Steroid use for aesthetic body change – Contextual analysis of a pro-steroid forum and the role of anonymity in online forums

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Dissertation submitted in partial fulfilment of the Requirements of Cardiff Metropolitan University for the Degree of Bachelor of Science
DECLARATION

I hereby declare that this dissertation is the result of my own independent investigation under the supervision of my tutor. The various sources to which I am indebted are clearly indicated. This dissertation has not been accepted in substance for any other degree, and is not being submitted concurrently for any other degree.

__________________________Harley-Earl Burrow, Candidate
Acknowledgements

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Abstract

A large body of research has shown a growing interest in recreational use of body image altering drugs, such as androgenic anabolic steroids (AAS) and image and performance enhancing drugs (IPEDS). Though attention for the abuse of anabolic steroids is normally focused on athletes and professional bodybuilders, the public are more interested in enhancing their body image than ever before. To achieve this, strict diets with similarities to those of eating disorders such as anorexia nervosa are followed. Furthermore, the use of anabolic steroids is a taboo subject and illegal in most countries, so the public turn to the internet to discuss how to safely use potentially dangerous drugs altering their biochemistry. This study hoped to gain an insight to these discussions through the medium of online steroid discussion forums. A mixed methods design was used in two phases. A survey was distributed online for phase 1 to determine the most popular forums for the discussion of forums. A content analysis was carried out in phase 2 on the most popular forum as identified by phase 1. Biochemistry was the most popular theme with an appearance in 18.1% (N=157) of the thread posts. Following this themes included were; information 15.8% (N=137), Anecdotes 15.1% (N=131), advice 12.6% (N=103) and questions 11.4% (N=99). A main theme of “plausibility” was selected to encompass all themes. Research suggests people choose to follow advice available in online forums due to the plausible nature of the information, and apparent experience people appear to have through sharing complex information in a nonchalant manner.
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Chapter I: Introduction

There has been a growing interest in fitness and bodybuilding in recent years, but as social media and bodybuilding competition standards rise, these standards are becoming harder to reach. Fitness athletes and models must be in peak shape to get jobs and sell products, and they are under growing pressure to become muscular “mutants”, which explains why so many people turn to image and performance enhancing drugs (IPEDs) and androgenic anabolic steroids (AAS). But competitive bodybuilders and models are not the only people trying to reach these standards and using IPEDs and AAS, societal norms of looking athletic and muscular are driving more of the general public to reach these unobtainable standards.

Performance and Image Enhancing Substances

Some bodybuilders, competitive and non-competitive engage in the use of Image and performance enhancing drugs (IPEDs), IPEDs aim to enhance muscle growth and reduce body fat, some examples of IPEDs are Anabolic Androgenic Steroids (AAS), human growth hormone (HG), and insulin and Beta2-agonists (e.g. clenbuterol) (Underwood, 2017).

Anabolic androgenic steroids (AAS) have also been referred to as substances used for greater athletic performance, image enhancement, endurance, and to stimulate muscle growth and reduce body fat (Antonopoulos & Hall, 2016). The most frequent users of IPEDs and AAS’ are non-athlete weightlifters (such as strongmen) and recreational bodybuilders (Underwood, 2017; Cohen, Colins, Darkes & Gwartney, 2007; Pope et al., 2014).

Research has noted that the illicit use of anabolic-androgenic steroids (AAS) is a growing problem for public health (Kanyama, et al., 2006) where the prevalence of AAS users is around 13% in UK fitness centres and almost 50% in dedicated bodybuilding gyms (Harris, Dunn & Alwyn, 2016). Additionally, A recent analysis estimated that between 2.9 million and 4.0 million individuals in the states (nearly all of whom are males) have used AAS and about 1 million men in the US have experienced dependence on AAS where they continued to use them for years (Pope, Wood, Rogol, Nyberg, Bowers & Bhasin, 2013; Pope, Khalsa & Bhasin, 2017).

It is apparent that a high number of males engaging in bodybuilding are willing to use and self-administer AAS (Harris, Dunn & Alwyn, 2016) despite having little knowledge of how to safely do so. It is evident that using AAS and being in contact with other AAS consumers leads to familiarity with these drugs, but only in a limited way without increasing awareness of the possible dangerous side effects (Fayyazi Borbar, Abdollahian, Samadi & Dolatabadi, 2014). These sorts of attitudes lead to an overly optimistic and non-scientific attitude towards AAS, this coupled with the desire to develop muscular bodies such as athletes and a better appearance, provoked by media and advertising.
will lead to a significant increase in these drugs (Fayyazi Borbar, Abdollahian, Samadi & Dolatabadi, 2014).

AAS were traditionally most widely used by athletes at competitive level, but recently, most consumers of AAS are non-athletes (Fayyazi Borbar, Abdollahian, Samadi & Dolatabadi, 2014). Also, a 2012 study from Sweden showed that among the general population the strongest association of illegal drug use and abuse was for AAS (Hakansson, Mickelsson, Wallin & Berglund, 2012).

Among recreational bodybuilders considering the use of AAS, attaining the body they want is a social status move, the idea is to appeal more to the general public (rather than to bodybuilding judges), specifically to secure sexual partners (Underwood, 2017). Furthermore, a study comparing steroid users to non-steroid users found steroid users were less likely to be concerned about side effects and believed that steroids are safe in moderation (Wright, Grogan & Hunter, 2000). Though the prolonged use of AAS has been linked to gynecomastia, hepatoxicity and suppressed neuroendocrine function (Kanyama, et al., 2006). Despite this, a crime survey identified 293,000 people using AAS once in their life and 73,000 using AAs in the past year in the UK (Harris, Dunn & Alwyn, 2016; Crime Survey for England & Wales, 2015).

**Body Image**

It is evident from previous literature that men and boys from different cultures and socio-economic backgrounds associate being healthy and fit with being lean and muscular and adopt life changing and dangerous behaviours such as steroid use and extreme dieting to achieve this look (Grogan & Richards, 2002; Hildebrandt, Alfano & Langenbucher, 2010; Pope, et al., 1997; Longobardi et al., 2016).

A study by Grogan and Richards (2002) suggested that boys and men believed being fat was related to being weak with no self-control, whereas looking lean and muscular was related to being healthy. A content analysis performed on male models in the magazine “sports illustrated” found that the media ideals emphasize aesthetic attributes over performance (Farquhar & Wasylkiw, 2007). Another study showed that viewing media ideals that emphasize aesthetic attributes contribute to negative self-evaluations, whereas viewing media ideals that emphasize performance result in positive self-evaluations (Farquar & Wasylkiw, 2007).

Research has shown that male bodybuilders are at higher risk of eating disorders and their eating behaviours are negatively impacted due to body image concerns (Smith, 2018; Baum, 2006; Petrie et al, 2008). Body image enhancement and bodybuilding is male dominated, but men and women bodybuilders have different ideas of their ideal body. Bodybuilding in females has been linked with improving self-esteem, and enhancing feelings of attractiveness and strength (Shea, 2011).
Conversely, some women bodybuilders become overly obsessed and depressed with their bodies resulting in unhealthy measures such as extreme dieting and use of AAS to achieve their desired physique (Shea, 2011). When investigating body image disturbance, gender-specific differences have been suggested (Hildebrandt, Alfano & Langenbucher, 2010). Studies show that male stereotypical body image disturbance is a “drive for muscularity” however, female body image disturbance focuses on “drive for thinness” (Hildebrandt, Alfano & Langenbucher, 2010). However, research has demonstrated that male bodybuilders reported significantly greater body dissatisfaction scores (specifically bulimic tendencies, drive for thinness and drive for bulk) on the EDI when compared to male runners and martial artists (Blouin and Goldfield, 2009).

Research has shown that greater social physique anxiety results in more severe AAS dependence (Griffiths, Jacka, Degenhardt, Murray & Laranje, 2018).

**Mental Health in AAS users**

Roughly 30% of AAS users show dependence syndrome (Fayyazi Borbar, Abdollahian, Samadi & Dolatabadi, 2014). A recent study showed a large percentage of bodybuilders (25%) were at risk of muscle dysmorphia, specifically an association between muscle dysmorphia and other psychopathology (Longobardi et al., 2016). Other recent research has also suggested men suffering from Muscle Dysmorphia (MD) are more susceptible to psychopathology, depression, suicidality and sexual dysfunction (Hildebrandt, Alfano & Langenbucher, 2010).

Other research suggests that in males, the extreme pursuit of a muscular physique has been linked to muscle dysmorphia (MD) which is characterized as obsessively trying to achieve a lean muscular physique (Pope, et al., 1997), more recently the idealized male body image in many countries has moved towards a much higher level of muscularity (Pope, Khalsa & Bhasin, 2017). Muscle dysmorphia is now the subject of a wide body of research and is now included as an official diagnosis in the American Psychiatric Associations’ Diagnostictsie and statistical Manual of Mental disorders, Fifth Edition (DSM-5) (Pope, Khalsa & Bhasin, 2017).

Furthermore, approximately 2.2% of US men reported having body dysmorphic disorder, and amongst these men between 9% and 25% have muscle dysmorphia (Phillips, Wilhelm, Koran, Didie, Fallon, Feusner & Stein, 2010). Furthermore, it has been suggested that there is a “crisis in masculinity” due to increasing emphasis of masculinity in men (Gray & Ginsberg, 2007; Underwood, 2017).

It is evident that prolonged abuse of powerful body enhancing substances is a growing problem in the bodybuilding community with links to both mental health and physical health risks (eg, musculoskeletal injuries, tendon ruptures, live toxicity, needle-born infections, hepatitis C) (Pope, Khalsa & Bhasin, 2017). Despite this, the lack of studies on the use of controlled substances such as
AAS and IPEDs results in little attention from policy makers, who only see them as an illegal problem within sports (Pope, Khalsa & Bhasin, 2017). There is a common opinion in mainstream media and in the general public that steroids lead to anger and violence, although these are suggested to be exaggerated claims on weak evidence (Dobash & Monaghan, 2016).

It is important to note that Keane (2005) identified two framework approaches to IPED use, body image disorder framework, and illicit drug framework. While it is evident some IPED use may be caused by underlying clinical problems (e.g. eating disorders, body dysmorphia), some IPED use does not fit the normal understanding of illicit drug use (Keane, 2005).

**Alternative Body-Image enhancement drugs**

The internet is a retail network that sometimes falls outside of known safety regulations in selling body enhancement substances that for example, a gym would have to adhere to (Petroczi et al, 2015). A drug category nicknamed “rainbow diet pills” features a wide range of potent substances and prescription medications that are prohibited in medical practice (Petroczi et al, 2015). Recently, a powerful and toxic substance that is not naturally occurring and can be used as wood preserver, dye and herbicide resurfaced after being used in the 1930’s to treat obesity (Petroczi et al, 2015).

This substance is called 2,4-Dinitrophenol (DNP) and marketed as Sulfo/Solfo Black, Nitro, Kleenup, Caswell No.392 or sometimes sold on the internet as Aldifen, Chemox, Nitophen, Dinophan, Dinosan, Dnac, Osmotox-, Fenoxyl-, or Tertosulphur PRB (Petroczi et al, 2015). With the return of DNP being used as a weight loss aid, more fatalities related to DNP exposure have been reported and there were 62 published deaths in medical literature attributed to DNP in 2011 (Grundingh, Dargan, El-Zanfaly & Wood, 2011). User of DNP are well-prepared for the side effects and are happy to self-experiment with the substance, advice of DNP use and experiences are shared in online forums (Petroczi et al, 2015).

AAS users also engage in the use of other potentially toxic substances to enhance body image such as human growth hormone, thyroid hormones, insulin and clenbuterol for example (Pope, Khalsa & Bhasin, 2017). Furthermore, dietary and herbal supplements used to enhance body image that are available to buy over-the-counter have been shown to be unregulated and contain illegal AASs and other anabolic compounds (eg, selective androgen receptor modulators) and in some cases even contain toxic substances with no muscle building or body enhancing properties (Pope, Khalsa & Bhasin).

Though AAS are the most widely available and known substances in body image enhancement, the internet has encourage the abuse of other expensive drugs such as Human Growth Hormone (HGH, which has also opened a market for multi-million pound businesses in counterfeiting (Graham, Ryan, Baker, Davies, Thomas, Cooper, Evans, Easmon, Walker, Cowan & Kicman, 2009).
In a 2009 study, samples purchased from the underground market were tested in a lab and 53% of injectable esters and 21% of oral tablets were counterfeit (Graham et al, 2009). Additionally, side effects associated with AAS abuse such as hypogonadism has been shown to persist for years after ceasing use of AAS, and has been linked to depression and suicidality (Pope, Khalsa & Bhasin, 2017).

Furthermore, AAS abusers have been shown to abuse other substances, such as Marijuana, Alcohol, Cocaine, Caffeine, Methamphetamine and Opioids (Fayyazi Borbar, Abdollahian, Samadi & Dolatabadi, 2014; Eisenberg & Galloway, 2005; Pope & Brower, 2009; Miller et al., 2005; Kanyama et al., 2009). AAS users have also been suggested to engage in other high-risk behaviours such as unsafe sexual behaviours, ingestion of drugs of abuse (such as cocaine) and unsafe injection practices (Barnett, Tenerowicz & Perry, 2011, Pope, Khalsa & Bhasin, 2017).

**Online Forums**

Due to the internet, there is an ever increasing access to information about illicit drugs, though some information comes from government agencies and scientific publications, a much larger amount comes from private websites and online discussion forums (Brian, Kanayama & Pope, 2013). In a study following the distribution of doping products in online forums, AAS were found to be the most discussed (Pineau et al., 2016).

Donati (2007) showed that the purchasing of doping products, particularly steroids is increasing through the internet. According to Kraska et al., (2010), one of the best sources for buying and using doping products specifically products used for enhancing body image is internet forums. Therefore, some of the best places to find rich qualitative data on the discussion of sensitive topics such as the use of illegal substances are on online forums (Seale et al., 2010). Bodybuilding forums do not only contain professional bodybuilders from federations, however they contain a mix of both recreational bodybuilders and competitive bodybuilders (Underwood, 2017).

It is suggested that, due to anonymity, forums decrease variables such as social desirability bias (Pineau et al., 2016). Bodybuilders are coerced by strangers on anonymous forums due to a sense of trust when talking about delicate issues anonymously.

An important figure on online forums is the recreational bodybuilder Aziz Shaversian (known online as “Zyzz”), he is idolised by thousands of recreational and professional bodybuilders alike (Underwood, 2017). Though Zyzz is now deceased, the fandom and his legacy lives on in online bodybuilding forums, YouTube dedication videos and through other bodybuilding public figures. Zyzz was publicly shamed in mainstream media due to his supposed IPED use (Underwood, 2017), though the fandom provides an opportunity to gain insight on IPED users in the bodybuilding community and online forums as he is still frequently discussed today and used as a sort of gauge to compare current bodybuilders to. Finally, a 2016 study of pro-muscularity websites found that they
advocate attitudes such as extreme dieting, muscle dysmorphia and promoting the use of steroids (Murray, Griffith, Hazery, Shen, Wooldridge & Mond, 2016). Murray et al. (2016) identified a link between muscularity website viewership and internalized body ideals and suggested it warrants further investigation due to the role of body image disturbance in relation to eating disorders.

**Cyber-conformity and anonymity**

Models such as the Social Identity Deindividuation (SIDE) model (Cinnirella & Green, 2007) have been developed to investigate conformity in the text based world of the internet, known as Computer Mediated Communication (CMC). Studies have shown that conformity does exist in CMC interactions, and due to the idea of reduced cues in CMC, people may be more open to commit deviant and anti-normative behaviour (Cinnirella & Green, 2007). Furthermore, if a strong sense of group identity is present in CMC interactions (such as people who idolise Zyzz or all want to improve their body image), intra and inter-group processes can be more powerful (Cinnirella & Green, 2007).

A 2015 study on the discussion of AAs in online forums suggested that standard rules and regulations are “put out of play” and the notions of masculinity and acceptance of drug use is entirely accepted and normalized (Andreasson & Johansson, 2015). Furthermore, people can find the means to access and advice on using AAS to achieve their goals in the subculture that is bodybuilding forums on the internet (Andreasson & Johansson, 2015).

**Methodologies**

Fayyazi Borbar et al. (2014), acknowledged that a weakness in the study was that the sample mainly consisted of a medical sciences student population, and due to their nature of interests they may have similar attitudes, and may not admit to the use of illegal substances. Due to this weakness, the current study aims to use an anonymous sample and take the vocation of the participants to assure a wide variety of opinions and attitudes.

In previous research, it has been noted that due to the nature of competitive sports, admissions of the use of performance enhancing drugs (PEDs) such as anabolic steroids are usually underreported. The self-report method is likely inaccurate and has limited potential due to possible bans from sport and public attitude towards PEDs (Uvacsek, Nepusz, Naughton, Mazanov, Ranky & Petrocz, 2011). A way to overcome self-report bias is through the means of anonymity, the exponential growth of the internet and its inhabitants has brought with it, the greatest platform for anonymity, especially when discussing and purchasing illegal substances such as PEDs and AAS’.

A similar study to the current study was based on an online forum used in Sweden called Flashback, specifically a forum where people discuss Performance enhancing substances (PES). The study based their methodology on Kozinets (2010) netnography which is a methodology developed to analyse online forums and communities (Andreasson & Johansson, 2015).
This study will aim to gain an understanding the attitudes of people who use online forums for advice on the use of IPEDs and AAS. There is little research on where people who wish to enhance their body image get information regarding safe use of illegal and controlled substances. The study also aims to investigate how people are coerced from forums and value opinions from anonymous strangers on the internet with no medical training. There is plentiful research on how people acquire illegal and controlled substances online, but not how they get their information on the substances they use. Petroczi et al (2015) study drew upon their limitations and suggested future studies focus on cognitive processes of dealing with conflicting information available online in the context of body enhancement goals, apparent risk perception, risk willingness in the context of experience with similar drugs, and trusting information sources and purchase options. The study suggested that DNP users trust the substance, and in the quality and validity of the information based on reputation of the source (Petroczi et al, 2015). Furthermore, a similar study on online forums when discussing steroids by Andreasson and Johansson (2015) focused on aspects such as hyper masculinity and gender but did not approach anonymity, conformity or trust in the context of online forums. This study aims to complete this gap in literature to gain a more thorough understanding of why people trust information that can be posted by anyone in the public domain, specifically in the context of dangerous substances such as IPEDs and AAS.
Chapter II: Method

Design

A mixed design was selected and carried out in two phases, phase 1 method was of a quantitative nature and used a short survey posted on Facebook. Phase 2 was a content analysis using findings from phase 1. Survey in phase 1 was used to identify most popular forums used for the discussion of AAS and IPEDs so a generalizable array of content could be selected. Qualitative content analysis was used in phase 2, the method of content analysis followed is shown in Silverman’s 2015 book “interpreting qualitative data” (Silverman, 2015). Emergent themes were identified and a table was created to identify quantity of theme appearances and examples were identified as evidence. 18 emergent themes were identified and can be seen in Table 1: Content analysis of 4 threads on r/steroids.

Participants

34 Frequent gym users, both male and female (sex was not taken in survey) were recruited by the means of social media. The qualtrics survey was shared on my personal Facebook for family and friends to send to their family and friends to ensure a representative sample, participants had to be 18 years of age or above. Inclusion criteria is frequent gym users who consider themselves bodybuilders and/or have considered using or are using or have used AAS.

Materials

Participants received an instruction sheet and consent form to complete. A survey was also given to participants to complete. The questionnaire also contained open ended questions about where participants get information and support on the use of anabolic steroids, and why they trust these sources.

Procedure

Phase I:

A preliminary study was first run to determine several things, most importantly, the most popular online forums or websites people use for advice on steroid use or self-administration. The survey along with the consent forms and information sheet was distributed to friends and family through the means of social media, Facebook, on my personal account. Friends and family of myself shared the survey around to their friends and family which helped gain a larger more representative sample. The survey was completed entirely anonymously and the participants were aware that once their survey was complete, there was no way to link the data to them. Participants were also informed they can stop completing the questionnaire at any time and could take breaks to avoid boredom.

Phase II:
The second half of the study involved a content analysis on the most popular forums and websites identified in the preliminary survey. The most popular website for discussions on steroid cycles and self-administration advice was the sub forum “steroids” within “Reddit.com”. The full website link was: https://www.reddit.com/r/steroids/

A qualitative content analysis was performed on the most popular or most recent threads. It is noted that some threads contained entirely irrelevant information to the subject under study (i.e. what people got up to last weekend) so these threads were ignored. Qualitative content analysis was conducted following the steps outlined in Silverman’s 2015 book “interpreting qualitative data” (Silverman, 2015).

The survey has an additional qualitative section to gain a deeper insight into their first-hand experience and opinions on trust and anonymity in online forums. 1 open ended question was used at the end which invited users to reveal what makes them trust information available on online forums.

_**Ethical Considerations**_

The use of illegal substances and how one feels about their body are sensitive topics to explore, to aim for the most accuracy, surveys were completed in complete anonymity to overcome this. To avoid boredom during the survey, there was no time limit to complete the survey, so participants were allowed breaks to avoid this.

Websites and forums used in phase 2 of research were in the public domain so anyone may access them and post to them.

_**Method of analysis**_

The aim of the study was to determine the role of anonymity in the discussion of steroids on online forums and websites. Qualitative content analysis following the method from Silverman’s 2015 book “interpreting qualitative data” was performed on r/steroids which was identified as the most popular forum used by participants in the preliminary survey.

Firstly, threads which were relevant to the use of IPEDs and AAS were selected. Some threads were not used as they were simply too large with too much irrelevant data. Threads were then read by the researcher a few times to develop a coding frame to fit the theoretical considerations of the study. Coding frames such as “apparent experience” and “sounding knowledgeable” were selected. Codes were then piloted by reading over a sample of threads again to test the reliability of the codes and get rid of codes that were too ambiguous. The entire sample of threads was then read over and coded. A data file was set up to record codes and their frequencies and their reliabilities.
Chapter III: Results

Analysis is split up into two phases, phase 1 shows the results of the quantitative survey results, identifying popular websites and participants’ views on the use of AAS and IPEDs. Additionally a question was used to gain an insight into participant’s views on the use of online forums for advice and if they trust it, also analysed in phase 1. Phase 2 contains the contextual content analysis performed on www.reddit.com/r/steroids with emergent themes and analysis of these themes.

Phase 1

Preliminary survey of participants (N=34) identified that 66% (N=22) of participants used supplements they can purchase from sports nutrition shops to help enhance their body image. Participants responded with various supplements they use such as protein (N=15), BCAA’s (N=8), Pre-workout (N=6), Creatine (N=7), L’arginine (N=1), Whey protein (N=3), mass gainer (N=1), whey isolate (N=1), casein (N=1), cyclic dextrin (N=1), thermobol (N=1) and glutamine (N=1).

Conversely, when asked if participants were asked whether they have considered using supplements stronger than they can purchase in sports shops (i.e. anabolic steroids) 66% (N=22) said no and 33% (N=11) said yes, the exact opposite of the first question. When asked what substances participants had considered, they revealed various substances such as testosterone (N=5), HGH (human growth hormone) (N=2), Anavar (N=3), Peptides (N=1) and Oxymethlone (N=1).

When participants were asked where they would go for advice on steroid use or cycles or self-administration, 30 responded, 43% (N=13) said a friend or family member, 30% (9) said Reddit sub-forums (r/steroids) (N=9), 16% (N=5) said bodybuilding.com, 3 participants responded with “other” and wrote “probably all” (N=1), “personal trainer” (N=1) and “A friend and online” (N=1).

Participants were then asked if they trusted advice in online forums, 37% (N=12) said yes, 25% (N=8) said no, and 37% (N=12) said they do not use forums.

The final question of the survey welcomed participants to expand on why they trust advice available on online forums, few participants responded but some responses included;

“It’s well written and researched”

“Why would they lie? What’s the benefit in causing someone trouble/pain/disappointment if you don’t even get to know what’s happening? Sure horrible people might want to make others suffer but if they don’t get to know that is happened then what’s the point?”

“If I were to use forums I’d trust them if I saw similar observations/advice from many people about the same subject”
“There’s valuable anecdotal evidence there and if anyone lies or says something incorrect they get called out on it and down voted. The karma system on reddit is useful to gauge people’s reliability.”

These responses give an insight into the minds of people who use online forums and what makes them trust the advice available on public forums. Participants identified they were more likely to trust advice if similar observations from many people about the same subject occur. A recurring theme throughout these responses is supposed experience which is based on anecdotal evidence and collective knowledge.

Phase 2

The most popular response for where people would go for advice on steroids was family or friends (43%), due to the nature of this study focusing on the online communication, the second most popular response (Reddit r/steroids 30%) was chosen for analysis.

The sub-forum within Reddit.com “steroids” ([https://www.reddit.com/r/steroids/](https://www.reddit.com/r/steroids/)) organises threads into categories based on how recent they were posted (New), how fast the post is generating responses and activity (Rising), how many “upvotes” the post is generating recently (Hot), threads that are getting lots of “downvotes” and “Upvotes” and threads that have got a lot of “upvotes” over a set period (Top).

*NB: Upvotes and downvotes are a way of rating posts in the reddit community. Similar to “Likes” on Facebook, or likes and dislikes on youtube.*

To gain a fully representative sample of the people who use these forums, threads from each area will be selected for analysis. Furthermore, some threads contain information irrelevant to the current study, these threads will not be used in analysis.

<p>| <strong>Table 1: Content analysis of 4 threads on r/steroids</strong> |
|---|---|---|---|
| <strong>Theme</strong> | <strong>Example</strong> | <strong>Number</strong> | <strong>Percentage</strong> |
| Information | “Those are mild compounds and low doses anyway” | 137 | 15.8% |
| Scientific source | [Link given to Journal of Clinical and Endocrinology &amp; Metanolism] | 8 | 0.9% |
| Question | Was going to take 12.5mg aro again tomm but how much longer should I continue this ai and caber?” | 99 | 11.4% |</p>
<table>
<thead>
<tr>
<th>Category</th>
<th>Text</th>
<th>Frequency</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Anecdote</td>
<td>“Ended my Test E 600mg.week Deca 400mg/week cycle 6 weeks ago and got bloods drawn this last Saturday…”</td>
<td>131</td>
<td>15.1%</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>“Your kidneys can handle it…”</td>
<td>157</td>
<td>18.1%</td>
</tr>
<tr>
<td>Apparent Experience</td>
<td>“I hear often that too much potassium can kill…”</td>
<td>33</td>
<td>3.8%</td>
</tr>
<tr>
<td>Recognising False information</td>
<td>“Yo sorry I meant 27g! I miss typed”</td>
<td>45</td>
<td>5.2%</td>
</tr>
<tr>
<td>Advice</td>
<td>“the choice is inject or stay natty”</td>
<td>103</td>
<td>12.6%</td>
</tr>
<tr>
<td></td>
<td><em>NB: this was in relation to a user asking about oral cycles. Natty = natural (i.e. without drugs)</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Respect</td>
<td>A respected Reddit user is invited to contribute to the discussion “Reddit User if you could contribute with your wealth of knowledge it would be greatly appreciated”</td>
<td>4</td>
<td>0.5%</td>
</tr>
<tr>
<td>Guessing</td>
<td>“Apparently this works so well because it’s a lipid based solution which doesn’t allow the fin to penetrate to deeply resulting in a high systematic effect”</td>
<td>72</td>
<td>8.3%</td>
</tr>
<tr>
<td>Willingness to read more</td>
<td>“…..probably won’t get to reading this until Wednesday sometime…”</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Quoting another Reddit user</td>
<td>“Stealing this abstract from another reddit user because he summed up the study pretty well…”</td>
<td>1</td>
<td>0.1%</td>
</tr>
<tr>
<td>Summarizing research</td>
<td>“I read this study from top to bottom, biggest/best takeaways: … “</td>
<td>21</td>
<td>2.4%</td>
</tr>
<tr>
<td>Backing up points with links to other threads</td>
<td>“I remember reading into it a while back and decided not to due to people complaining of cardiac related side effects such as shortness of breath [Link given]”</td>
<td>3</td>
<td>0.3%</td>
</tr>
<tr>
<td>Giving personal information/stats when asking for advice</td>
<td>“I’m early 30’s, generally healthy, no pre-existing issues. 6’2 and ~210lbs, ~14%bf…”</td>
<td>9</td>
<td>1%</td>
</tr>
<tr>
<td>Insults</td>
<td>“Literally retarded”</td>
<td>6</td>
<td>0.7%</td>
</tr>
<tr>
<td>Opinion</td>
<td>“intensity &gt; sets IMO”</td>
<td>30</td>
<td>3.5%</td>
</tr>
<tr>
<td><strong>NB: This was in relation to how many sets one should do for optimum muscle growth when on AAS. IMO = In my opinion</strong></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>---</td>
<td>---</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Link to non-scientific source</strong></td>
<td>[Thread title links to an article on the website “science daily” which claims the source of information is The endocrine society]</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>3</td>
<td>0.3%</td>
<td></td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>868</strong></td>
<td><strong>100%</strong></td>
<td></td>
</tr>
</tbody>
</table>

Biochemistry was the most frequently occurring theme with an appearance in 18.1% (N=157) of the thread posts. Following this themes included were; information 15.8% (N=137), Anecdotes 15.1% (N=131), advice 12.6% (N=103) and then questions 11.4% (N=99). Collectively, these themes accounted for 72% (N=627) of the content found in the threads analysed.

Example statements highlighting biochemistry included “DMAU reduces test levels to that of a girl 13.4 ng/dl”. Ng/ml stands nanograms per millilitre and is a small precise measurement used in lab test results usually in relation blood. Essentially, very complexed biochemistry is being discussed in a relaxed nonchalant manner, with no scientific back up or evidence of the user posting this information showing any medical training. A further example of biochemistry was “The only difference is that topical Finasteride shows up 10X LESS in the bloodstream than oral”. A further example of heedless discussion of complex medical talk, which, to a reader with little medical training could be dangerous.

Information was selected as an emergent theme to encompass posts in which users gave information as though it were fact, with no scientific back up or anecdotal evidence. Users frequently stated seemingly random facts about certain compounds and recreational drug use. An example of this is “You experience no symptoms”, the user gave no anecdotal or scientific evidence of this fact, just stated it as though it were a fact everyone knows.

Anecdotes also appeared centrally in the content reviewed in the current study, users told stories of them taking certain IPEDs and AAS and how it affected them. Side effects were frequently discussed in this theme, such as not being able to sleep, sweating a lot, racing heart rate and loss of libido. An example of an anecdote was a user talking about their recent use of AAS “Ended my Test E 600mg.week Deca 400mg/week cycle 6 weeks ago and got bloods drawn this last Saturday…” Here the user discusses the use of two compounds at a high dosage, namely Testosterone Enanthate, an injectable ester and one of the most commonly used AAS in bodybuilding, noted as “Test E”. And “Deca” which is short for Deca Durabolin (nandrolone decanoate). Both are powerful compounds, and users potentially base their decision to take them on a story of another user taking them. This
could be potentially dangerous if the user is giving inaccurate or completely false information, furthermore, it is hard to tell whether another user will react to these compounds the same way purely based on a story.

A commonly occurring theme across all threads was advice, where a user would give direct advice to a user with no scientific basis. This theme was chosen as users were directly telling other users what they should do in certain situations, sometimes pertaining to very complex biochemistry, that, without training could be dangerous advice. An example of advice found in threads was “If you don’t believe me then try it out yourself”. This sort of advice invites another user to engage in potentially dangerous behaviour just to prove a point.

Finally, the last main theme was questions, this theme was selected to encompass when users directly asked questions on the use of AAS and IPEDs. An example of this is “Should people cycle this?” in which a user is asking whether a male birth control bill should be taken in high dose to obtain results similar to IPEDs and AAS. Users directly ask for advice on various compounds and are answered by people whom may not have the medical training or knowledge they require to give such advice. Users ask other users for advice based on their own experiences of these drugs, which could be dangerous advice to trust.

An overarching theme of Plausibility was selected to describe the most popular themes, people value information based on the plausibility of the reply. Biochemistry generated the most interest, people would share in depth biological information despite an absence of medical training. Plausibility seemed to play an important role in threads, as a user would give information or advice backed up by complex biochemistry that to people not medically trained would sound feasible.

Interestingly, though lots of claims were made of scientifically sound advice, scientific sources were only quoted in 0.9% (N=8) of responses. Furthermore, non-scientific sources were quoted, such as other users and unpublished research such as magazine articles. Opinions on the use of particular drugs and how to use them were given in 3.5% (N=30) of threads. Insults directly aimed at other users for their opinions or beliefs appeared in 0.7% (N=6) of threads.

Research was summarized in layman’s terms in 2.4% (N=21) of threads, users quoted facts and figures from research but did not say where the facts and figures were from. Users also gave advice based on guesses in 8.3% (N=72) of threads.
Chapter IV: Discussion

The current study aimed to gain a deeper understanding of the risks and hazards associated with recreational body building, such as eating disorders, body dysmorphia and the use of androgenic anabolic steroids (AAS) and image and performance enhancing drugs (IPEDs). Furthermore, why people choose to trust information in the public domain submitted anonymously, and how anonymity plays a role in this. The preliminary survey revealed amongst a sample of 30 participants who answered where they would go for advice on steroid use, 30% (N=9) of participants would go to r/steroids, a sub-forum of reddit.com.

Communities who advocate for steroid use and abuse exist online, different attitudes and behaviours exist in these communities. As identified by Murray et al. (2016), there is a striking similarity between pro-muscularity websites and pro-AN websites (Pro-AN websites advocate and encourage behaviours associated with anorexia nervosa). The current study found similar accounts of potentially dangerous and toxic behaviour to be common and discussed in a nonchalant manner.

Perhaps the biggest finding of this research was the supposed plausibility of information given and taken at face value. Users of the forum give advice containing complex biochemistry, and other users seem to take this information at face value. This is potentially dangerous behaviour, especially to the younger habitants of the forums. Studies are sometimes cited to back up information, but most advice given is based on anecdotal evidence;

““Ended my Test E 600mg.week Deca 400mg/week cycle 6 weeks ago and got bloods drawn this last Saturday...”

The most commonly occurring theme related to body image was biochemistry which suggests a strong link between the willingness to take dangerous drugs in the pursuit of muscularity. Similar to Murray et al. (2016) findings where a strong link between pursuit of muscularity and dietary practices was found in similar forums to the current study.

Though this information is available on a public forum, to submit replies to threads users must make an account. Any thread a user comments on can be seen on their profile, though names and pictures are not used, the debate of whether users are truly anonymous comes into play. Though it is common to make a “throw-away account” in which users create a pseudonymous username and a temporary identity to post in threads on reddit.com (Leavitt, 2015). As identified by Leavitt (2015), this allows people to disclose information without the repercussions that may exist whilst under their real names.

Anonymity plays a large part in users disclosing sensitive information, if people do not fear they will be found out, they are willing to say whatever they want. Of course, the downside to users under the
mask of anonymity is that users may feel like “trolling” (the behaviour of being deliberately antagonistic or offensive via CMC. Hardaker, 2013). Users may submit false information just to antagonise people, but as this information stays in the public domain, a younger person may come along and take this advice. The danger is that people with not much knowledge of the subject will take this anonymously submitted information at face value and damage their own biochemistry. Though anonymity plays a large part in online communication, it did not appear as a theme in the current body of research. There was no mention of multiple accounts or pseudonyms used in creating accounts, so it is difficult to decide whether users are giving genuine advice and trying to help each other, or giving false advice under a pseudonym to “troll” people.

Interestingly, although users of the forum talked obsessively about changing and improving their bodies through the use of AASs and IPEDs, no recurring theme of body dysmorphia was found. Although it is hard to tell from small snippets of information and anecdotal evidence, and it could be argued that, if these people are willing to risk their health to look good that is a sign of an obsessive disorder like body dysmorphia.

In a similar study by Murray et al. (2016), themes such as rigid dietary practices, rigid exercise rules encouragement of drive for size, minimising medical risk and muscle enhancing substances were identified. The current study found minimising medical risk and muscle enhancing substances were also major topics of discussion, though they were not selected as themes due to being too broad. Though minimising medical risk is one of the main discussions on these forums and could encompass most of the major themes in the current study, such as information, anecdotal advice, questions, biochemistry, willingness to read more, giving personal information when asking for advice and scientific source.

Similar to Murray et al. (2016), the findings from this study may assist clinicians who are dealing with patients with body dysmorphia and eating disorders, especially in reference to where they are getting their information and advice from.

The current research has limitations, and they should be considered when interpreting the findings. Firstly, the researcher has no background in biochemistry and recognising whether information was true or false is not possible. Future research would do well to focus on the biochemistry aspects of this publicly available information, and whether forum users are receiving accurate advice or not.

Secondly, similar to Murray et al. (2016) study, the forum content is dynamic and constantly changing, the current study only shows a snapshot in time of the forum, and data is likely to change at a different time period. Furthermore, as identified by Murray et al. (2016), the study does not show the impact on people viewing these forums. Little is known about individual characteristics of frequent users of these forums, future research relating to individuals who use these forums would help gain a richer insight. Also, only 4 threads were used in the current analysis when in reality,
hundreds of threads are submitted to this sub-forum daily. This does not give a full insight into the
exact nature of this sub-forum as some users only post in some threads and one thread differs greatly
from another. Furthermore, though the most popular forum identified in phase 1 was used, more
forums should be used for a more generalisable insight in future research. The current study did not
focus on image based content appearing on these forums, future research is needed to elucidate this
content (Murray et al., 2016).

To achieve more accurate and rich information of the prevalence and long-term health risks associated
with AAS abuse, more long term observational studies are necessary (Pope, Khalsa & Bhasin, 2017).
Furthermore, as recreational users of AAS consume higher doses of AAS than could be ethically
duplicated in clinical trials, long term studies of the general population would be advantageous to
study this phenomenon (Pope, Khalsa & Bhasin, 2017). Besides these limitations, the current research
hopes to add an addition to the expanding body of literature for online behaviour, eating disorders and
the use and abuse of AAS and IPEDs in recreational bodybuilders.

In summary, complex information is shared in the public domain and stated in a nonchalant manner as
though it were fact. People appear to trust information based on the plausible manner of it due to its
complex biochemical nature. People appear to have an in depth understanding of complex
biochemical information despite showing no medical training. Impressionable people such as young
inexperienced recreational bodybuilders considering the use of AAS and IPEDs could be put at risk
when following advice from people with little to no medical training. Advice is fluid and dynamic and
remains in the public domain for anyone to access and anyone can add to it. Without people refuting
false claims, which in the current study did not happen often, these false claims can have damaging
consequences to the general public and recreational bodybuilders.

**Reflexive analysis**

Finally, in the current study, it is not entirely possible for myself to be completely objective. As a fan
of bodybuilding and a frequent reader of forums in the current study and forums of a similar nature I
feel my experiences may have had an impact on the way it was analysed. Where the goal is to give an
entirely objective scope from the outside about why users use these forums and take the advice, my
experiences of reading these forums may have influenced the way in which I came to conclusions
about how users may interpret information available in the public domain. Furthermore, as many of
my personal friends follow bodybuilding religiously and some engage in the use of IPEDs and AAS,
my speculations may not be entirely objective, but instead based on experiential speculations.
References


Appendices

Appendix A: Tables

Thread 1: Found in “Hot” section of r/steroids

Thread name: [Discussion] Future of steroids: DMAU (male birth control pill) cycle

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>“You experience no symptoms”</td>
<td>33</td>
<td>20.3%</td>
</tr>
<tr>
<td>Scientific Source</td>
<td>Link to scientific journal given</td>
<td>3</td>
<td>1.9%</td>
</tr>
<tr>
<td>Question</td>
<td>“Should people cycle this?”</td>
<td>22</td>
<td>13.6%</td>
</tr>
<tr>
<td>Anecdote</td>
<td>“I’ve seen both referred to as…”</td>
<td>22</td>
<td>13.6%</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>“DMAU reduces test levels to that of a girl 13.4 ng/dl”</td>
<td>35</td>
<td>21.6%</td>
</tr>
<tr>
<td>Apparent experience</td>
<td>“Rat studies showed it to not affect normal oestrogen levels scientists right now are saying…”</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Recognising false information</td>
<td>I know f**k all about reproductive biology, someone correct any mistakes I made”</td>
<td>3</td>
<td>1.9%</td>
</tr>
<tr>
<td>Advice</td>
<td>“Go to your doctor say you need birth control”</td>
<td>19</td>
<td>11.7%</td>
</tr>
<tr>
<td>Respect</td>
<td>“You seem like you been around the block”</td>
<td>1</td>
<td>0.6%</td>
</tr>
<tr>
<td>Guessing</td>
<td>“I have a feeling if this becomes a reality, regular bloodwork will be a part a requirement for the prescription”</td>
<td>21</td>
<td>13%</td>
</tr>
<tr>
<td>Willingness to read more</td>
<td>“interesting, I’ll have to look into this”</td>
<td>2</td>
<td>1.2%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>162</td>
<td>100%</td>
</tr>
</tbody>
</table>
Thread accessed 21/3/2018

Thread 2: Found in “New” section of r/steroids

Thread name: [Discussion] Topical finasteride treatment shows up to 10 fold less drug in blood while still maintaining effectiveness. Side effects were less noted that oral fin.

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>“A new topical formulation of Minoxidil and finasteride improves hair growth in men with androgenetic alopecia”</td>
<td>31</td>
<td>15.2%</td>
</tr>
<tr>
<td>Scientific Source</td>
<td>“The study was done by researchers in Illinois in 2014 on &lt;Topical Fin brand&gt;” Link to source of research also given</td>
<td>3</td>
<td>1.5%</td>
</tr>
</tbody>
</table>
| Question               | “Are you knowledgable or a fan of, RU-58841?”
  NB: this was being asked to the respected Reddit user asked to contribute to the thread | 10     | 4.9%       |
| Anecdote               | “…but a lot of people claim to never recover even after 4-5 half lives of the drug in which its effects should be gone” | 22     | 10.8%      |
| Biochemistry           | “The only difference is that topical Finasteride shows up 10X LESS in the bloodstream than oral” | 40     | 19.6%      |
| Apparent experience    | “But a quick precursory glance, I’d say yeah, I don’t see any reason why you couldn’t use it on your scalp for hair growth while on gear”
  NB: this was the respected Reddit user asked to contribute to the thread | 19     | 9.3%       |
| Recognising false information | “Knowledgable not really…”
  NB: this was the respected Reddit user asked to contribute to the thread
  “I once read a study that supposedly proved that the combination of caffeine and taurine increases focus in truck drivers. It was funded by Red bull” | 14     | 6.9%       |
| Advice                 | “Remember though that youre still making somewhat of an assumption that topical finasteride will work for AAS induced hair loss…”
  “If you don’t believe me then try it out yourself”
  “Anyone who is extremely concerned about hairloss should do what I do: only run test + Finasteride/duasteride” | 30     | 14.7%      |
<p>| Respect                | A respected Reddit user is invited to contribute to the discussion “Reddit User if you could contribute with your wealth of knowledge it would be greatly appreciated” | 3      | 1.5%       |</p>
<table>
<thead>
<tr>
<th>Activity</th>
<th>Text</th>
<th>Count</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Guessing</td>
<td>“Apparently this works so well because it’s a lipid based solution which doesn’t allow the fin to penetrate to deeply resulting in a high systematic effect”</td>
<td>11</td>
<td>5.4%</td>
</tr>
<tr>
<td>Willingness to read more</td>
<td>“….probably won’t get to reading this until Wednesday sometime…”</td>
<td>2</td>
<td>1%</td>
</tr>
<tr>
<td>Quoting another Reddit user</td>
<td>“Stealing this abstract from another reddit user because he summed up the study pretty well…”</td>
<td>1</td>
<td>0.5%</td>
</tr>
<tr>
<td>Summarizing research</td>
<td>“I read this study from top to bottom, biggest/best takeaways: … “</td>
<td>15</td>
<td>7.4%</td>
</tr>
<tr>
<td>Backing up point with links to other threads</td>
<td>“I remember reading into it a while back and decided not to due to people complaining of cardiac related side effects such as shortness of breath [Link given]”</td>
<td>3</td>
<td>1.5%</td>
</tr>
<tr>
<td>Total</td>
<td></td>
<td>204</td>
<td>100%</td>
</tr>
</tbody>
</table>

Accessed on 22/03/2018

https://www.reddit.com/r/steroids/comments/85pha0/discussion_topical_finasteride_treatment_shows_up/
Thread 3: Found in “Rising” section of R/steroids

Thread name: Daily ask anything: “2018-03-22”

*NB: Thread used is a daily thread posted by an automated “bot”. The bot starts each thread with a list of the community rules that users must adhere to.*

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>“Those are mild compounds and low doses anyway”</td>
<td>23</td>
<td>10.2%</td>
</tr>
<tr>
<td>Scientific Source</td>
<td>[Link given to Journal of Clinical and Endocrinology &amp; Metabolism]</td>
<td>2</td>
<td>0.9%</td>
</tr>
<tr>
<td></td>
<td>[Link given to study from 1982]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Question</td>
<td>“Was going to take 12.5mg aro again tomm but how much longer should I continue this ai and caber?”</td>
<td>34</td>
<td>15%</td>
</tr>
<tr>
<td>Anecdote</td>
<td>“Ended my Test E 600mg.week Deca 400mg/week cycle 6 weeks ago and got bloods drawn this last Saturday…”</td>
<td>69</td>
<td>30.5%</td>
</tr>
<tr>
<td>Biochemistry</td>
<td>“I was cruising at 150mg/week test E and my test was still above 1500 for some reason”</td>
<td>16</td>
<td>7%</td>
</tr>
<tr>
<td></td>
<td><em>NB: This is the same user that was talking about his blood tests previously</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Your kidneys can handle it…”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apparent experience</td>
<td>“I know caber is strong so I wasn’t going to take it anymore”</td>
<td>6</td>
<td>2.7%</td>
</tr>
<tr>
<td></td>
<td>“I hear often that too much potassium can kill…”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognising false</td>
<td>“Yo sorry I meant 27g! I miss typed”</td>
<td>9</td>
<td>4%</td>
</tr>
<tr>
<td>information</td>
<td><em>NB: user corrected themselves in relation to needle size</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“Can someone please correct me if im wrong?”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advice</td>
<td>“Saving money is incompatible with trest so your question is self-explanatory”</td>
<td>40</td>
<td>17.7%</td>
</tr>
<tr>
<td></td>
<td><em>NB: User was responding to another user asking if the substance trest is worth it as the user is trying to save money</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“the choice is inject or stay natty”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td><em>NB: this was in relation to a user asking about oral cycles. Natty = natural (i.e. without drugs)</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Opinion | “intensity > sets IMO”  
**NB:** This was in relation to how many sets one should do for optimum muscle growth when on AAS. IMO = In my opinion | 3 | 1.3%  
Guessing | “…as far as I’m aware there aren’t any negative to running a longer PCT” “you should be fine” | 14 | 6.2%  
Willingness to read more | “…would like some opinions...” | 1 | 0.46%  
Giving personal information/stats when asking for advice | “I’m early 30’s, generally healthy, no pre-existing issues. 6’2 and ~210lbs, ~14%bf...” | 9 | 4%  
| Total | 226 | 100%  

Accessed on 22/03/208  
[https://www.reddit.com/r/steroids/comments/86bont/daily_ask_anything_20180322/](https://www.reddit.com/r/steroids/comments/86bont/daily_ask_anything_20180322/)
Thread 4: Found in “Hot” section of r/steroids

Thread name: [Fertility] Dimethandrolone undecanoate shows promise as a male birth control pill

<table>
<thead>
<tr>
<th>Theme</th>
<th>Example</th>
<th>Number</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Information</td>
<td>“…clostebol, tren and bold are way worse absorbed than primo…”</td>
<td>50</td>
<td>18.1%</td>
</tr>
<tr>
<td>Insults</td>
<td>“Literally retarded”</td>
<td>6</td>
<td>2.2%</td>
</tr>
<tr>
<td>Question</td>
<td>“Could you take bold ace orally”</td>
<td>33</td>
<td>12%</td>
</tr>
<tr>
<td></td>
<td><em>NB: Bold ace refers to Boldenone acetate a steroid used in horse racing</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Anecdote</td>
<td>“I know pressed bold ace tabs were being sold by at least one UGL at some point in the last year or so…”</td>
<td>18</td>
<td>6.5%</td>
</tr>
<tr>
<td></td>
<td><em>NB: UGL = Underground Lab. Illegal pharmaceutical companies who make synthetic steroids</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Biochemistry</td>
<td>“The name alone suggests liver toxicity”</td>
<td>66</td>
<td>23.9%</td>
</tr>
<tr>
<td></td>
<td>“Primo’s 1-methyl group is what gives it a small degree of oral bioavailability…”</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“one of the main factors behind the tren look is the fact that tren is a powerful anti-glucocorticoid due to the double bond at the 11th carbon”</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Apparent experience</td>
<td>“yeah but it’ll barely be absorbed, so you have to take a lot”</td>
<td>7</td>
<td>2.5%</td>
</tr>
<tr>
<td></td>
<td><em>NB: In relation to someone asking how to take Boldenone acetate</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Recognising false</td>
<td>“Don’t know about test ace…”</td>
<td>19</td>
<td>6.9%</td>
</tr>
<tr>
<td>information</td>
<td><em>NB: in response to a user asking about test ace</em></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>“No it won’t, that’s why god invented HCG. You need to brush up your HPTA knowledge” [Quote from research was used, but user could not find source so edited it out]</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Advice</td>
<td>“…bold ace tabs and clostebol ace tabs don’t really make much sense unless you’re dosing a few grams or more per day”</td>
<td>14</td>
<td>5.1%</td>
</tr>
<tr>
<td>Summarizing research</td>
<td>“But after one month they had no symptoms of low T! Oral only cycles ftw!”</td>
<td>6</td>
<td>2.2%</td>
</tr>
<tr>
<td></td>
<td><em>NB: FTW = for the win and is used to express excitement towards something. Low T = low testosterone</em></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
| Opinion | “Turn off your balls for no gainz no thanks”  
*NB: “Gainz” refers to the gaining of muscle and loss of fat* | 27 | 9.8% |
| --- | --- | --- | --- |
| Guessing | “It’s more like taking something like primo ace or bold ace orally”  
*NB: Bold ace refers to Boldenone acetate a steroid used in horse racing* | 26 | 9.4% |
| Willingness to read more | “…I’m gunna be looking into Halotestin even more now than I was before” | 1 | 0.4% |
| Link to non-scientific source | [Thread title links to an article on the website “science daily” which claims the source of information is The endocrine society]  
[Study linked from 1985] | 3 | 1.2% |
| Total | | 276 | 100% |

Thread accessed on 22/03/2018  
https://www.reddit.com/r/steroids/comments/85ifqy/fertility_dimethandrolone_undecanoate_shows/
Appendix B: survey questions

How often do you use a gym specifically for body image enhancement/bodybuilding (i.e. Not to increase strength or stamina to improve at a sport, instead trying to lose weight or gain muscle)?

- once a week
- twice a week
- 3 or 4 times a week
- 5 or 6 times a week
- Every day
- More than once a day
- Never

Do use any supplements available to purchase from sports nutrition shops to help enhance your body image? (i.e. protein, pre-workout, BCAA’s, glutamine)

- Yes
- No

If yes, which supplements?..........................................................................................................................

Have you ever used, or considered using supplements stronger than you are able to buy from sports shops (i.e. anabolic steroids)?

- Yes
- No

If yes, what have you considered?..................................................................................................................

Where would you go for advice on steroid use/cycles/self-administration?

- A friend/Family member
- People in the gym
- Reddit subforums (r/steroids)
- Steroidology
- Bodybuilding.com
- Forums.steroids.com
- Steroid.forums.com
- Other (please specify...)

Do you trust the advice available on online forums? What makes you trust it?

- Yes – please expand (participants will be invited to give a more complete answer on Qualtrics)
- No
- I don’t use forums
Word Count Statement

Abstract 257

Introduction 2961

Method 799

Results 1842

Discussion 1420

Total (excluding abstract) 7022

Signed:

Date: 20/4/2018