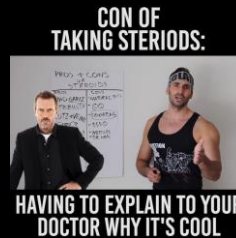
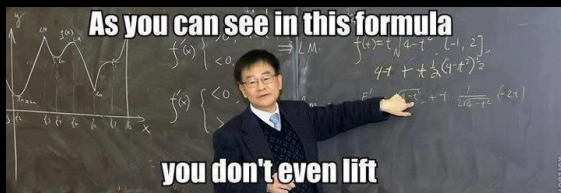


'BROSCIENCE' & MAINSTREAM SCIENCE

How bodybuilders negotiate knowledge and power in their PIED harm minimisation efforts



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Why conduct this study?

- health promotion messages must tap into an “existing corpus of meaning, fitting into a self-image already at least partially formed” (Lawton 2002:729).
- Those motivated by appearance differ from those motivated by performance (Murray et al 2016).
 - Therefore, need to stop conflating athletes with bodybuilders in PIED research (as done by Kimergard 2015; Dennington et al., 2008; Maycock and Howat 2007).
- conflating competitive and recreational bodybuilders (e.g. Smith and Stewart 2012; Grogan et al., 2006) may obscure what is unique about purely recreational use.
- recreational bodybuilders = the majority of PIED users (Pope et al., 2014, Cohen et al., 2007).
- the frequency of harm minimisation efforts in online bodybuilding communities has been noted (e.g. Tighe et al., 2017; Papangelis et al., 2016), but the bodybuilders’ perspective on harm minimisation has never before been investigated systematically.

Methods

- 3 year ethnography (primarily online) of recreational bodybuilding
- Today = last year since moving beyond Zyzs fandom (Underwood 2017).
- participant observation online and building my body offline.
- Interviewed:
 - 20 recreational bodybuilders who have or are currently using PIEDs
 - Age range 21-54 (average 31)
 - 1-15 years use, doses = 500mg – 3+ grams per week.
 - Education: junior certificate - PhD in Biochemistry.
 - 55% Australian, 24% USA, and 1 each from UK, Canada, Belgium and Germany.
 - 5 who are considering starting PIED use
 - 4 involved in harm reduction through the provision of advice (international sample).
 - face-to-face, phone or Zoom



PIED use as harm minimisation

- Replacing other recreational drugs with PIEDs = harm minimisation
- *What better way to stay out of trouble than take up a hobby that demands perfect compliance to strict training and eating regimens?* [interview 1].
- Use patterns as harm minimisation:
 - Cycling may minimise harms (Rowe et al., 2016).
 - 'blasting and cruising':
 - developed in the 1990s but not named until approximately 2002
 - Described as preventing swings in hormones which can impair them socially and occupationally, and which some suggest are more damaging to health than prolonged use.
 - Cruise = 'physiological dose', or a 'TRT dose'



	Benefit	Maybe perceived as either harm or benefit	Harms (actual or potential)	Harm minimisation strategies
Physical	Tailoring of body Consistent appearance Shredded body at younger age/sexual peak Going beyond natural limit. Allows some leniency in diet and exercise	Suppression of fertility.	Hematocrit increases. Blood pressure. Testicular atrophy. Cardio health e.g. 'left ventricular hypertrophy'. 'Reduction in oxidative stamina'. Cholesterol. Hormone imbalances. Gynecomastia.	Giving blood/ draining blood into sink. Freezing sperm. Cardio day. Regular testing of: Blood pressure, white and red blood cell counts, hormone levels, liver function, hematocrit, PSA, Cholesterol (LDL to HDL). Take: Aromatase Inhibitors, Clomid, HCG, Vitamins, Fish oil, Paracetamol, Moderate/ conservative doses of PIEDs, Certain compounds (e.g. Deca only, always use base of test).
Mental/ emotional	Improved mood. 'Euphoria'. 'Roid happiness'.	Aggression: focused aggression = benefit, generalized aggression = harm.	Reduced mental clarity. Anxiety. Depression. Reduced patience. Increased ego.	Avoidance of certain compounds. Mentally preparing self for interactions with others so as not to react before thinking.

	Benefit	Maybe perceived as either harm or benefit	Harms (actual or potential)	Harm minimisation strategies
Social	Confidence: 'It's like I'm injecting confidence'. Respect. Social standing. Being 'alpha'.		Stigma: 'it's like being a pedophile'. Scaring/ intimidating people.	Hiding body with clothes, changing posture to reduce appearance of size. Privacy/secretcy.
Sexual/ Romantic	'Sex is better'.	Increased libido. 'Animalistic sex'. Sexual aggressiveness and assertiveness 'Kinky sex'	'Emotional coldness'/lack of connection. Changes to sexual preference/behaviour: - Becoming bisexual. - f**king trannies'	Avoidance of certain compounds.
Occupational	Confidence ('I took Dbol for job interviews'. Respect.		Discovery/criminal conviction leading to loss of job. (I was paying \$500 in tax per week, now I'm on benefits').	Secrecy. Scheduling use around work trips.

Benefits and harms are compound specific: A case study of Trenbolone

Benefits

- 'The tren look'
- '3D affect'
- 'Capped shoulders'
- 'dry', 'veiny', 'vascular', 'hardness'.
- 'Tren is the holy grail' of compounds.
- 'Tren is the only steroid you can actually feel working ... it actually makes you feel stronger and more confident'.

Harms

- 'Tren flu'
- 'Tren cough'
- 'Trensomnia', nightmares.
- Aggression: 'Reduction in cortisol s stress response is limited'.
- Sexual/relationships:
 - 'sex becomes a chore',
 - 'sex on tren, think more rape'.
 - Becoming bisexual.
 - Tren is 'the relationship killer'.
- 'Rollercoaster' of emotion
- 'Tren f**ks with your head'.
- On tren 'things got dark'



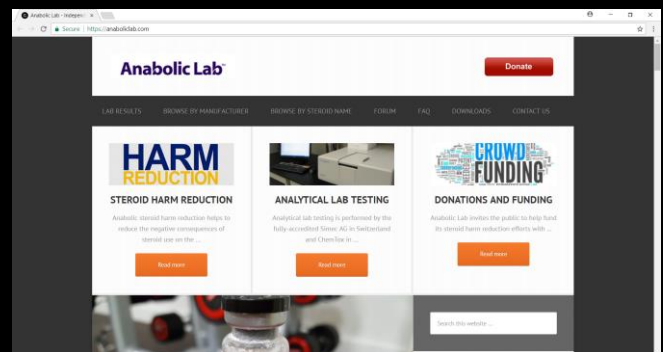
on tren

do not mess with me



'When it comes to PIED use in super-physiological doses you're on your own'

- Most participants I spoke to had received no support in their harm minimisation efforts.
- Several participants stated that they would get more support and better care and understanding if they used heroin.
- Empowering themselves by independently monitoring their own health often through private labs.



Brosience and science

- increasing emphasis on science over experiential knowledge in bodybuilding communities.
- ‘Brosience’:
 - Term created (c. 2010) to dismiss all opinions not sufficiently based on science.
 - e.g. “Brosience is the predominant brand of reasoning in bodybuilding circles where the anecdotal reports of jacked dudes are considered more credible than scientific research” (Alan Aragon).
 - Experiential knowledge.
 - can be biased: may be flouted by those with vested interests (e.g. profit).
 - dynamic and culturally specific.
- Science:
 - ‘deified’ in bodybuilding communities.
 - Presented as neutral and objective.
 - Criticisms:
 - Biased e.g. influenced by industry.
 - Focuses too much on averages, need more information on outliers.
 - limited relevance as scientific studies do not research:
 - appropriate populations e.g. animal studies, wrong age or sex, healthy (i.e. science focuses on the sick e.g. AIDS, those with muscle wasting diseases)
 - appropriate doses (i.e. not the doses used by bodybuilders),
 - the use patterns used by bodybuilders.

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Real science, not bro science.

The use of science

- selective reading
- misinterpreting the science
- only access the publicly available abstracts
- some rely exclusively on the interpretations of the science made by other bodybuilders and never consult the actual publications.
- Those that use science to back up their claims may be referred to as ‘PubMed ninjas’ or ‘PubMed warriors’:
 - *the PubMed Warriors take the studies that conform to their opinion and rush to the battlefield.*



The necessity and inevitability of broscience

- PIED use cannot be entirely evidence based
- Definitions of 'broscience' by participants:
 - *Broscience is the best of a bad situation* (int 1).
 - *Bro-science: A practical template for bodybuilding based on a combination of the available theoretical scientific evidence (either directly or as, correctly or incorrectly interpreted by third parties) and the results of self experimentation and the experiences of others who have experimented on themselves or others before, in order to come to a working applicable whole for purposes of training, nutrition, supplement or iPED use* (int 19, via Messenger).
- Dynamic, even blurred boundary between science and broscience:
 - science can inform broscience
 - science is interpreted by bodybuilders through a filter of broscience
 - broscience may precede and even inform science.



Implications for harm minimisation

- Many bodybuilders have a thirst for knowledge about the compounds they use, and want to take an active role in monitoring their own health (as also found by Dunn et al 2016).
- Broscience has been incorrectly termed 'ethnopharmacology' (Monaghan 2001) but 'ethnopharmacology' involves the pharmacological–toxicological study of these drugs, not just the description of their local uses (Heinrich 2015).
- Given the lack of scientific investigation of bodybuilder practices and claims, bro science may be more correctly termed 'folk pharmacology' (Southgate & Hopwood 2001).
- Moving broscience from 'folk pharmacology' towards 'ethnopharmacology' would minimise harm.
- This would begin to bridge the long-standing divide between bodybuilders on the one hand, and health professionals and scientists on the other.

Future research

- Collaborators needed for multidisciplinary research to look at PIED harm minimisation from a holistic perspective including the physical, psychological, criminal and cultural dimensions.
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