosterone
- Oestrogen naturally present in males!
- Use of high levels of testosterone can lead to excess oestrogen generation
- Side-effects:
 - Water retention, development of female breast tissue (irreversible), body fat accumulation
- Has protective effects against cardiovascular disease and fatigue

Types of drugs used: Anabolic Androgenic Steroids (AAS)

- Synthetic AAS: traditionally based on the 3 naturally occurring male sex hormones
 - Testosterone
 - Nandrolone
 - Dihydrotestosterone (DHT)
- All synthetic AAS contain both anabolic and androgenic properties but may cause these effects at different levels

Potential side effects

- Androgenic effects

- acne
- oily skin
- weight gain
- hair loss
- testicular shrinkage
- mood swings
- Roid rage- myth?

- Oestrogenic effects

- water retention
- fat gain
- female breast tissue (gynaecomastia)



Gynaecomastia “man-boobs”



Potential long term side-effects

- Little **robust evidence** on the long-term effects due to lack of research.
- **What we do know:**
 - **Cardiovascular** effects for long term users (cholesterol/high blood pressure)
 - Toxic effects to the **liver** (especially oral/tablet forms)
 - Risk of **blood borne virus**: One study showed the HIV rate in PEDs users is higher than the general population Hope V. et al:
- **BMJ open** Prevalence of, and risk factors for, HIV, hepatitis B and C infections among men who inject image and performance enhancing drugs: a cross-sectional study

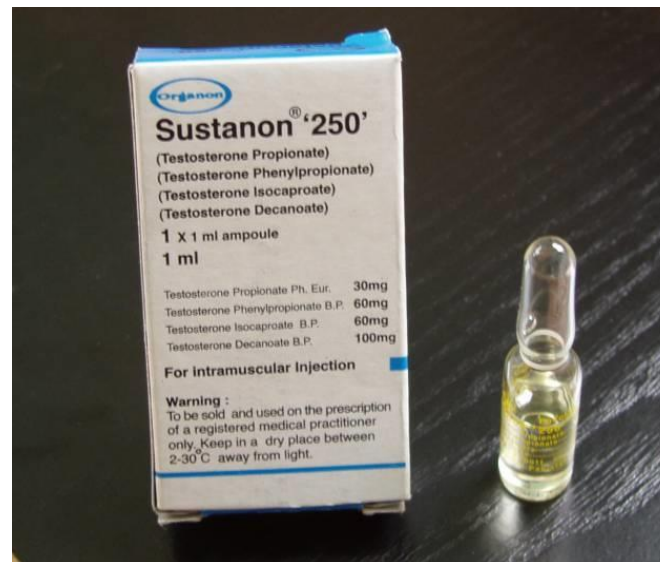
AAS & Adolescents (<21 years)

- High doses of steroids can cause the early, permanent closure of the growth plates of the long bones, resulting in a smaller height
- Mood altering effects of AAS
 - Depression
 - Irritability
 - Mood swings
 - Increased or decreased libido
- Interference with sexual development?
- Use of alcohol/recreational drugs



Types of drugs: Injectable AAS

- Oil based
- Injected into large muscles
- Can be modified to extend duration in the body (ester chains added to slow release from muscle after injection)



Oral AAS forms



- Modified to prevent breakdown by the liver before it reaches the circulation (and muscles).
- Can cause liver damage, e.g. jaundice:
 - yellowing of the skin and whites of eyes
 - abnormal liver function blood tests



Other types of drugs:

- Prevalence of use in Ireland is unknown:
 - Peptides:
 - Growth hormone
 - IGF-1
 - Melanotan (tanning)
 - New peptides, untested in humans
 - Insulin
 - Diuretics
 - Fat burners
 - Anti-oestrogen drugs

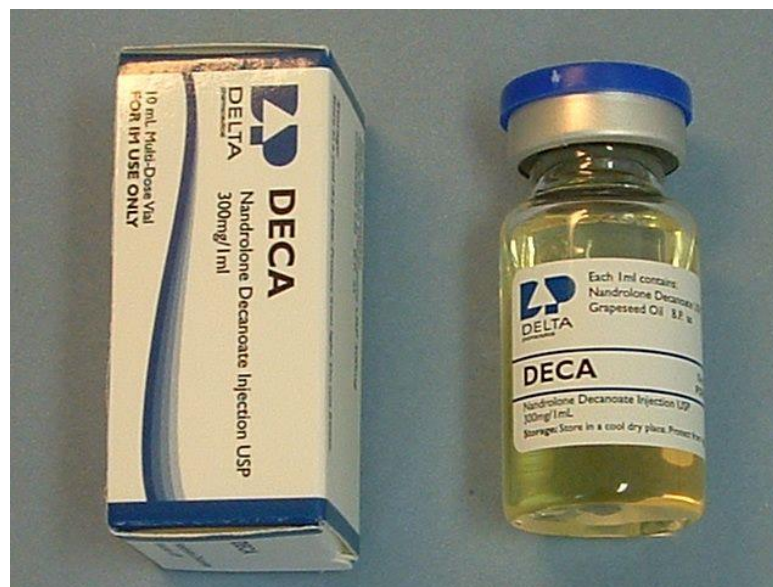


Sources of drugs

- Pharmaceutical grade:
 - Human pharmaceuticals obtained through illegal routes or manufactured in countries with less rigorous laws
- Veterinary grade:
 - Higher doses, not meant for human consumption
- Counterfeit drugs:
 - Manufactured in:
 - Underground lab?
 - Basement?
 - Garage?

Counterfeit drugs

- Package Label: Deca Nandrolone Decanoate Injection USP 300mg/ml
- Sample Upon Analysis: Boldenone undecylenate, Boldenone undecanoate, Boldenone



Cycles

- 6-8 weeks on-cycle
- 8-12 weeks off-cycle to allow the body to recover:
 - Natural testosterone levels
 - Cardiovascular system (cholesterol levels)
 - Liver (toxicity, especially oral steroids)
- Training is usually maintained throughout
- Information on cycles passed on through internet forums/user literature. No evidence of safety for the practice of cycling
- Long/heavy cycles with high doses can result in low testosterone (up to a year)

What happens after the cycle finishes?

- After the cycle comes the Post Cycle Crash
- Natural levels of testosterone are at zero and the self-regulating system of production has ceased
- Testes have become de-sensitised and stop producing testosterone
- The body enters a 'catabolic' (muscle losing) state
- Lethargy and low mood can set in

www.drugs.ie

