

Understanding continuous and problematic patterns of anabolic androgenic steroid (AAS) use amongst UK males

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Abstract

Background

Despite continuing ambiguity regarding anabolic androgenic steroid (AAS) dependence forming properties, up to 30% of users are hypothesised to develop a dependence syndrome resulting in substantial morbidity, and in some cases suicidality. Motives for continuing use of AAS despite harms sit largely within two discursive and pathologizing frameworks of 'illicit drug use' and 'body image disorder' framing AAS as addictive psychoactive compounds, and users as psychologically disordered.

Aim

Offer a non-pathologizing view of the motives and rewards behind continuous and problematic patterns of AAS use amongst a sample of UK male 'body sculptors' with an ethno-physiological appreciation of excessive muscularity.

Methodology

This qualitative case study draws on participant observations over a ten-month period at a bodybuilding gymnasium in the West Midlands of England and semi-structured interviews with 15 current and former AAS users.

Results

Discontinuation of AAS use resulted in several study participants experiencing a state of 'hysteresis' due to a mismatch between their motivation and functional capability to work out productively once AAS use ended, and the temporal rhythms of bodybuilding practices required to appropriate *muscle capital*. Physical and mental health issues associated with the phenomenon of anabolic steroid induced hypogonadism (ASIH) led some participants to adopt continuous and problematic patterns of AAS use in a mode of 'hysteresis' avoidance. Several men expressed a belief that they had permanently impaired their own production of testosterone using AAS. Perceptions of stigma and gender inequality when seeking a resolution to the symptoms of hypogonadism prompted some men to return to illicitly produced AAS in a form of self-administered testosterone replacement therapy (TRT).

Recommendations

Harm reduction interventions for men wishing to permanently exit AAS use may benefit from assessment and appropriate treatment of hypogonadism as part of holistic model of support.

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Abbreviations/ terms used

ABBREVIATIONS

AAS – Anabolic Androgenic Steroids

AI's – Aromatase Inhibitors

ASIH- Anabolic steroid induced hypogonadism

BBV - Blood Borne Virus

FSH- Follicle Stimulating Hormone

GH -Growth Hormone

GnRH- Gonadotropin Releasing Hormone

GP General Practitioner

HPTA- Hypothalamic Testicular Pituitary Axis

HRT- Hormone Replacement Therapy

IPED – Image and Performance Enhancing Drugs

LH – Luteinising Hormone

NSP- needle and syringe programme

PIED- Performance and Image Enhancing Drugs

PCT – Post Cycle Therapy

SERMS – Selective Estrogen Receptor Modulators

SARMS – Selective Androgen Receptor Modulators

TRT- Testosterone Replacement Therapy

TERMS

Ancillary – substance use that provides support to the primary activity of AAS use

Bodybuilding Cosmos- (Case study gymnasium and wider bodybuilding sub-culture)

Body Sculptors- men who engage in construction of their variable and highly rewarding body projects in a manner driven by an appreciation of excessive muscularity, rather than being driven by addiction or psychopathology

Blast and cruise – continuous use of AAS in high and low dosage patterns

Bridging – use of AAS and other compounds in-between courses of AAS

Capital- a set of resources (social, economic, symbolic, cultural) which are valued to varying degrees within fields of practice. Agents mobilise capital resources to their advantage to develop distinction and a stake within a field [and its game of capital acquisition]

Course - AAS use lasting a defined period of weeks (followed by a period of none AAS use)

Cruising- Continuous AAS use with no rest periods

Cycle - Period using AAS (either 'on cycle' or 'off cycle') like a 'course'

Doxa - Silent logic of practice within a relational field, less formal than rules, more taken for granted traditions, ways of behaving. Doxa can act in a manner which conceals dynamics of power and makes practices in which power is wielded appear natural and arbitrary. Linked closely with **symbolic violence**

Endogenous – (Testosterone), produced naturally within the body

Ethnopharmacology- Substances used medicinally, often as remedies by cultural groups. In this study this includes the wide range of complex polypharmacy adopted by men in the study in both the 'on' and 'off' cycle and the ancillary compounds used to reduce side effects and harms from AAS compounds.

Exogenous – (Testosterone) produced external of the body (i.e. AAS)

Field- A social field is a locus of struggles, a relational space in which actors 'play' out their dispositions and exchange their different kinds of capital in a competitive effort [a game] to gain advantage [usually maximising capital which is most valued in that field].

Habitus- Embodied history which results in a set of cognitive and bodily schemata through which an agent interprets themselves, the social world, and their place within it. A strategy generating principle used in the deployment of various capitals to one's advantage within various fields of practice.

Hexis- Body habitus, history incorporated within the corporeal form, the shape of the physique, posture, tilt of the head, the tempo at which someone moves and walks, sits, carries, and presents themselves and their body in the social world

Hypogonadism- Low testosterone due to improper functioning of the hypothalamus pituitary testicular axis (HPTA)

Hysteresis- A state of dis-juncture due to a lag in time between the habitus of an agent (cognitive and corporeal) and the modes of thought and action required for successful practice within a relational field of practice

Illusio- closely linked to the term 'illusion'. An all-encompassing gravity within the boundary of a field of practice. *Illusio* convinces participants that competing for the capital most inter-subjectively within that field (in this study muscle capital) is a worthwhile and meaningful pursuit, regardless of the potential harms it produces

Muscle Capital- Field contingent goal of all body sculptors. The most highly coveted and prized commodity within the bodybuilding cosmos includes 'muscular size, strength, symmetry and shape, as well as the competitive bodybuilding success associated with this capital'

Symbolic Violence- no less damaging than physical violence (but less obvious), a form of domination concealed within a field's history, regulations, and common-sense logic of practice (doxa) which reproduces practices and any associated harms or inequalities over time. In this study, the symbolic violence of the bodybuilding cosmos is contained within the reality that to progress one's body project meaningfully in line with that of other body sculptors requires the use of AAS which will to some degree result in harms despite the rewards of appropriating muscle capital.

Chapter One. Thesis Introduction

1.0 Introduction

There is continuing ambiguity in the literature regarding anabolic androgenic steroid (AAS) dependence forming qualities (Sally and Tan, 2009; Kanayama et al. 2009b). Up to 30% of illicit anabolic androgenic steroid (AAS) users are hypothesised to develop a dependence syndrome (Kanayama et al, 2009: 104) which results in substantial morbidity and *“in some cases to suicidality”* (Pope et al, 2016: 2), posing what has been described as a *“a looming public health concern”* (Kanayama et al, 2008: 1). Whilst many male bodybuilders who consume AAS do so in moderation (Sagoe et al., 2015), others run AAS over longer cycles into patterns of continuous use despite adverse effects (Brower, 2002; Kanayama et al., 2009a). Existing theories regarding men’s motivations for initiation and continuing use of AAS sits largely within two discursive and pathologizing frameworks of ‘illicit drug use’ and ‘body image disorder’ which perceive users as psychologically disordered (Keane, 2005). Observing AAS use through medical models of psychology and addiction have been noted to be *“of limited value in predicting actual behaviour of substance users in their environments over time”* Goldstein (1990: 80).

This study locates its inquiry within an alternative framework which sees AAS users as *body sculptors* with an *“ethno-physiological appreciation of excessive muscularity”* Monaghan (2001a: 74) who use AAS to support construction of their highly rewarding body projects. This investigation utilised a case study approach (including participant observations and interviews) in a bodybuilding gymnasium to capture 15 UK male bodybuilders ‘pre-bodybuilding life histories’, their ‘routes of entry into the bodybuilding world’, and their experiences of ‘AAS use and cessation’ in practice. Bourdieu’s concept of *field* was utilised to conceptualise the case study bodybuilding gymnasium as a spatial arena of practice (*bodybuilding cosmos*) where men compete for the highly rewarding commodity of muscle capital. Bourdieu’s concept *habitus* was used in data collection and analysis to help understand participants life experiences and how these had been embodied over time influencing their

perceptions of bodybuilding and providing a strategy generating principle for their navigation of bodybuilding's sub-cultural practices. The concept of *capital* provided a framework in both data collection and analysis via which to observe the resources (economic, social, cultural, and symbolic) which study participants deployed to progress their highly rewarding body projects. Finally, thematic analysis is utilised to provide an account of participants journeys through the bodybuilding cosmos enabling a series of recommendations to be produced for health care practitioners.

Study findings illuminate the personal and social rewards men in the UK experience from engaging in the bodybuilding cosmos and its ethnopharmacological practices. Disruption to the functional capacity of men to work out rewardingly and progress their body projects, along with experience of a range of physical and mental health issues associated with the magnified effects of the phenomenon of anabolic steroid induced hypogonadism (ASIH) once AAS use ends are shown to contribute significantly to UK males' adoption of continuous and problematic patterns of AAS use in this study.

1.1 Background to the research project: My positionality

During 2012-2014 there was a substantial increase in activity within the community needle and syringe (NSP) programme I commissioned as a Public Health substance misuse programme manager in the West Midlands. NSP data revealed that around half of the injecting equipment supplied during this period were 2ml and 5 ml packs (containing blue 30mm 1¼ inch 25 gauge and green 40mm 1.5-inch 23-gauge needles respectively). Psychoactive drug users of substances such as heroin or amphetamine will typically inject through an intravenous (IV) route (into a vein), which only requires 1 ml syringes with ½ inch 30-gauge needles. Exceptions to this include larger syringes for mixing substances pre injection (which is rare), or deeper groin injecting. Although this route of administration carries with it significant risks and is often perceived by users as a last resort, the true picture of this activity remains relatively unknown (Scott and Maliphant, 2005).

Anabolic androgenic steroids (AAS) are one of the few compounds that routinely require a deeper method of injection into muscle tissue, due mainly to the volume of oil-based ester they contain being unable to be injected for prolonged periods subcutaneously (into dermal tissue beneath the skin). Intramuscular injections for AAS can be carried out using the needles contained in the 2ml and 5 ml packs distributed by the NSP, prompting me to consider that these were being requested in significantly increasing amounts from the commissioned service by AAS user groups.

Anecdotal feedback from staff at the substance misuse service I commissioned confirmed there was a high number of male bodybuilders accessing the community pharmacy NSP services for sterile injecting equipment, though of note was the fact that none of these individuals were thought to be in structured treatment services for psycho-social or harm reduction interventions such as safe injecting instruction, general health checks, blood borne virus (BBV) screening, wound clinics for injecting injuries, or peer support and recovery education. Staff in the treatment service did not perceive AAS as addictive or dependence forming substances in the same way they did heroin or alcohol. Most admitted not really understanding any of the psychological or physiological implications of AAS use outside the risks of sharing needles and possible injection site infections. Staff also admitted a lack of confidence in their ability to provide harm reduction services to AAS users if they did come into the substance misuse service for support. They had no awareness of the substances that were being used or the challenges AAS users might face when exiting substance use and how to ensure these practices could be supported in a safe manner. Although guidance on providing services for image and performance enhancing drug (IPED) users (Public Health England, 2015) would eventually become available, at the time in 2014 guidance was otherwise focused on the management of better-known psycho-active substances and the risk posed by BBV amongst AAS users. My interest in AAS use was driven initially by my role as a public health commissioner of substance use services and a desire to ensure these services provided equitable access to wider harm reduction initiatives for all substance users (including those using AAS). Also, at a personal level I have spent a lifetime as an amateur boxer/ martial artist enabling me to understand the

workings of a boxing gymnasium and the temporality of the highly rewarding bodily practices undertaken during pugilistic study. The ethnography of his time as an apprentice (Wacquant, 2004) is one my favourite accounts of the social life of prize fighting within which he highlights expertly the social nature of boxing practices, how men learn various techniques of the body from each other through the process of mimesis and the way in which investment within these corporeal practices helps provide a sense of structure, identity, and reward for boxers over time. How these pugilistic practices mirrored or conflicted with those of men using AAS in a desire to maximise their muscle size (which is a distinct disadvantage in boxing) genuinely intrigued me as an academic. Whilst I was familiar with models used to explain the cause of addiction and dependence to psychoactive substances (Pickard et al., 2015), I was less clear how these theories might apply to AAS and users' motivations for commencing and continuing their substance use, despite potential consequences to their health and wellbeing. During my time as a commissioner of substance misuse services I was used to coming across accounts of adverse childhood experiences (ACE's) leading to addiction and dependence in adulthood to mask the experience of trauma. I have also encountered more than a handful of individuals who had not experienced these ACE's and had little in their life history which could be used to explain their drug taking. When questioned about the reasons for their drug use these individuals often described accounts of boredom with their previous lives and enjoyment gained from drug taking, re-enforced over time by peer networks and the routines, time structure and temporality of their drug using practices. I commenced a review of published literature with an NHS Athens database search using three search strategies encompassing a) *men's experiences of AAS discontinuation including theories of addiction/ dependence*, b) *motivations for AAS use*, and c) *theories surrounding the psychopathology of men with a hypothesised body image disorder*. These strategies are outlined in **(Appendix One: Literature Review Strategies)**.

It became quickly evident from the review that the corpus of literature around the reasons for initiation and continuation of AAS use amongst adult male's is dominated by two discursive and pathologizing frameworks of '*body image disorder*' and '*illicit drug use*'. This may be unsurprising

given the disciplines of clinical psychiatry and addiction medicine provide much of this research and that all research practitioners will hold a professional habitus providing an ideological lens via which they understand the world as a “*scholastic point of view*” Bourdieu (1990: 380). A scholastic fallacy can therefore develop (Bourdieu, 1990) as a researcher injects their discipline into a topic of interest, which can limit their view to one their discipline desires to perpetuate (Aune, 2011). To escape what Dewey (1936) calls the occupational psychosis of clinical psychology and addiction medicine when considering the reasons behind continuous and problematic patterns of AAS use I chose to provide a sociological account of AAS practices by UK bodybuilders. Using what I have termed the ‘*body sculptor framework*’ I focus more on understanding the potential rewards and pleasures gained from bodybuilding and the use of AAS substances of which “*much still remains to be learned*” Moore et al. (2019: 15). I applied to undertake a programme of doctoral research to understand why UK men persist in using AAS despite their well-documented harmful side effects, and how best to construct specific AAS harm reduction interventions for this client group given the lack of national guidance at the time. This thesis is the result of those inquiries.

1.2 Research Project Aim

The aim of this research project is to provide insight into continuous and problematic patterns of anabolic androgenic steroid (AAS) use amongst UK males outside of the discursive and pathologizing frameworks of ‘*illicit drug use*’ and ‘*body image disorder*’. The sub- themes that I determined would allow comprehensive insight into this research aim included the following areas of interest which are addressed within this study:

- Define what have been described previously as the “*goal orientated*” Cohen et al. (2007: 10) practices of UK AAS users and the rewards and meanings body sculptors in this study assign to the construction of their variable body projects.
- Understand the role of the bodybuilding cosmos (including both the gymnasium where participant observation was employed and bodybuilding’s wider sub-culture) as a relational

field of practice in contributing towards bodybuilders initial adoption and continuing immersion into various ethnopharmacological practices.

- Gain insight into study participants' experiences of the physical and mental health issues associated with the phenomenon of anabolic steroid induced hypogonadism (ASIH) which become magnified once AAS use is discontinued.
- Explore how UK male bodybuilders plan for and navigate the potentially detrimental impact of ASIH on their goal orientated practices.
- Collate study participants' experiences of seeking help in health care settings for ASIH associated health problems following AAS discontinuation to understand how these influence future intentions to permanently exit/ or continue AAS using practices.

1.3 Defining the concept of *muscle capital* and its role within this study

The theoretical principle of constructivist-structuralism' (Bourdieu, 2009 [1977]) 'provides the conceptual lens in this research inquiry due to its utility in examining the conditions and contexts of social fields where health practices are conceived and enacted (Blue et al., 2106). For Bourdieu (2009 [1977]), social fields are relational spaces of power and conflict within which social actors orientate themselves towards appropriating a spatially contingent capital of value. Cohen et al., (2007a) have described AAS users as a "*goal orientated*" (2007a: 10) group focused on strength and muscle development whose motivations to use AAS do not always reflect existing body dissatisfaction, with users largely rejecting claims of AAS euphoria inducing properties.

There were consistencies across several dimensions of the bodybuilding goals of men in this study which allowed for the development of the concept of *muscle capital*. The theoretical foundations for the development of this concept sit within **section 2.17.iii** of this thesis.

Muscle capital is defined within this study as ‘muscular size, strength, symmetry and shape, as well as the competitive bodybuilding success associated with this capital’.

Muscle capital = muscle size, strength, symmetry, and shape + competitive success

For the purposes of this inquiry, *muscle capital* is a situationally located and appropriated capital, inter-subjectively valued within the boundary of the bodybuilding cosmos towards which all study participants practices are orientated. The acquisition of *muscle capital* reflects the ability of an agent to ‘comprehend’ and ‘adopt’ (in line with the doxic nature of the gymnasium as a spatio-temporal and relational field) the shifts in tempo and timing of various field practices including bodybuilding workouts, rest periods, nutritional regimes, supplement use and ethnopharmacology. Adoption of these practices in line with field temporal rhythms makes available the conditions required for the development of *muscle capital*, which when appropriated provided study participants with a profound sense of meaning and reward, occupying a central role in their day to day lives.

Muscle capital is 'cultural capital' embodied within schemata of bodybuilders habitus (both cognitive and corporeal as bodily hexis) which derives symbolic value from other body sculptor's, and can be transformed within field boundaries into both economic and social capital (providing access to ‘know how’ knowledge of AAS using practices, complex, highly specialized work-out strategies, as well as access to various ‘practice materials’ in the form of AAS and ancillary compounds), which contribute towards maintenance and development of *muscle capital* within the bodybuilding cosmos.

1.4 Impact of AAS cessation on body sculptors’ appropriation of muscle capital

Discontinuation of AAS use and the resulting phenomenon of anabolic steroid induced hypogonadism (ASIH) created amongst several participants a ‘*misfiring*’ of their cognitive and corporal habitus, manifesting in accounts of joint pain, severe weight loss, tiredness, lethargy, low mood, historical suicidal ideation, poor wellbeing, reduced libido, erectile dysfunction, loss of strength and muscle size, poor motivation to work out, and most significantly loss of *muscle capital*. These issues created a slowing of tempo and timing of various practices the men were able to

perform in the gym when not using AAS, realised in poor motivation to train, reduce workout frequency and intensity, inability to lift heavy weights, and poorer recovery capability after workouts. The dis-juncture on AAS discontinuation between the tempo of study participants habitus and temporal rhythms of the bodybuilding cosmos required to appropriate *muscle capital* de-railed study participants trajectories in accumulating “*capital energy*” Bourdieu, (1986: .25), leading to what has been described in this study as a re-interpreted form of Bourdieu’s concept of hysteresis (Bourdieu, 2009 [1977]).

Fears regarding regression of their *muscle capital* and a strong desire to return to working out productively following participant accounts of ‘no longer feeling they were aiming towards anything’ once AAS use ended are shown to lead to the development of internal and external narratives by study participants to justify their expedited return to AAS use, a reluctance to discuss AAS harms with other gym members, and adoption of numerous complex regimes of ethnopharmacology including a range of post cycle therapy (PCT) strategies .

Four men in the study had already transitioned to continuous ‘blast and cruise’ patterns of AAS use to avoid the dysphoria of *hysteresis*. Perceptions of stigma and gender inequalities in accessing a resolution to health issues associated with hypogonadism contributed further to adoption of continuous AAS use in a mode of *hysteresis* avoidance. Study participants expressed concerns that they had permanently damaged their own testosterone production due to their extensive use of AAS and their intention to self-treat their prolonged hypogonadism with illicitly produced AAS in a form of non-prescription testosterone replacement therapy (TRT). A fifth participant expressed similar intentions should his plan to seek TRT prescriptions from his GP be unsuccessful.

1.5 Contribution to knowledge

This doctoral thesis provides the following new contributions to knowledge:

- Unique development of the concept of ‘*muscle capital*’ as the spatially contingent goal of body sculptors within the bodybuilding cosmos and the salient motivation for AAS use. This

builds on the previously developed concept of bodily capital (Wacquant, 1995) to add context to what have been described in the past as body builders' "*goal orientated*" Cohen et al., (2007a: 10) practices.

- First detailed accounts of UK male bodybuilders' adverse experiences on AAS cessation due to the phenomenon of anabolic steroid induced hypogonadism ASIH Scally (2008).
- Novel, in-depth accounts of the broad ethnopharmacology utilised by UK male bodybuilders to combat the deleterious effects of ASIH once AAS use was discontinued.
- Unique use of Bourdieu's (2009 [1977]) 'theory of practice' to understand the relational impact of the bodybuilding cosmos in gym members' immersion into and experience of discontinuing AAS practices.
- A re-interpretation of Bourdieu's concept 'hysteresis' to explain the misfiring of study participants' habitus due to symptoms associated with ASIH once AAS use is discontinued. The study identifies hysteresis (a mismatch between field and habitus) in this context as arising not from changes in the field, but from altered modes of thinking and body competence which occur due to the phenomenon of ASIH upon AAS discontinuation.
- In depth illumination of what is proposed as a mode of hysteresis avoidance in the AAS-using bodybuilding cosmos. Participant accounts provide unique insight into body sculptors' help-seeking strategies relating to ASIH (an aspect of their hystericized habitus). They reveal that failure to secure a resolution to ASIH related symptoms can contribute towards adoption of continuous patterns of AAS use to maintain a sense of wellbeing, return to working out rewardingly and prevent regression of muscle capital.
- Perceived gender inequalities in access to treatment for hormone related disorders. The study contributes men's experiences in attempting to access testosterone replacement therapy) (TRT) for the treatment of ASIH, which they compare to the availability of Hormone

Replacement Therapy (HRT) for the treatment of female menopause.

- Recommendations that structured support for men wishing to permanently exit illicit AAS use should include assessment and appropriate clinical management of hypogonadism and associated dysphoria. A holistic model support for AAS users should consider this study's findings that AAS use is a social practice conceived and enacted within a relational field whose gravity and 'illusio' can be highly rewarding and may be difficult to disengage from.

Chapter Two. Literature Review

2.0 Introduction to the literature review chapter

This review explores anabolic-androgenic steroid (AAS) hormones' effects in increasing muscle size and strength, as well as the health problems posed by their administration and side effects.

The highly politicised nature of AAS is reflected in an introduction to three conceptual frameworks through which AAS users are considered. The first two frameworks see AAS users as either 'illicit drug users' or having a 'body image disorder' and are reflective of the pathologizing discourse perpetuated by the scholastic fallacy of research investigations undertaken within the disciplines of addiction medicine and clinical psychology. Following a short critique of the already expansive literature regarding '*body image disorder*', a detailed review of AAS' widely proposed addiction and dependence forming properties is provided. In what has been theorised as a potentially confounding variable in the diagnosis of AAS dependence (Scully and Tan, 2009), the phenomenon of anabolic steroid induced hypogonadism (ASIH) (Scully, 2008) is discussed to understand its potential role in motivating users to return to their AAS use in continuous and problematic patterns.

The review then provides critical analysis of a smaller body of literature offering a more nuanced non-pathologizing sociological critique of AAS use by bodybuilders. This third conceptual framework which I have termed the 'body sculptor's' framework highlights an alternative view of AAS use which does not emanate from disorder and is more reflective of an appreciation of excessive muscularity (Monaghan, 2001a). Previous sociological accounts of men training in gymnasiums, particularly the pugilistic world of boxing (Wacquant, 1995; 2004), provide the rationale to position the 'bodybuilding gymnasium as a site of inquiry for this research project to understand more about the subjective rewards UK males gain from AAS use. Concepts of 'body hexis' (Bourdieu, 2009 [1977]) and 'bodily capital' (Wacquant, 1995) are discussed as the foundations for later development within this study of the concept of 'muscle capital' as a spatially contingent goal of men in the gymnasium where this inquiry into continuous and problematic patterns of AAS is situated.

2.1 Background: Anabolic Androgenic Steroid (AAS)

The hormone testosterone plays a critical role in initiation and continuation of male secondary sexual characteristics such as facial and bodily hair growth, deepening of the voice, increased muscle mass and height, bone maturation, libido, penile erections, aggression, and mental and physical energy (Kumar et al., 2010). The circulating levels of testosterone within men have a positive correlation with *“protein synthesis that results in muscle tissue development, muscular strength, bone density, sexual desire (libido), erythropoiesis, mental cognition, and verbal fluency”* (Scally, 2008: 7). Testosterone injections (in the form of AAS) attach to androgen receptors located around the body in reproductive tissues, muscle fibres, bone, hair follicles, the liver and kidneys, and the central nervous system (Mooradian et al., 1987). Use of AAS can increase muscle mass even without a training stimulus, though effects are magnified by strength training (Bhasin et al., 1996; Kouri et al., 1995), with increases in strength of between 5-20% and gains in 2-5kg in bodyweight observed after a short duration of AAS use (Hartgens and Kuipers, 2004) amongst male test subjects.

2.2 AAS Legal Status in the UK

In the UK, a change to drug legislation in 1995 saw AAS compounds fall under the Misuse of Drugs Act (Home Office, 1971), due to growing concerns regarding the amount of young people reported to be using AAS (McVeigh and Begley, 2016). As a result, the personal use of AAS is not illegal within the United Kingdom, though supply and distribution are illegal under Class C of the Misuse of Drugs Act (Home Office, 1971) and scheduled under Schedule 4 Part II of the Misuse of Drugs Regulations (Home Office, 2001). Importation or exportation of AAS for personal use can only be carried out in person. Importation or exportation for personal use using postal, courier, or freight services is now illegal. Possession or importing AAS with intent to supply (which includes giving them to friends) is illegal and could lead to 14 years in prison and an unlimited fine (Public Health Wales, 2020).

Prosecutions of intent to supply have been made in the UK where individuals have been found in possession of large quantities of these substances without a prescription (Public Health Wales, 2020). A Home Office licence is needed to import or export AAS with a small number of exceptions given various legitimate purposes (Kicman, 2008).

2.3 Production of AAS in underground ground labs (UGL's)

Challenges to legally accessing medical grade AAS in the UK have seen a rise in the counterfeit production of AAS in underground laboratories (UGL's) (McVeigh and Begley, 2016). Counterfeit AAS have been identified to contain misleading labels, with incorrect contents or dosages (Graham et al., 2008; Kimergard et al., 2014a), resulting in a practice of self-testing to determine effectiveness, results of which are shared amongst peers (Kimergard and McVeigh, 2014). Attempts to circumnavigate poor-quality steroids has included the purchase of raw powder ingredients in bulk (typically from China), and re-constituting powder into an oil based injectable format in a home setting, termed '*home brewing*' (Brennan et al. 2018: 21). Illicitly produced AAS pose a significant risk to users' health compared to those manufactured at pharmaceutical grade (Van Hout, 2014). These products can contain no active ingredient, or an alternative product of an unknown quantity, often resulting in poor transformational outcomes for users, as well as unexpected side effects, though these may not discourage use (Jespersion, 2012). As concerning are reports of illicitly produced AAS containing fungi which can lead to abscess (Friedman et al. 2016) and disfigurement (Kimergard et al. 2014b). Recent inquiries draw heavily on the harms of AAS use brought about by the rise of the Internet and laws prohibiting sales of these substances without prescription. The dark web is highlighted as one reason for AAS use becoming more and more dangerous (Fink et al. 2019).

2.4 Prevalence of AAS use in the UK

Sagoe et al. (2014a) estimate the international the prevalence of AAS use has increased from 2.9% between 1990-1999, to 3.2% between 2000-2013. Despite significant data gaps, the use of AAS

within the UK was estimated to have increased significantly over the preceding twenty-year period (Evans-Brown et al. 2012). Estimating the exact prevalence of AAS use in the UK is challenging due to the sub-cultural context within which these substances are used (Antonopoulos and Hall, 2016), with most of the available research into AAS in the UK consisting of case reports and observational studies (Evans-Brown et al., 2012; Mullen et al., 2020). The last estimate in England and Wales was that *“Anabolic steroid use among 16- to 59-year-olds in the last year also fell compared with the previous year from approximately 62,000 to 31,000 people, following a period over the last decade where reported use was relatively flat”* (Home Office, 2020: 2), though the small sample size means these figures should be interpreted with caution. The latest data on seizures of AAS across England and Wales shows that *“between 2017/18 and 2018/19, there was a 55% increase in the quantity of anabolic steroids seized, from 1.7 million to 2.7 million dose”* (Home Office, 2019: 19). Whilst men are far more likely to use AAS than women, there are many examples of AAS use in female bodybuilding (Abraham et al., 2016, Grogan et al., 2004; 2006; IP et al., 2010). Gym users, especially those who are members of private gyms, are more likely to be offered AAS (Leifman et al. 2012). Use is often encouraged by other gym users who can validate positive outcomes from using various AAS products (Hildebrandt et al. 2011). The use of over-the-counter supplements (including protein powders and other supplements) is strongly associated with a future transition to AAS use (, Hildebrandt et al, 2011; Jenssen & Johannessen, 2015; Leifman et al., 2011), with UK hardcore gym users reporting higher use of AAS than those in commercial fitness gyms (Lenehan et al., 1996). A further proxy indicator for the increased prevalence of AAS use is the escalating demand being placed on Needle and Syringe Programmes (NSP) by AAS users in the UK (Hope et al. 2016). In a review of NSPs in the North West of England, 54.9% of NSP clients were AAS users (McVeigh and Begley, 2016), though currently available data is likely to underestimate use, as injecting equipment can be gained via other sources and may be re-used (Bates and McVeigh, 2016). Increases in interest and use of AAS are evidenced further by the growing number of internet forums for AAS users, and media reports of arrests and drug seizures of AAS (Evans-Brown et al., 2012). An approach that

provided further insight into interest in AAS use in the UK was a review of google trend (GT) search data for AAS during the period 1st January 2011 to 31st December 2015 (Teck and McCann, 2017). The search provided data on five of the drug terms used, highlighting increasing trends in searches conducted year-on year in the UK, with seasonal peaks in months prior to UK summer, suggesting an increased interest from potential, or actual users related to wishing to improve their physiques during summer time. The UK survey of IPED use suggests the most common age of AAS initiation is between 20-24 years of age, however use was reported across 13-53 years of age. Almost three quarters of participants in the survey reported first using oral steroids before progressing to injectable AAS (Bates and McVeigh, 2016).

2.5 Health Harms Associated with AAS Use

The advisory council on the misuse of drugs state that the potential health effects of AAS can be difficult to assess (ACMD, 2010: 25), but are likely to include cardiovascular disease, testicular atrophy, gynecomastia, and depression (Cassavant et al., 2007; Hartgens and Kuipers, 2004; Kanayama et al., 2008). AAS have been associated with multiple problems including acne, hair loss, disruption of growth, and damage to tendons and ligaments (Pope et al., 2014a). Rates of mortality amongst bodybuilders have been shown to be higher than those in age matched populations, though causes of mortality remain unclear (Horwitz et al., 2018). Side effects from AAS use are often mitigated by more experienced users due to *“their mastery of side effects through the use of ancillary drugs”* (Hildebrand, 2006: 234). Oral AAS are particularly toxic due to them being modified to a c17- alpha alkylated compound which protects the drug from deactivation by the liver (Public Health Wales, 2020). Whilst this enables higher levels of the drug to enter the blood stream which can be hepatotoxic, with prolonged exposure leading to liver dysfunction (Neishlag and Vorona, 2015b). There is evidence to suggest AAS can stimulate an increased rate of erythropoietin synthesis and haematocrit levels (Lamb, 1984). Increases in the number of red blood cells and consequently haematocrit, means greater oxygen carrying capacity which can enhance athletic performance

(Kutscher, 2002). This increase in red blood cells also makes blood more viscous, increasing risk of stroke (Lamb, 1984). Further cardiovascular risk factors include AAS' ability to facilitate negative changes in cholesterol profiles (lowering HDL, and increasing LDL), leading to increases in risk of arteriosclerosis if AAS are used over extended periods (Sullivan et al., 1998). Increases in blood pressure of AAS users may be a result of increased blood volume and fluid retention (Sullivan et al. 1998). Left Ventricular Hypertrophy (LVH) (thickening of the left ventricle wall) is associated with AAS use, leading in some cases to impaired ejection fraction several years following discontinuation of use (Urhausen, et al., 2003). Severe cardiac complications such as fibrillation, thromboses, myocardial infarction, have been recorded in long term AAS using strength athletes (Sullivan et al, 1998; Nieminen et al. 1996; Thiblin et al., 2000). One of the most significant implications of AAS use is the substances' ability to impair users' endogenous testosterone production through disruption of the Hypothalamic Pituitary Testicular Axis (HPTA) (Tan and Scally,2009). This issue is discussed at greater length in this chapter. The behavioural effects of AAS have been widely researched (Christensen, 2001; 2004; Kuhn, 2002) highlighting a role for AAS in cognitive functioning, and sexual behaviour in both males and females. AAS use has been shown to have positive correlation "*with a sense of well-being and joyfulness, and negative correlations with depression and anxiety*" (Kicman, 2008: 514). In contrast Katz and Pope (1990) claim AAS can have a profound influence on mental states including mania during use, and depression on withdrawal.

2.6 Identified patterns of AAS use in the literature

AAS are typically self-administered either orally, or via intra-muscular injection into buttocks, shoulder, or thigh, and less commonly via subcutaneous injection (Public Health Wales, 2020). Administration usually occurs in blocks of time colloquially known as cycling. The process of cycling of AAS is believed to stem from the belief that if a man uses AAS in cycles, rather than continuously, then the HPT axis can rebound during the drug free intervals between cycles, restoring normal endogenous testosterone production (Kanayama et al., 2009a). An '*on cycle*' of AAS administration

can typically last anywhere up to sixteen weeks, often followed by AAS free intervals of similar regime (Kanayama et al., 2003a; 2003b; Pope et al, 1994) known as the '*off cycle*' (Hildebrandt et al., 2006). Both 'on cycle' and 'off cycle' periods are reported to vary widely amongst discussions in on-line AAS user forums (Karavolos et al.,2014).

Whilst many users do consume AAS in moderation (Sagoe et al., 2015), others are known to run AAS over longer cycles into patterns of continuous use, which may continue despite experiences of health harms (Brower, 2002; Kanayama et al., 2009a). The use of multiple AAS at one time is common (Sagoe et al., 2015), colloquially known as '*stacking*', and often involving the use of ancillary drugs to combat AAS related side effects. The use of pyramiding (steadily increasing, then tapering down the dose over the length of the cycle), is commonly perceived to help users avoid plateauing (and developing tolerance), as well as helping to reduce health problems on cessation of use (Summers, 2003). This approach is hypothesised as reducing impairment of endocrine system functioning, "*enabling endogenous testosterone levels to rebound during drug-free intervals between cycles*" (Kanayama et al, 2009a, p. 1967). The use of AAS in cycling patterns often results in lifetime exposure of less than 12 months (possibly due to limitations of cycle lengths and extensive periods of non-use), with users reporting minimal adverse effects (Cohen et al, 2007a; Collins 2002).

Differences in patterns of AAS use by age include younger men using higher doses of AAS (compared to older users), in a rush to achieve muscular size (VanHout and Keane, 2015). Similar findings have been presented across several studies (Chandler and McVeigh 2013; Cohen et al., 2007a), showing higher levels of risks being taken in users of AAS under the age of 25. Although steroid use has been described by bodybuilders as a "*rational decision*" to "*gain muscle mass*" (Grogan et al., 2006: 849), users are seen to regularly prioritise "*short-term gains*" over "*long-term risks*" (Grogan et al., 2006: 854).

2.7 Risk associated with AAS administration

In an internet- based survey of risk practices amongst 1995 non-athlete AAS users from the United States, the clear majority (95%) injected anabolic steroids, as opposed to other methods of

administration (Cohen et al., 2007a). Decisions to inject, rather than use oral AAS, were related to perceptions around effectiveness and health reasons. Oral AAS are potentially hepatotoxic and believed to lead to impaired liver functioning (Hengge, 2003), although direct correlation between AAS and liver hepatotoxicity diagnosis is complex (Dickerman et al., 1999). Injecting practices (including the sterility of drug taking equipment and sharing of drug using paraphernalia) are a public health problem due to a potential for blood-borne virus (BBV) transmission, and development of bacterial infections (Public Health Wales, 2020). The sharing of needles to inject AAS is usually low (Midgley et al, 2000) in comparison to other injecting drug users. Whilst the sharing of injecting equipment is often denied amongst UK AAS users (Bolding et al., 2002), one UK study highlighted 8.9% of AAS users who had shared injecting equipment (Hope et al., 2013). A further study of injecting practices amongst 50 UK AAS users found that it was *“commonplace for users to purchase, and share multi-dose vials (19%), and to divide drugs using syringes (17%)”* (Midgley et al. 1999, p. 163). A study of risk practices amongst 395 male AAS users in the UK revealed that *“1.5% had HIV, 9% had antibodies to the hepatitis B core antigen (anti-HBc) and 5% to hepatitis C (anti-HCV)”* (Hope et al., 2013: 1) a figure like those seen in heroin users. Reasons for comparable rates of BBV infections are likely related to AAS users’ risky sexual practices and use of psychoactive drugs (Hope et al., 2013;2015). Just over a third of AAS users may experience injection site swelling and redness in the preceding year (Hope et al., 2015). In an online study of nearly 2000 AAS users from the United States, Cohen et al. (2007a) identified only a small percentage who re-used needles (0.7%), whilst most (73%) used clean needles to draw testosterone solutions from their storage vials, and a separate needle to inject. As a result, bacterial and blood borne virus infections in the group studied were rare, with only a small number of respondents reporting infections (7%) (Cohen et al., 2007a). If problems do arise due to injecting practices, AAS users will be less likely to seek help from drug services, as they do not perceive themselves as ‘drug users’ (Kimegard and McVeigh, 2014a).

2.8 AAS associated polypharmacy

AAS are often used in isolation from other substances (Skarberg, 2008). However, a major challenge for public health investigations into AAS use is often the lack of researcher awareness of how many other substances users are also likely to be using (Evans-Brown et al, 2012; Sagoe et al., 2015). Case reports from AAS users have shown them to have a higher use of illicit psychoactive substances than the general population (Kanayama et al.2003; Skarberg, 2008; 2009), with illicit drug use proceeding AAS use (Kanayama et al. 2003; Sagoe et al., 2015). AAS use has been cited as helpful in masking the signs of opioid use (weight loss, anaemia) amongst IV drug users reducing the stigma they experience from members of the public (Cornford et al., 2014). The reverse relationship has also been evidenced with AAS use occurring prior to the use of psychoactive drugs (Hoff, 2012). The blurring of boundaries between AAS use and illicit drug use has been revealed in the use of ephedrine, a known stimulant like amphetamine (Young, 1998) to enhance training intensity during a workout, and the use of Nubian (an opioid-based pain killer) which enables bodybuilders to continue their vigorous training regimes despite carrying injuries (Monaghan et al., 2001a).

2.9 Help seeking by AAS users

AAS users are likely to avoid disclosure of their substance use to their general medical practitioner (GP) (Pope et al., 2004), possibly due to the widely held perception amongst AAS users that their own pharmacological knowledge of image and performance enhancing drugs (IPEDs) outweighs that of the health practitioners (Blue and Lombardo, 1999; Dawson, 2001; Pope et al., 2004). AAS users are reported to have a *“sophisticated steroid pharmacological knowledge based on both their subjective experiences and anecdotal information* (Kutscher et al., 2002: 285; Monaghan, 1999b, which may explain why they often seek information to their AAS related issues from peers rather than health professionals (Fraser et al., 2019; Richardson and Antonopolous, 2019). Previous studies of the help seeking behaviour of AAS users who encountered health problems revealed that as few

as between 6% (Chandler and McVeigh, 2013), 17% (Hope et al. 2015) and 35% (Zanhow et al., 2017) seek assistance from a medically qualified health professional for their concerns. It is claimed that *“users frequently resume AAS use, leading to a vicious cycle of dependence ”* (Pope et al.,2016: 23) due to a failure to get the help and advice needed from their health care provider.

A study of 21 Australian AAS users described some positive examples of care from GPs. However, other interviewees in the study admitted they did not disclose their use of AAS due to concerns that the GP would refuse to continue to see them or would not have the knowledge to help with their problems (Dunn et al., 2016). Concerns raised by AAS users when seeking help include sexual dysfunction, gynecomastia, and mental health issues, reflecting a high level of self- health surveillance by AAS users and the *“requirement for non-judgmental health services aimed at assisting AAS users to monitor adverse effects and minimize harm through early intervention”* (Zanhow et al., 2017: 69). Fear of stigma appears to be one barrier to engagement with health practitioners by AAS users, highlighting the need for *“health service providers [to] find subtle nuanced ways in which to demonstrate non-judgmental attitudes toward AAS use”* (Zanhow et al., 2017: 80). Perceptions of stigma amongst AAS users continue (Griffiths et al. 2016: Harvey et al. 2019), with many expressing rejections of the drug addict label (Harvey et al. 2019) as well as recognising a lack of empathy amongst mainstream society for the concept of male body dysmorphia (Griffiths et al., 2017). It has been suggested that medical professionals need to develop a *“credible identity’ to establish themselves as reliable, non-judgemental and credible sources of information”* (Grogan et al., 2006: 855) if AAS users are to be encouraged to come forward and seek support for their AAS related health issues.

Failure to secure access to treatments such as post cycle therapy drugs to manage health problems resulting from discontinuation of performance enhancing drug (PIED) use, (either from a physician, or via the black market) have been noted to lead to the continuation of AAS use (Griffiths et al., 2017), described by other studies as a form of AAS dependence (Kanayama et al., 2010: Pope et al.,

2016). An Australian study showed men who inject PIEDs (including AAS) seek quality advice from GPs, but such advice is rarely available, with GPs reluctant to discuss PIED use (Fraser et al., 2019). The study proposes AAS users should be considered as ‘connoisseurs of PIEDs’ able to enter a mutually conducive and symbiotic relationship with their GP, which is likely to result in better treatment outcomes and PIED user satisfaction. In a subsequent paper specifically addressing the harms from AAS use, a “*code of silence*” (Richardson and Antonopoulos, 2019: 2) was highlighted, making it unlikely that AAS users would discuss AAS related issues with GPs. Like findings of previous studies (Harvey et al., 2019; Griffiths et al., 2017) participants reported stigma at being classified in the same sub-set as illicit/ psychoactive substance users.

2.10 AAS Prevention: Challenges with existing approaches to behaviour change

A comprehensive systematic review by Bates et al. (2017) of AAS prevention programmes spanning the last three decades found that most attempts to prevent AAS initiation had been designed around educational/ fear-based approaches. The fundamental tenet of these and many other drug prevention programmes is the belief by their developers that behaviour choices are linear, calculative, and rational. However, as the study’s authors point out, “*decisions about health and behaviour are not always rational and based upon a simple assessment of costs and benefit*” (Bates et al., 2017: 12). The researchers concluded that outside of professional sport, there is little evidence on how to reduce AAS use across a wider population.

Public health efforts to understand and ameliorate a wide range of modern day non-communicable diseases (NCDs) such as obesity, smoking, or drug and alcohol dependence, have focused on individuals and persuading them to modify their lifestyle choices. Behavioural change models, including the Health Belief model (Becker, 1974), Theory of Planned Behaviour (Aizen, 1991), and the Stages of Change Models (Prochaska and DiClemente, 1984) have all received significant challenge in their lack of accounting for the wide variety of social and environmental factors which may

culminate in decisions to engage in risk taking behaviour (Ioannou, 2005; Thompson and Kumar, 2011). Efforts to address 'the causes of the causes' (Marmot et al, 2010), or 'social determinants of health' (Dahlgren and Whitehead, 1991) carry their own theoretical and practical challenges and often "*maintain, rather than revise, conceptualisations of health behaviour*" (Cohn, 2014: 159) by continuing to designate responsibility for lifestyle choices back to individual due to a failure to be able "*to show exactly how these translate into the daily lives, and hence health*" (Blue et al., 2016: 36) of people. As a result, neither individual behavioural or structural determinant approaches (in isolation) can provide an effective means by which to understand AAS use.

One attempt to bridge these dichotomies of individual choice vs structural determinants is the COM-B model (Michie et al., 2011) which includes a focus on both internal and external factors. Despite the potential utility of an all-encompassing framework looking at multiple variables, without insight into exactly what these variables are and how they influence behaviour, these models are still limited in their application to understanding continuous and problematic patterns of AAS use (Cohn, 2014).

Tensions between individual and structural approaches to understanding risk behaviours have resulted in an emerging paradigm of '*health practices*' (Cohn, 2014; Blue et al., 2016) which conceives issues like substance use as "*social practices*" [*which are*] "*produced and transformed by those who carry them*" (Blue et al., 2016: 38). Social practices are not seen as existing in isolation, but rather are linked, forming bundles of practices which are closely coupled and so organise the time, space, and temporality of social life (Schatzki, 2002). This research sees AAS use as a form of ethnopharmacology where indigenous empirical knowledge of therapeutic interventions is passed by oral tradition amongst the members of a sub-cultural context (Vilojen, 2020) within the gymnasium. Bodybuilding's ethnopharmacological practices are seen to include the integration of at least three key elements of practice; made up of access to *practice materials* (objects, consumer goods and infrastructures), *practice competence* (practical know how knowledge of practice), and finally the *meanings* associated with these practices from previous experiences of participation

(Shove et al., 2012). The salience of Bourdieu's concepts of habitus, field and capital to the study of social practices is highlighted (Blue et al., 2016) and influenced my adoption of Bourdieu's constructivist structuralism (2009 [1977]) as the theoretical lens in this study's inquiry which is discussed in detail in chapter three.

2.11 Who uses AAS?

Most AAS users are males over 18 years of age (Chandler & McVeigh, 2013). Whilst women do use AAS (Grogan et al., 2004;2006), men in their 20's and 30's are the highest users of AAS in the UK (Hope et al., 2016). AAS are used by men who engage in weight training activities (Brennan et al, 2018), with those exercising in private bodybuilding gymnasiums, more likely to use AAS (Leifman et al., 2011), where co-trainers vouch for their use and results (Hildebrandt et al, 2006). Some experienced AAS users dissuade adolescents from using AAS until they are in their early 20s when natural testosterone production is likely to peak (Chandler & McVeigh 2013).

Several studies have categorised AAS users into types (Hildebrandt et al., 2006; Christiansen et al., 2016; Zanhov et al., 2018) based on similarities in motivation, age, polypharmacy, and pattern of AAS use. Cluster analysis of this type aims to categorise, and risk stratify groups to inform the direction of prevention and harm reduction interventions towards likely users. The first example of these cluster formations came from a US sample of 400 AAS users (recruited via online AAS use forums) who were divided into four 'class models. The study identified that the 'Class one' cluster carried the greatest risk based on high levels of polypharmacy. Risks reduced slightly in the 'Class two' cluster who were motivated more by fat loss and tended to be higher users of thermogenic drugs (which carry independent risks). The final two clusters carried the lowest degree of risk: 'Class three' users were focused on extensive muscle gain with less polypharmacy, with the final cluster 'Class four', posing the most normative pattern of AAS use, with the lowest risk (Hildebrandt et al., 2006).

Some years later, Christiansen et al. (2016) offered a likely typology of male AAS users, with four groups based on similar categories of motivation, goals, and risk behaviours (based on qualitative interviews with 37 AAS using men). The '**you only live once (YOLO) type**' is suggested as being high-risk user of AAS in a less structured manner, with a goal of gaining as much size as possible in a short time frame. The second risk group is the '**athlete type**' described as competitive, goal orientated bodybuilders and sports men, looking to improve performance whilst the '**expert type**' is a more informed user, taking calculated risks, usually with lower dosages and length of AAS use. The final cohort is the '**wellbeing type**' driven by the desire to achieve general long-term health and wellbeing benefits from their AAS use, with lower risk behaviours. These typologies have since been tested against cluster analysis of risk profiles amongst data from AAS users who completed a UK based 'National IPED survey' (Bates and McVeigh, 2016). A cluster analysis of risk profiles and patterns of 611 AAS users who completed the survey by Zahnow et al. (2018), showed four AAS user typologies broadly like those identified by Christiansen et al. (2016). The study identified however that AAS users are a heterogenous group with multiple variabilities in relation to complexity and risk. Whilst typologies offer a useful narrative for population-based approaches to health promotion, individual interventions should be more sensitive to the unique characteristics of AAS users (Zahnow et al., 2018). The UK image and performance enhancing drug (IPED) survey highlighted the highest motivation for IPED use (including AAS use) being to improve athletic performance, followed by supporting occupational performance followed by competitive, then non-competitive bodybuilding. Other motivations included increasing sex drive, as a hormone replacement therapy and to gain a youthful appearance, as well as combating anxiety and depression (Bates and McVeigh, 2016: 22). Greater attention is given to 'motivations for initiation and continuation of AAS use', in the following section of this review.

2.12 Popular narratives for men's use of AAS from the 1990's

The departure points of my reading around AAS, particularly the perceptions and meanings behind the motivations for their use, was the seminal ethnography of Paul Goldstein (1990). Goldstein's research amongst the health clubs and gyms of New York City provided a glimpse into the use of AAS, not just by competitive bodybuilders, but by adolescents looking to be part of a gang, or to gain female attention against a backdrop of ego and masculine desire to "*be a muscle man*" (Goldstein, 1990: 79). Accounts of AAS providing users with "*a high*" (Goldstein, 1990: 79), magnified by compliments from others, prompted Goldstein to hypothesize the addictive potential of the substances. Despite claims that "*the dependence many people develop on steroids is classic*" (Coward 1987: 427), the limitations in using medical models of dependence (Lindesmith, 1938) to understand continuous patterns of AAS use may have limitations (Goldstein, 1990).

In Goldstein's study men reported AAS' ability to "*anesthetize the body*" (Goldstein 1990: 80), enabling them to work out without feeling pain. However, once that stopped, old injuries reappeared, along with pain, limiting the ability of users to work out to the same level they did when using AAS: "*it's nowhere near as exciting when you're off the stuff*" (Goldstein 1990: 81). Even activities of daily living may become more difficult to complete, combined with feelings of depression. These effects were reversed once AAS use was re-commenced, "*one's body feels good again, one can return to one's workout regime*" (Goldstein 1990: 80). Study participants claimed that once a first cycle of AAS use ended, if you chose to get out and never use again, you might be okay, but once you return for a second time "*you're no longer a virgin, you're finished: you're hooked for life*" (Goldstein 1990: 81).

An interdependence between the reward of the workout and using AAS is highlighted as dissolving into a "*unitary lifestyle*" (Goldstein 1990: 82), which is habitually rewarding and the relational nature of competition between gym members perpetuates AAS use. Its increase over time is also encouraged through peer pressure to "*get back on*" the next cycle of AAS (Goldstein 1990: 82).

Motivations for ceasing AAS use included ill health, and during breaks in between AAS users engaged

in complex polypharmacy in efforts to *"return to normal levels of testosterone as quickly as possible when they come of a steroid cycle"* (Goldstein 1990: 91).

In summary, Goldstein notes that, *"for whatever reason people begin steroid use, it appears that the addictive nature of the substance, the habituating effect of the workout routine itself, and the feelings of muscularity and strength that arise, create a syndrome of continued and habitual use"* (Goldstein 1990: 79). The multi-dimensional nature of this claim provides insight into the complexity involved in understanding continuous and problematic use of AAS amongst male bodybuilders.

2.13 Critiquing current views of AAS users' motivations

In 1990, the USA reclassified AAS as addictive drugs (Keane, 2005: 189). Keane (2002) notes that this created a view that AAS held the potential to corrupt users' bodies and minds, leaving AAS users demonized for their hedonistic drug-using practices. The US National Institute of Drug Abuse (NIDA) claimed that *"AAS users become addicted to the drugs as evidenced by their continuing to take steroids in spite of the physical problems, negative effects on social relations, or nervousness and irritability, they also experience withdrawal symptoms such as mood swings, fatigue, restlessness, reduced sex drive and the desire to take more steroids"* (NIDA, 2000: 6).

Keane's post-feminist critique (2003;2005) of AAS use addresses two central tenets in continuing AAS discourse which are that AAS are highly addictive compounds leading users to become anti-social, aggressive, and violent, and that they are used by psychologically disordered males experiencing a crisis in masculinity which results in a form of body dysmorphia (Keane, 2005: 192). In determining the motivation for the pathologizing of male AAS users, Keane reflects on a desire to convert AAS use into *"an easily comprehended and unified entity that can be targeted by medical and legal governance"* (Keane, 2005: 203), highlighting the highly politicized nature of AAS use in the US. It is important to understand Keane's motivations here regarding what she perceives as the portrayal of men as victims in a post-feminist society who are struggling with *"a deeper malaise- a crisis in male embodiment produced by increasing demanding ideals of appearance"* (Keane, 2005:

198), as well as the power which medicine and psychology look to wield in their efforts to avert the public health risks of AAS compounds which are also framed as dangerous psychoactive drugs likely to induce violence within their consumers. Keane claims all focus is lost on *"the specific practices and aims of [AAS] users and the varied meanings they attach to their projects of self-improvement"* Keane (2005: 193). Whilst quick to not undermine the potential for AAS to cause harm, Keane also points out the evidence that if taken in low doses for only short periods and a short length of time they *"may have only a negligible effect on health"* (Yesalis et al., 2000: 468). In a complex critique of power, Keane points out an interesting conundrum in that whilst male AAS users are often 'demonized' (Monaghan, 2001a) for their addiction to multiple AAS substances and ancillary compounds to reduce AAS estrogenic side effects (of gynecomastia and water retention), the very same compounds are prescribed by the medical physicians in the form of testosterone therapy and other anti-estrogen medications to 'cure' the disordered and fragile male of his ills.

Keane describes Lee Monaghan's ethnography of AAS users in South Wales (which I later describe in some detail), as a potential way to understand the ways men embody situationally contingent practices and body knowledge in their *"projects of self-improvement"* (Keane, 2005: 193) which they often see as highly rewarding. Investigations into AAS use by clinical psychiatry and addiction medicine often fail to account for the *"often highly disciplined body management regimes and intense embodied experiences of steroid users"*, which demand *"a "more nuanced and contextualized analysis"* (Keane, 2005: 192). I therefore propose that there is a need for a more appreciative and non-pathologizing review of AAS use if we are to understand their substance-using rationales, motives, and beliefs (Monaghan, 2002) as we move through the 21st Century.

At this junction of the literature, I will firstly address the constitution of male AAS users within the two discursive and pathologizing frameworks outlined by Keane (2005), to distance them from the sociological inquiry provided within this Doctoral research project. The literature surrounding the first framework of *'body image disorder'* is described in relation to its already expansive critique, which as a result will not form a significant part of this thesis. I lend greater critique to the

second framework of *'illicit drug use'* and claims that AAS as having psychoactive qualities leading to highs during use and withdrawal on cessation. A confounding variable in this dependence hypothesis, the phenomenon of anabolic steroid induced hypogonadism (ASIH) (Sally, 2008), is described due to its potential utility in understanding how discontinuation of AAS use may impact negatively on AAS users' abilities to gain fulfilment from their workouts in the gymnasium (Goldstein, 1990; Kean, 2003; Maycock, 2000).

2.14 Framework One: 'Body Image Disorder' as motivation for AAS use

Whilst AAS may appeal to those wishing to excel in athletic advancements (Sagoe et al, 2014a), research shows an increasing popularity for their use among non-athletes looking to improve body composition (increased muscularity, and reduced body fat) and body image (*the subjective mental representation of the self*) (Dunn, 2009; Kanayama et al, 2001; Parkinson and Evans, 2006).

The concept of body image disorder hypothesizes a state of fragile male psychology and crisis in masculinity related to body image insecurities as a guiding focus of its research inquiry (Olivardia, 2001a; 2001b). Images of lean, muscular male bodies now prominent across a range of media are suggested as prompting men to become overly concerned with their bodily imperfections (Thompson, 1992). As few men are unable to attain a 'perfect body' (Labre, 2005), it is hypothesized this creates state of damaged psychology termed *'the Adonis complex'* (Pope et al, 2000), or muscle dysmorphia (MD) (Olivardia, 2001b; Kanayama et al., 2008).

Klein's ethnography of US bodybuilders provided a series of masculine contradictions between the way AAS users presented their hypermasculine bodies (as strong, muscular and healthy), against a backdrop of risk, ill health and being forced into homosexual acts to maintain the cost of their AAS use (Klein, 1993). Men's insecurities over their body image are believed to lead them to engage in the use of image and performance drugs to re-create their bodies (Olivardia et al, 2001a). The efforts by men to achieve an aesthetically perfect body have eventually been medicalized as a state of *male body dysmorphia, or reverse anorexia* (Olivardia and Pope, 1997; Olivardia 2001b, Pope et al, 2000;

Thompson, 1992; Thompson and Tantleff, 1992; Thompson and Thompson, 1986). The concept of body image disorder has grown significantly within the literature as a motivation for the initiation of AAS use to decrease dissatisfaction with personal body image (Grogan et al, 2006; Kanayama et al; 2001;2006). As well as motivating men to use AAS, body image disorders are hypothesised as occurring due to exposure to the competitive elements of gym culture and pressures amongst peers to achieve highly muscular bodies (Harris et al., 2017; Greenway and Price, 2019). Body image issues have also been cited as likely to motivate continuation of AAS use (Greenway and Price, 2019), despite noticeable harms (Choi et al., 2002) in a bid to avoid a return to users' former body image (Kanayama et al., 2010). If this is the case, then AAS users may display similar traits seen in obsessive compulsive disorders (Pope and Katz, 2003), due to their obsessive desire to create and maintain the perfect body (Pope and Katz, 1994). These demands are understood as a symptom of a "*deeper malaise*" Keane (2005: 198) emanating from a crisis in masculinity from which men are left with a distorted perception of self-appearance, filled with fragility and inadequacies (McFarland and Kaminski, 2009; Pope et al., 2000; 2016). Up to 10% of UK males who use gyms are claimed to have a form of body image disorder (Ahmad et al., 2015) with some referencing social media images of lean, muscular male physiques as motivators for engaging in AAS use (VanHout and Keane, 2015). Associations have been reported between social media, body dissatisfaction and AAS use amongst Australian men (Griffiths, 2018). The only study identified in relation to the social position of AAS users showed men from Brazil in both middle, and low social groups expressing high levels of body image dissatisfaction, and a desire to use AAS in a bid to possess the symbolic capital associated with the acquisition of a "*pumped-up body*" (Iriart et al., 2009: 773).

Factors associated with AAS use outside of socio-economic status include difficult relationships between male AAS users and their fathers (Kanayama et al, 2003), as well as difficult relationships with wider friendship groups (Kindlundh et al., 1999). Underwood (2017) provides a critique of accounts provided by a now deceased online bodybuilder in her online ethnography which highlights men as cultural victims who now face a crisis in masculinity through which their entry into and

continuation of AAS use is informed. Within the body image disorder framework of literature, the AAS user is described from a perspective of “*cultural psychopathology, constituting intense bodybuilding in men as analogous to eating disorders in women*” (Keane, 2005:203). The concept of muscle dysmorphia (MD), has itself been classified as “*an addiction to body image (ABI)*” (Foster et al., 2015: 1). ABI syndrome is theorised as being maintained via multiple supportive behaviours amongst men such as bodybuilding training, AAS use, adoption of specific dietary regimes and use of various food supplements such as protein powders. Within this research project, my intention is to avoid repeating previous inquiries which see the AAS user as a psychologically frail and disturbed individual. Rather, my goal is to lend a more appreciative lens to understand the wide variety of spatially contingent meanings and justifications bodybuilders provide for their AAS practices during construction of their often highly rewarding body projects (Monaghan, 2001). Due to the extensive nature of the corpus of literature on body image disorder and the rationale discussed, the literature on body dysmorphia will not be explored in greater detail within this thesis.

2.15 Framework Two: AAS use as ‘Illicit Drug Use’, withdrawal and dependence.

The following section of this literature review examines AAS use as ‘illicit drug use’, which again pathologizes AAS users, though this time as excessively masculine and violent drug addicts who experience highs on AAS use, and withdrawal symptoms following discontinuation. Greater attention is given to analysis of literature within this framework due to previous reports from AAS users of experiences of euphoria (Goldstein, 1990: .82) whilst on a cycle of AAS and symptoms of cravings and withdrawal on cessation (Midgley et al, 1999) which manifest in violent outbursts of rage, and trouble stopping AAS use (Corrigan, 1996: 223). In their paper ‘*hooked on hormones*’ (Kashin and Kleber, 1989) the first AAS addiction hypothesis was described as occurring once AAS use was discontinued, manifesting in withdrawal symptoms bearing similarities to better studied psychoactive substances such as alcohol and opiates. Almost thirty years later, despite the development of several diagnostic frameworks attempting to describe, diagnose, and treat AAS

dependence, classification of AAS as a dependence forming substance remains a contested domain. I feel it is pertinent to describe the substance classification of AAS to understand why the debate regarding both their potential to exert euphoria (due to hypothesized psychoactive properties), as well as their addiction/ dependence-forming potential amongst users continues. Despite the broad corpus of literature regarding user reports of physical and mental harms because of their use (Sally and Tan., 2009: 1187) claim that AAS remain a poorly studied class of medicines leading their classification and effects subject to contradiction.

2.15.i Ambiguity in the classification of AAS dependence forming qualities

NHS public-facing web pages describe AAS effects as likely to increase muscle mass, as well as making users feel ‘paranoid, irritable, aggressive or even violent’ in the short term, with the potential for long term users to become psychologically dependent on anabolic steroids and convinced they cannot perform well without them (NHS online, 2017). However, the British National Formulary (BNF, 2019) refutes AAS abilities to increase muscle mass, claiming the protein-building properties of anabolic steroids have not proved beneficial in the clinical setting’, noting that ‘some athletes abuse them (BNF, 2019).

The International Center for Disease (ICD-10) classifies AAS under abuse of non- dependence forming substances, noting that although it is usually clear that the patient has a strong motivation to take the substance, there is no development of dependence, or withdrawal symptoms as in the case of the psychoactive substances (WHO, 2020). Whilst the diagnostic and statistical manual of mental disorders DSM-V classifies AAS under other (or unknown) substance related disorders, noting the presence of *“increasing clinical descriptive data on anabolic steroid withdrawal, dependence, and abuse’, there are insufficient substantial basic or clinical research data to support the inclusion of these syndromes in DSM-IV”* (Tsuang, 1994: 140).

The ambiguity in classification of AAS dependence forming qualities, reference for AAS substance's ability to lead to psychological dependence along with increasing descriptive data of withdrawal, dependence and abuse provided the rationale for further clarification of these issues within this section of the literature review.

2.15.ii Defining addiction and dependence

Addiction can manifest across a range of behaviors (including, but not exclusive to, gambling, drug and alcohol use, or smoking) and is likely to affect 1 in 3 people (NHS, 2015). Addiction is defined as not having control over doing, taking, or using something to the point where it could be harmful (NHS, 2015). The term drug addiction can reflect a moral failing on behalf of a user (Heyman, 2009) which some clinicians feel *"could lead to alienation of the patients whom we want to help"* (O'Brien, 2010, p.2). In his seminal work on addiction, Lindesmith (1938) proposed addiction as a social and relational construct which only occurs once a drug user associates their discomfort, pain, and dysphoria on drug cessation as being directly attributed to the lack of the drug based on examples following interaction with other users. Becker (1963) builds on the social construction of addiction and response to drug use, claiming it is socially learnt and embodied. He proposes a novice drug user, *"does not ordinarily get high the first time he smokes marijuana"* (Becker, 1963: 46), but must learn from others how to use and respond to the effects of drugs, highlighting the social nature of addiction states. The mind-body dualism of addiction construction then maybe likely to include both the brute sensations of the drug, and the social context within which drug use takes place, that helps the user define and taxonomize these experiences (Weinberg, 1988).

Challenges in applying the term addict are noted (Becker 1969), as even the most entrenched drug users have peaks, troughs, and days of non-substance use during their drug using career (Johnson et al, 1985), with patterns of drug use heavily influenced by *"controls of the drug-using group"* (Becker, 1969: 66). These patterns are like those of AAS users whose cycling of AAS has a temporality, a

rhythm including a wide range of ethnopharmacological strategies including ‘pyramiding’ with gradual increases and decreases of substances over several weeks, prior to a period of discontinuation (Goldstein, 1990). Whilst for decades drug addicts have been contextualized as docile and passive beings (Cloward and Ohlin, 1960), others recognize a richer, more complex account of addiction where individuals are *“always on the move and must be alert, flexible and resourceful”* highlighting that *“the quest for heroin is the quest for a meaningful life, not an escape from life”* (Preble and Casey., 1969: 2). Drug use ‘it is hypothesized’ may provide a sense of meaning and reward to individuals whose ability to escape from the drudgery of deprivation may remain otherwise challenging (Preble and Casey, 1969).

Whilst drug addiction and dependence continue to be contested moral domains (Wendel, 1971) the concept of drug dependence as a brain disease (relating to neuro-biological adaptations in response to drug exposure) explain continuing use of drugs by people who often have little, or no choice, or control (Pickard et al., 2015). Drug dependence is well described as *“the physiological adaptation that occurs when medications acting on the central nervous system are ingested with rebound when the medication is abruptly discontinued”* (O'Brien, 2013: 866). The ICD-10 classifies dependence syndrome as being *“a cluster of physiological, behavioural, and cognitive phenomena in which the use of a substance or a class of substances takes on a much higher priority for a given individual than other behaviours that once had greater value”* (WHO, 2020). Notably, AAS are not included within this category and remain classified as non-dependence forming substances. Despite complexity in classification issues of AAS, similarities between patterns of use and substances of addiction do exist. For example, users of AAS are seen to gradually increase the dose of AAS from *“just a few pills of this kind, to just a few pills of that kind; gradually the number of pills and strength increases; then injectables are introduced into the cycle”* (Goldstein, 1990:85). In clinical medicine, increases in the amount of psychoactive substance used over time is described as ‘tolerance’. Tolerance develops following the *“reduced effect of a drug with the need to take higher*

and higher dosages of drugs”(Kosten and George, 2002:15). A state of withdrawal typically occurs only in patients who have developed tolerance (Kosten and George, 2002), with drug use often continuing in a model of withdrawal avoidance. Despite the similarities referred to in increases in the number of substances used over time between AAS and better known drugs of addiction, the pharmacological case for clearly defining AAS as inducing a withdrawal state amongst users and the physiological means by which withdrawal manifests, remains contested (Sally and Tan, 2009).

2.15.iii Critique of literature on the psychoactive properties of AAS

The early 1980s saw a rise in the use of AAS for purposes of muscle enhancement, prompting physicians to express a growing fear in relation to the dangers of these drugs and the growing scale of use amongst young men: *“people think the cocaine issue is big. It’s not as big as anabolic steroids, among kids, it’s epidemic”* (Charlier, 1988:20). Similarities were quickly drawn between the effects of psychoactive drugs (such as opiates, alcohol) and AAS (Jacobson 1988; Schuckit 1988).

Bodybuilders using AAS have been framed as deviant from mainstream society (Weigers 1988), due to them possessing negative social traits (Ryckman et al., 2001). Bodybuilders have for years been portrayed as *“folk devils”* (Monaghan, 2002:696), and narcissistic men engaging in extreme bodily construction practices. The psychoactive properties of AAS were hypothesized as resulting from their interaction with brain androgen receptors (Sheridan,1983), along with claims they produce classic dependence-forming characteristics resulting from modifications to brain reward pathways (Coward, 1987). Further illumination of the mood-altering potential of AAS came via reports from users of increases in self-esteem, libido, and energy, along with decreases in the need for sleep whilst using AAS (Brower et al, 1989; Strauss et al, 1985; Taylor and Black, 1987). Kashin and Kleber claimed AAS use leads to development of abnormalities in central noradrenergic receptor activation, concluding that *“steroid hormones can produce psychological effects similar to those produced by substances of abuse”* (Kashkin and Kleber, 1989: 3167). AAS users were hypothesized as likely to

experience dysphoric symptoms upon withdrawal from AAS use (Linnoila, 1987), given the drugs' potential to activate noradrenergic receptor sites (Gold et al., 1979).

The dysphoria associated with AAS withdrawal was claimed to be similar to that experienced by psychoactive drugs (Kashkin and Kleber, 1989), including anxiety, irritability, insomnia, hot and cold flashes, sweats, nausea, vomiting, and increases in pulse rate, temperature, and blood pressure (Linnoila, 1987). These experiences were hypothesized as prompting re-commencement AAS use to alleviate physical and psychological symptoms of distress following drug cessation (Gold et al., 1979; Linnoila, 1987). Case reports (Tennant et al., 1998; Brower et al., 1989) provided insight into difficulties faced by AAS users when trying to exit drug use due to issues of mood disturbance. To clarify the immediate psychoactive effects of AAS, a double-blind study (Involving paid male volunteers) gave participants intra-muscular injections of either a placebo, morphine (10mg), or Testosterone (in 50mg, 100mg, 200mg doses) (Fingerhood et al., 1997). The subjects were given injections over a five-day period, during which subjective and physiological responses were measured. Whilst heroin produced statistically significant differences in several measures related to euphoria, testosterone did not. Researchers concluded that *"single doses of testosterone are devoid of the usual pharmacological effects that are associated with abuse"* (Fingerhood et al., 1997: 59). Due to the short length of the study, researchers were unable to assess the long-term impact of AAS use on brain reward pathways. AAS administration has also failed to stimulate acute dopamine release in rats, attributed in part to AAS slow mechanism of action (Triemstra et al., 2008). A subsequent study also highlighted that AAS produce little immediate reward or intoxication due to their delayed mechanism of action (Kanayama et al., 2008: 2).

2.15.iv Diagnosing dependence amongst AAS users

Kashkin and Kleber (1989) developed a modified version of the DSM-III criteria for substance misuse dependence diagnosis, providing a six-item diagnostic criterion for AAS substance dependence.

Criteria included hormones being used for longer than originally intended; unsuccessful attempts to exit use; excessive time spent seeking, using and recovering from hormones; continued hormone use despite knowledge of harm; experience of withdrawal symptoms; and hormones taken to avoid withdrawal experiences. Brower et al. (1990) noted the importance of health care practitioners being able to assess and diagnose 'AAS dependence' to improve decisions relating to treatment and clinical care. In a separate study of AAS users, Brower reported that 90% of the sample in his study had at least one symptom of dependence. Both aggression and dissatisfaction with body size were correlated with steroid dependence (Brower et al., 1991).

Brower (1992) subsequently developed a four-item set of criteria that included both primary re-enforcers (seen with drugs that stimulate dopaminergic reward pathways), and secondary re-enforcers (related to difficulty giving up drug use. Brower noted difficulties in establishing whether feelings of well-being and euphoria reported by AAS users were related to immediate psychoactive effects of AAS, delayed cumulative effect of AAS on brain receptors, or a result of increased confidence and satisfaction due to positive changes in body image. During interviews with 50 UK male AAS users over half met at least one DSM-III modified criteria for AAS dependence, one quarter started using AAS because of peer pressure, or were motivated by witnessing the immediate gains in size of other AAS users in the gym, with only one man describing getting a mental high as a reason for AAS use (Midgley et al., 1999).

Brower (1997) proposed a bi-phasic model of AAS withdrawal with initial symptoms featuring "*depressed mood, fatigue, muscle and joint pain, restlessness, anorexia, insomnia, decreased libido, headache, and desire to take more steroids (craving)*" (Brower, 1997: 291). The second phase (denoted by depressive psychological symptoms) typically lasting for up to a year without treatment. The life-threatening risk of suicide was highlighted as the most severe element of AAS withdrawal, which along with other side effects may require medical treatment.

In a similar vein to models of withdrawal seen in dependent drinkers, Brower remarked that withdrawal from AAS may be thought of as detoxification for which counselling therapy and

pharmacotherapy are required. It was proposed that medical practitioners would need to understand the likely side effects of AAS, as well as being familiar with an effective range of treatments for managing patient withdrawal (Brower, 1997). A list of pharmacological interventions required to facilitate AAS detoxification, recovery, and abstinence from further AAS use was also provided. Brower (2002) finally developed a two-stage sociocultural model of AAS dependence, which outlined that AAS were initially taken for their muscle enhancing qualities, enabling users to, *“either compete athletically, achieve an extremely muscular appearance, or, intimidate and fight potential rivals”* Brower (2002: 4). The monastic rituals required of bodybuilding were also hypothesized to dominate users’ lives and were missed greatly upon AAS cessation. These effects were made worse by withdrawal symptoms related to AAS effects on brain reward pathways, which most medical physicians fail to realize, or treat (Brower, 2002).

AAS dependence was also thought to be ‘initially’ driven by a form of muscle dysmorphia and pre-occupation with body image and excessive muscularity (Kanayama et al, 2006) and in later stages, *“comes to resemble classical drug dependence, with a well-defined withdrawal syndrome mediated both by neuroendocrine factors and by a variety of cortical neurotransmitter systems, especially opioidergic system”* (Kanayama et al., 2009: 642). Withdrawal was specifically defined by Kanayama et al (2009a) in the development of their modified DSM-IV criteria for AAS dependence, as manifesting through withdrawal syndrome. This is characterized for AAS by two or more of the following features: depressed mood, prominent fatigue, insomnia or hyposomnia, decreased appetite, and loss of libido. AAS are used to relieve or avoid withdrawal symptoms. Using the above criteria, Kanayama et al (2009a) clustered a cohort of experienced weightlifters (134) into three groups (non AAS-users, non-dependent AAS users, and dependent AAS users). Those from the dependent AAS user sample (22) represented 32% of the cohort, like the 30% mean in previously cited studies (Brower et al., 1991; Midgley et al., 1999; Pope and Katz, 1994). Notably, the main protagonists of hypotheses regarding the dependence forming nature of AAS hormones recognized the lack of attention afforded to the potential role of hypogonadism within their

formation of an AAS dependence syndrome (Kanayama et al., 2015). The deleterious effects of hypogonadism were recognized as contributing towards dysphoric withdrawal states, manifesting in mental health and sexual health problems which were likely to contribute towards a complex syndrome of dependence. In their study of Norwegian AAS users' Jenssen and Johannessen (2015) developed a two-stage model of AAS dependence, initial drivers for AAS use are framed as stemming from an insecurity regarding body image disorder, with the continuation of AAS use resulting from changes in users' brain reward pathways.

2.15.v Associations between AAS and Opiates: AAS gateway drug hypothesis

Similarities have been noted between opiate and AAS patterns of drug use, with both groups continuing use of substances despite direct knowledge and experience of harm (Taylor and Black, 1987; Pope and Katz, 1988; 1994). In an investigation into association between AAS use and more established drugs of addiction, Kanayama et al (2003b) reviewed case history records of 223 US men hospitalized in inpatient units, providing treatment for cocaine, alcohol, and opioid addiction. A total of 29 men (13%) from the overall sample had previously used AAS. Amongst 88 men who listed 'opioids' as their current drug of choice, 22 (25%) acknowledged a history of previous AAS use. Semi structured interviews were completed with 24 of the 29 previous AAS users to determine the relationship between their use of the different drugs. Seven men (all of whom were opioid dependent), said that AAS were the first drugs they had used, and that they had heard about opioids from gym friends, and sourced opioids from their steroid dealers. Previous users of AAS described symptoms of violence and aggression during use, with one man attempting suicide during AAS withdrawal. The study emphasized the need to account for previous AAS use in patients with chronic addiction to several psychoactive substances in a possible gateway drug hypothesis (Kanayama et al, 2003b).

A study of 30 opiate users in the UK (Cornford et al, 2004) highlighted AAS being used to reverse weight loss associated with heroin use amongst drug users. AAS were also used by opiate dealers to

increase strength and muscularity, providing an advantage during their engagement in criminal activities. The study suggested similarities amongst social groups in drug dealing networks provided a pathway through which individuals may be exposed to an opportunity to use both AAS and opiates. Graham et al (2008) suggest the largest increase in AAS use in the UK is amongst street drug users, claiming AAS are *“taken to counteract the anorexic and cachectic effects of the illegal psychotropic street drugs”* (Graham et al., 2008: 505). The study called for AAS to be made illegal to avoid an epidemic like those seen in commonly available street drugs.

2.15.vi AAS studies in animal models: Withdrawal and overdose

Both AAS and opiates are hypothesized to exert their effects via central endogenous opioid activity *“In part via an opioidergic mechanism”* (Kanayama et al., 2009a: 104). Rats and mice repeatedly revisit environments where AAS have previously been made available to them highlighting behavioral associations of reward to previous exposure to drug use (Arnedo et al, 2000). Hamsters have been shown to self-administer testosterone *“including direct intracranial injections to the point of death”* (Kanayama et al, 2009a, p.1970). One study showed rats using AAS to the point where they led to a state of testosterone intoxication with features like those displayed with opioids (Wood, 2006). Modelling studies show the AAS nandrolone decanoate facilitating long-standing changes between dopaminergic and serotonergic reward pathways in mice (Kailanto et al., 2011). AAS use was also shown to blunt dopamine response in test subjects administered with amphetamine and MDMA (Kurling et al., 2008), offering further insight into the complex modes of action of AAS and their effects upon brain reward pathways.

Several rat studies highlight the re-enforcing properties of AAS use, which cannot be explained by the peripheral effects of AAS in humans via increases in size, strength, and self-esteem (Frye, 2007). Changes in the human brain chemistry because of AAS, including modified structures of dopamine reward pathways are hypothesized following chronic exposure to AAS use (Wood, 2006; 2008). AAS were once again proposed to affect brain reward pathways over long duration, this time via the

kappa receptors (Kanayama et al, 2010) supporting previous claims of similarities between AAS and psychoactive drugs (Kanayama et al, 2003). Rats administered with naltrexone (an opioid antagonist used to support abstinence from opioids and alcohol) were less likely to self-administer testosterone, and those who had self-administered testosterone had symptoms of intoxication reversed on administration of naltrexone (Peters and Wood, 2005), again highlighting similarities between opioids/ alcohol and AAS modes of action. Levels of Beta-endorphin (an endogenous opioid peptide that produces pain relief) were shown to increase in the limbic region (specifically the ventral tegmental area) of the brain following nandrolone administration in rats (Johansson et al, 1997). Levels of dynorphin b (an opiate peptide released on experience of negative emotional stress in the 'nucleus accumbens' area of the brain) also decreased in rodent subjects administered with AAS (Johansson et al., 2000) highlighting possible sedative effects of the compounds.

2.15.vii Summary of critique on AAS psychoactive and dependence forming qualities

In summary, whilst AAS have been shown to not produce a psychoactive affect upon administration (Fingerhood et al., 2017), modelling studies in rats highlight the drugs' potential to mediate brain reward pathways over the long term which may manifest in symptoms of withdrawal upon discontinuation. However, there are significant challenges in human studies in untangling what are purported to be symptoms of drug withdrawal (Brower, 1992;2002) once AAS use ends, from the general malaise experienced due to the interruption of previously rewarding bodybuilding activities which AAS users find behaviourally engaging and satisfying (Goldstein (1990).

In addition to the loss of muscle building testosterone experienced once AAS use is discontinued, users are also likely to face problems with their own natural hormone production. This further complicates the ability to clearly describe reasons behind the continuing use of AAS. The disruption of AAS users' own natural testosterone and its possible role in driving users to return to AAS use is reviewed within the following section of the literature review.

2.15.viii ASIH as a confounding variable in the diagnosis of AAS dependence

During my reading of the literature, I came across counterclaims regarding the diagnosis of an AAS dependence syndrome. They offered what was termed a confounding variable in this diagnosis due to the phenomenon of anabolic steroid induced hypogonadism (ASIH) (Sally and Tan, 2009). Upon examination of the literature surrounding ASIH (Sally, 2008; Tan and Sally, 2009), I came to understand the paradoxical effects of AAS in impairing a user's own natural (endogenous) testosterone, revealing a potential route through which construction of men's desires to build muscle may become interrupted. Recent AAS dependence diagnostic criteria include the use of a modified version of the DSM-IV (substance use dependence criteria) (Kanayama et al ,2009b, p.643) where only 3 of 7 criteria are required to be meet a diagnosis of AAS dependence. These criteria, and the diagnosis of AAS as a dependence-forming substance in general have been challenged. In a letter to Kanayama et al (the developers of the diagnostic criteria), Dr Mike Sally highlights "*the signs and symptoms of hypogonadism are identical to many of those described for the adapted AAS dependence criteria*" Sally (2009: 1187). Sally (2009) suggests that any future criteria should only be used to diagnose AAS dependence with those users who do not suffer from the often-dysphoric effects of ASIH (Tan and Sally, 2009).

2.15.ix Describing the phenomenon of anabolic steroid induced hypogonadism (ASIH)

Anabolic steroid induced hypogonadism (ASIH) is described by Tan and Sally (2009: 1) as the "*functional incompetence of the testes, with subnormal or impaired production of testosterone and/or spermatozoa due to administration of androgens or anabolic steroids*". ASIH appears to be common amongst AAS users, frequently prolonged, and associated with substantial morbidity (Kanayama, et al., 2015). ASIH occurs following disruption of homeostasis and impairment of the hypothalamus pituitary testicular axis (HPTA) by "*feedback suppression of gonadotropin releasing hormone (GnRH), luteinizing hormone (LH) and follicle stimulating hormone (FSH)*" (Rahnema et al.,

2014: 1273; see also Scally, 2008). AAS are known to cause hypogonadotropic hypogonadism, better known as secondary hypogonadism (Coward et al., 2013) resulting in disruption of AAS users' own hormone production, leaving them with sub-optimal hormonal functioning. The immediate effects of hypogonadism in adult males include erectile dysfunction, loss of libido and depression (Osta et al., 2016; Neishlag and Vorona, 2015a;2015b; Tan and Scally, 2009). Users of AAS will likely experience body composition changes as a result of ASIH which include loss of muscle size and strength, and increases in fat mass, mental health problems (depression and suicidal ideation), and sexual dysfunction (Nieschlag and Behre, 1998; Brower, 2002). Upon cessation of AAS use, the symptoms of ASIH are magnified (Rahnema, et al., 2014), and hypogonadism is hypothesised as likely to play a role as part of a complex dependence pathway in motivating a return to AAS use (Kanayama et al, 2015). Hypogonadism is a public health concern associated with several disease states, including osteoporosis (Campion and Maricic, 2003), Alzheimer's disease (Moffat et al., 2004), obesity (Svartberg et al., 2004), diabetes (Barrett-Connor 1992), hypercholesterolemia, cardiac failure (Tappler and Katz 1979) and ischemic heart disease (Barrett-Connor and Khaw, 1988). Clinical concerns in relation to cases where impairment of HPTA has lasted indefinitely following steroid use has led to ASIH being recognised as a disease with "*potentially serious consequences*" (Tan and Scally, 2009: 2).

2.15.x Why ASIH occurs: Testosterones negative feedback loop

The Hypothalamic Pituitary Testicular Axis (HPTA), referred to elsewhere as the Hypothalamic-pituitary-gonadal (HPG) axis, is the endocrinological system by which hormones are regulated in the male body. In the female body the term Hypothalamic -Pituitary Ovarian Axis (HPOA) is used. The HPTA is made up of three key components: the hypothalamus, pituitary gland, and the testes. The hypothalamus is located below the thalamus in the brain, forming part of the limbic system. The hypothalamus and wider limbic system are responsible for regulation of the body's endocrine and

autonomic nervous systems, ensuring a state of internal constancy "*milieu interieur*" (Bernard, 1878: 9), more commonly referred to as homeostasis (Modell et al., 2015). The hypothalamus is a small region of the brain that receives signals from the nervous system, enabling it to regulate via the endocrine system several bodily functions including heart rate, temperature, electrolyte balance, appetite, body weight, glandular secretions of the gut and sleep cycles (Bailey, 2020). As the most important part of the endocrine system, the hypothalamus is responsible for sending signals to the pituitary gland to inhibit, or stimulate, sexual hormone production (testosterone), in a drive for homeostasis.

Testosterone production in males is initiated via the hypothalamus's role in the release of the peptide 'gonadotropin releasing hormone' (GnRH). GnRH is released from the hypothalamus in a pulsating pattern, travelling via the short portal venous system to the adenohipophysis of the pituitary gland located at the base of the brain (Bailey, 2020). The pituitary gland subsequently releases the two gonadotropin hormones luteinizing hormone (LH), and follicle stimulating hormone (FSH), which are transported by the vascular system to the testes (Salzman, 2004). LH acts upon the 'Leydig cells' of the testes, stimulating testosterone production, whilst FSH acts upon the testes 'Sertoli cells', prompting production of sperm (spermatogenesis). The HPTA is regulated via two negative feedback loops, the Estrogen Negative Feedback Loop (ENFL) and the Androgen Negative Feedback Loop (ANFL). Firstly, through interaction with the enzyme aromatase, testosterone produced by the body will be subject to a process of aromatization, leading to the production of estrogen (17 β - estradiol, E2). Estrogen plays a key role in male physiological development "*including bone and cartilage formation, and along with androgens on sexual functioning*" (Funder, 2013: 266). The estrogen receptors (ERa, ERb) are located around the hypothalamus and the rest of the body. When too much testosterone is present and being converted to estrogen (and estrogen levels become elevated beyond a point of normal functioning), these receptors trigger the ENFL to reduce the hypothalamus production of GnRH. This results in a reduction of pituitary hormones (LH and

FSH), meaning the testes production of testosterone and spermatogenesis are reduced (Childress, 2010) to maintain homeostasis.

The second feedback loop of the HPTA is moderated by androgen receptors located around the body and hypothalamus. Androgen receptors detect elevated levels of testosterone and other androgens, either directly or via testosterone's bioconversion to dihydrotestosterone (DHT) by the enzyme 5 α -reductase (Funder, 2013). Stimulation of the ANFL leads to a decrease in the production of the GnRH, and release of LH and FSH, moderating the testes production of testosterone and sperm (Childress, 2010). To avoid HPTA total shutdown, and ensure the maintenance of homeostasis, the release of GnRH is seasonal (being highest in spring), and circadian (being highest in the morning). GnRH is released by the hypothalamus in a pulsatile manner, with peaks occurring every 90-120 minutes. The half-life of GnRH is short (approximately 2-5 minutes). Release of intermittent bursts of GnRH at elevated levels in the hypophyseal portal enables the stable release of LH and FSH without invoking either of the ENFL and ANFL mechanisms maintaining homeostasis (Childress, 2010).

In healthy men aged between 20-40 years, normal total testosterone levels range between 315 to 1000 ng/dl* (Vermeulen, 2001). Testosterone levels (total and free) decline steadily across the male life-course at a rate of around 1-2% per year after the age 40 (Vermeulen 2020; Harman et al, 2001; Feldman et al., 2002). A gradual, insidious onset of gonadal decline in men (along with a concurrent rise in co-morbidities) can create difficulties for clinicians in being able to establish associations between men's declining levels of testosterone and developing health conditions (Millar, 2015). Despite significant reductions in testosterone levels with age, for some men their serum testosterone levels may remain within the "normal" range despite a relative reduction, leading to an experience of hypogonadal symptoms which may be undetectable via existing diagnosis protocols (Millar, 2015). Processes for diagnosing hypogonadism vary internationally between the UK, Europe and the US. In UK men aged 40-79 years, the hypogonadal threshold for total testosterone is 8

nmol/L for decreased frequency of sexual thoughts, 8.5 nmol/L for erectile dysfunction, 11 nmol/L for decreased frequency of morning erections and 13 nmol/L for diminished vigour (Haddad et al, 2007). The strongest predictor for hypogonadism in this age group is three sexual symptoms (decreased sexual thoughts, weakened morning erections, erectile dysfunction) and either a total testosterone level of < 8 nmol/L or serum testosterone in the range of 8-11 nmol/L and free testosterone < 220 pmol/L. These data are based on serum samples taken in the morning, when levels are highest and most reproducible (Basaria et al, 2010).

2.15.xi How long do the effects of ASIH last?

Experience of ASIH is inevitable on discontinuation of AAS (Sally, 2008; Rahnema et al., 2014), although Menon (2003) describes an association between how previous AAS users had discontinued their AAS use, and their experience of hypogonadism. The abrupt cessation of AAS, rather than a tapering of use, has previously been recognized as leading to the development of abnormally low blood levels of free testosterone, and estradiol, (Taylor and Black, 1987). This should be considered alongside AAS' ability to impair endogenous testosterone production by 50% even at 50mg (TE) compared to a control group (Matsumo, 1990). Duration of ASIH is more complex to describe (Coward et al., 2013), with disruption of normal hormonal functioning having been cited as lasting from as little as 13-24 weeks (Christou et al, 2017). However, cases of ASIH have also been described as lasting between 16-52 weeks (Clerico et al., 1981; Ruokonen, 1985), more than a year (Kanayama et al, 2008, p. 5), 12-36 months (Jarrow and Lipshultz, 1990), and up to 26 months (Clerico et al., 1981; Kanayama et al., 2015; Ruokonen et al., 1985). The consensus appears to be that with significant duration and dose of AAS use, hypogonadism can last indefinitely (Tan and Sally, 2009), with some men never recovering from ASIH (Urhausen et al., 2003).

Boregowda et al. (2011) highlighted a case of significant concern where prolonged testicular atrophy due to ASIH resulted in testicular failure and a subsequent diagnosis of primary hypogonadism. A 40-year-old male had presented in the UK for treatment of erectile dysfunction and low libido, following ten years of nandrolone, testosterone, and growth hormone use. The man in question was finally diagnosed with primary hypogonadism 30 months after discontinuation of AAS. The authors hypothesize prolonged 'testicular volume reduction' due to AAS use had caused secondary hypogonadism to translate into a state of primary hypogonadism, highlighting that *"the side effects of anabolic steroids can be prolonged and irreversible"* Boregowada (2011: 8). Those who have used AAS for over a year, or for several cycles, are likely to return to a baseline of testosterone that is lower than before they commenced AAS (Tan and Scally, 2009; Coward et al., 20013), reflecting a potential permanence of the damaging effects of AAS use from only a short exposure. Some younger men *"may have a more elastic axis"* Rahenema (2014: 1273) capable of recovering testosterone more rapidly and more completely than amongst older users. Coward et al. (2013) highlight research into ASIH being limited in comparison to hypogonadism in sexual medicine and a reason for the paucity in literature regarding the role hypogonadism may play in the recommencement of AAS practices in continuous and problematic patterns.

2.15.xii Health effects of ASIH on AAS users and treatment availability

Symptoms of ASIH may become magnified once AAS use is discontinued and there is no artificial testosterone circulating within a user's system (Kanayama et al., 2015). AAS users have been cited as fearing loss of muscle on exit from AAS use because of hypogonadism (Moss et al., 2013; Cohen et al., 2007a). There is an association between ASIH and changes in body composition, including loss of muscle and strength, increases in fat mass and increases in CVD risk (Tan and Scally, 2008: 2).

Associated cases of ASIH and azoospermia (impaired spermatogenesis) have been seen to last for extended periods (Knuth et al, 1989; Jarrow and Lipshultz, 1990; Gazvani et al., 1997), leading some

users to express regret at their use of AAS, blaming lack of awareness of fertility risk upon initiation (Kovac et al., 2015).

Other symptoms observed amongst men who have discontinued AAS use include loss of libido and sleep disorders (Pope and Katz, 1994; Brower et al., 1989). Gynecomastia (painful enlargement of male breast tissue) is also believed to be a direct consequence of ASIH, as well as arising from the use of the drug Human Chorionic Gonadotropin (HCG) in attempts to restore testosterone to extremely high levels, the consequence of which can be to increase conversion of testosterone to estrogen (Rahenema et al., 2014). Depression is another likely consequence of ASIH, which may become severe (Pope and Katz, 1994), leading to suicide attempts, and even completed suicide (Thiblin et al, 2000; Brower et al., 1989; Pope et al, 2016). Low testosterone levels in males are also associated with loss of bone mass, increased cardiovascular risk, sexual dysfunction, decreased cognitive abilities (memory and concentration), sleep disturbances and general fatigue (Nieschlag et al., 1998). Low levels of endogenous testosterone have consistently been hypothesised as playing a causative role in the development of metabolic syndrome (including elevated levels of visceral fat, glucose intolerance, high blood pressure, elevated triglycerides, low levels of high-density lipoprotein cholesterol) and cardiovascular disease (Mancini et al., 2014). Low testosterone may also be associated with reduced cognitive functioning in otherwise healthy older men (Beauchet, 2006). Upon experience of hypogonadism, cognitive structural changes are likely to impair positive behavioural adaption required during periods of change (Wallin and Wood, 2015).

Experience of hypogonadism following AAS discontinuation is hypothesized as leading to a “*vicious cycle of dependence*” Pope et al. (2016: 2), though Pope draws attention to the fact that “*few clinicians are familiar with treating AAS induced hypogonadism, and clinicians often take an approach of simply advising users to stop these drugs*” (Pope et al, 2016: 2). Despite inclusion of the negative consequences of AAS induced hypogonadism in his works these are not seen in isolation,

rather part of a wider model of AAS dependence in which, AAS users' motives for initiation and continuation of AAS as emanating from their crisis in masculinity and body image disorders.

In the UK, guidance for general practitioners (GP's) in relation to the impact of AAS use includes reference to AAS's ability to suppress the hypothalamic-pituitary-gonadal axis due to negative feedback, and that it may take weeks, or months (sometimes longer) for the axis to recover. The GP Notebook suggests symptoms of hypogonadism that patients are likely to experience will include *"low libido, erectile dysfunction, and low vitality until the axis recovers"* and that *"although no randomized trials exist, anecdotal reports suggest that use of clomiphene citrate may hasten the recovery of the gonadal axis"* (GP Notebook, 2020; Basaria, 2010). The ability for GPs to prescribe drugs commonly used in fertility clinics to promote recovery of testosterone production and spermatogenesis (such as HCG) is limited as these are not licensed for the treatment of ASIH in the UK. The GP notebook does contain guidance in relation to the diagnosis and treatment of hypogonadism with guidance on prescription of testosterone replacement therapy (TRT), however this information appears to be framed more in line with primary hypogonadism or age-related TD decline (late-onset hypogonadism), than as a supportive therapy for men who have impaired their own testosterone because of AAS use.

A UK policy statement by Hackett et al. (2016: 2) defines testosterone deficiency as *"a well-established significant medical condition with the potential to result in significant alterations in the quality of life and adversely affect the function of multiple organ systems"*. Testosterone replacement therapy (TRT) is seen to be effective, rational, and evidenced based treatment for hypogonadal males, treatment should not be withheld from men due to their age and does not result in increased cardiovascular or cancer-based risk factors (Hackett et al, 2016; Morgentaler et al, 2016). Reports of TRT being used to successfully improve hypogonadal issues such as diminished libido and erectile dysfunction, and to improve strength and physical function have been observed (Shabsigh, 2003: Page et al, 2011). A time, trend analysis of TRT prescribing in the USA between 2001

and 2011, identified a threefold increase in cases of age-related male hypogonadism for which testosterone treatments were prescribed (Baillargeon, 2013). The substantial increase in men presenting for TRT prescriptions is not surprising given that pharmaceutical companies spent more than \$100 million to promote treatments for low testosterone in 2012, with gross U.S. sales of TRT topping \$2.2 billion (Csatari, 2014).

A comparison study of TRT prescribing between the US and UK highlight significant international differences (Layton et al 2014). In general men tested for hypogonadism in the US were younger, with higher co-morbidities than those in the UK. Testing for hypogonadism following self-reported fatigue was also far higher in the US than the UK. During the review timeline around 10% of men in the UK deemed to have low testosterone (following testing for hypogonadism) started a course of TRT medication, a figure which remained constant from 2001-2011. However, in the US, this rate increased from 36%- 43% from 2007-2011, highlighting significant differences in the likelihood of gaining access to TRT treatment for men diagnosed with hypogonadism between the US and UK (Layton et al, 2014). Only 1% of men with normal or high levels of testosterone started TRT treatment in the UK, whereas this figure increased from 4% to 9% in the US. Overall, the rate of TRT prescribing in the US has risen dramatically from *“20.2/10, 000 Per Year to 75.7/10, 000 Per Year from 2000 to 2011). In the United Kingdom, baseline initiation rates were profoundly lower, and the increase was more modest (ranging from 3.4/10, 000 Per Year to 4.5/10, 000 Per Year”* (Layton et al., 2014: 835). Men who are unable to restore their testosterone production to a level where they feel well may therefore face challenges accessing TRT in the UK.

2.15.xiii How bodybuilders navigate AAS cessation and the phenomenon of ASIH

Lack of clear diagnosis and treatment protocols for ASIH may explain why men who are experiencing negative symptoms associated with ASIH often fail to seek help from their GP. Treatment protocols for the management of ASIH are available mainly within published literature from the U.S. (Scally,

2008; Rahnehan et al., 2014), as well as in a number of 'how to' guides to AAS use in publications available since the mid- 1980's (Duchaine,1989; Llewellyn, 2017).

There is a general paucity in data regarding how men plan for and navigate ASIH. In the most illuminating study into AAS practices, Australian bodybuilders disclosed a high level of anxiety as they approached the end of their AAS cycle (Griffiths et al., 2017). AAS users have previously been cited as fearing loss of muscle on exit from AAS use because of hypogonadism (Cohen et al., 2007a ; Moss et al., 2013) though further details of strategies used to combat these fears are not widely available. Increases in muscle mass and associated psychological benefits are claimed to uniquely contribute to AAS user satisfaction and the intention to continue to use AAS in the future (Hildebrand et al., 2006).

In his ethnography of amateur AAS users in the U.S., Goldstein (1990) reported use of large doses of AAS leading to a depression of users' natural hormone production, and a desire to correct this as quickly as possible once AAS use ends. The use of human chorionic gonadotropin (HCG) and Clomid at the end of AAS cycles in attempts to restore testosterone functioning were commonplace to combat the sense of feeling "*sluggish*" (Goldstein, 1990: 91) during the length of time it took users' hormone levels to return to normal levels naturally. The process of 'unbecoming a fitness doper' and ceasing use of AAS may fragment a person's whole body and lifestyle project leading to a fragmented sense of identity and a loss of belonging to the sub-culture they once found so rewarding (Andreasson and Johansson, 2019). During scheduled off-cycle periods, AAS users typically engage in various post cycle therapy (PCT) regimes to combat ASIH, with the goals of maintaining muscle and supporting wellbeing and mental health (Griffiths et al., 2017). PCT drugs have been suggested to help maintain gains in muscle developed whilst on cycle, as well as helping maintain positive mental health following cessation of AAS use. Accounts have been provided by bodybuilders of extending their AAS cycles due to the lack of availability of PCT compounds, despite awareness this would impact further on their HPTA (Griffiths et al., 2017). PCT regimes include compounds that are prescription medicines which in the UK are not available over the counter

(OTC). PCT regimes listed on the Public Health Wales website include (but are not restricted to) the use of three base compounds (Public Health Wales, 2020). These include:

- Clomiphene citrate (Clomid) to stimulate the hypothalamus to produce Gonadotropin Releasing Hormone (GnRH),
- Human Chorionic Gonadotropin (HCG) to shock the testicles into action (increasing testicular mass)
- Tamoxifen Citrate (Nolvadex) to block negative feedback from too much estrogen

PCT drugs have been used to combat the effects of AAS in inhibiting endogenous testosterone production since at least the late 1980's. According to Brower, HCG is considered the most favorable compounds (Brower, 1997) in combating HPTA disruption (resulting from AAS use), due to its effects of stimulating the testis to produce testosterone. Brower claims that *"a doubling of serum testosterone levels can be achieved in response to a single dose of 50iu per kilogram at 3-4 days after HCG administration"* (Brower, 1997: 293). Further benefits were hypothesized by Brower as resulting from the use of clomiphene citrate (Clomid) and tamoxifen to combat the estrogenic effects of AAS such as gynecomastia. Clomiphene citrate is also of benefit in suppressing the effects of high estrogen in shutting down testosterone production via the ENFL. Effective dosages of Clomid range from 50mg twice daily for 10 to 14 days. Long ester testosterones typically used by bodybuilders require them to leave three to four weeks post discontinuation of AAS until commencing use of HCG to restore testicular functioning (Public Health Wales, 2020).

The use of PCT drugs to restore natural testosterone production and reduce side effects associated with impaired HPTA functioning (Hope et al, 2013; Scally, 2008) may also carry risk of impairing endocrine functioning further when used incorrectly for extensive periods (Karila et al., 2005). As with AAS, PCT compounds are usually illicitly manufactured (Evans-Brown et al, 2012). Use of HCG (a common component of PCT cycles) has been noted amongst UK bodybuilders in several studies (Bolding et al, 2002; Hope et al, 2013; Lenehan, 1996; Monaghan, 1999b), though there have been

no specific in-depth inquiries into the precise format of their use by UK bodybuilders following discontinuation of AAS.

An exploration of online AAS forums and internet webpages by Karvalos et al. (2014) found extensive information regarding the use of PCT medications to combat hypogonadism following AAS use. Amongst interventions discussed in forums to protect HPTA functioning was the cycling of AAS for periods of 6-12 weeks, with varying periods of non-use, and use of a range of nonandrogenic medications (including HCG, SERMS or AI's) for post-cycle therapy. HCG was discussed by forum participants as being used in both the 'on cycle' to maintain testicular size and avoid primary hypogonadism, as well as being used in the off cycle to prompt testosterone production. Multiple strategies for all PCT drugs were discussed, though HCG tended to be used for far shorter periods, compared to SERMS, and AIs.

Most recently, the UK IPED survey highlighted 34% of respondents had used HCG, 51% tamoxifen citrate (Nolvadex), and 34% had used clomiphene citrate (Clomid) in the last year. Despite a relatively small sample size (circa n=600) within the study, the findings illustrate the use of these drugs by bodybuilders as relatively common practice (Bates and McVeigh, 2016).

2.15.xiv Potential impact of ASIH on the rewards of working out

Keane (2003) has previously highlighted the possibility that rather than AAS having psychoactive properties which are able to produce a high, their use accompanies intense physical training, and that an ability to work-out with greater intensity (because of the effects of AAS) could itself have a rewarding effect via noradrenergic pathways. In effect, Keane suggested "*the activity (intense exercise) is the addictive substance, and the substance (AAS) is the substance-related activity*" (Keane, 2003: 551). Given this context it may be hypothesised that absence of AAS impairs men's ability to engage in bodybuilding workouts in a constructive and rewarding way, previously described as the 'erotics of the gym' (Mansfield and McGinn 1993), which may be a potential factor in re-commencement of AAS use. These narratives are extended by outlining the pleasures

experienced during anaerobic workouts whilst using AAS. Monaghan draws on a quote from Arnold Schwarzenegger recounting his pleasure at experiencing a 'pump' during a workout. This results from increases in lactic acid during anaerobic glycolysis, a by-product of lifting heavy weights to failure, which the bodybuilding legend compares to sex: *"It's as satisfying as coming is, you know, as having sex with a woman and coming, so you can imagine how much I am in heaven"* Wacquant (1995: 176). Participant accounts of *"learning to enjoy these sensations"* (Monaghan, 2001b: 345) during AAS use reflect the social construction of pleasure and reward within different spatial and social boundaries (Becker, 1963). Time spent working out was described as distancing men from the anxieties of their other world problems and providing a means by which to overcome goals via the completion of a challenging workout, reflecting a mastery of themselves and their bodies. These narratives have been expressed previously as the training-AAS use link which becomes a centrally rewarding and meaningful aspect of body sculptors' lives (Goldstein, 1990; Maycock, 2000). Similarities were drawn by participants in Monaghan's study between working out and the high of drugs, with the pleasure of working out even surpassing the effects of drugs, although a clear distinction was made between bodybuilding as a constructive addiction to working out, rather than a destructive process of addiction to drugs (Monaghan, 2001b). Given the ability of ASIH to cause loss of muscle and strength, it seems increasingly relevant to consider how experience of ASIH impacts on men's ability to gain rewards from their bodybuilding endeavors in the absence of AAS use.

2.15.xv Summary of critique of ASIH

It appears that the phenomenon of ASIH is likely to play a potential role in motivating men looking to develop a muscular physique to return to AAS use to combat issues such as loss of muscle size, strength, and changes in mood once AAS are discontinued. Although this theory has been hypothesised previously as part of a pathologizing account of AAS dependence (Kanayama et al, 2015) including assumptions that AAS users are psychologically disordered and addicted to AAS following the drugs' abilities to modify brain rewards pathways, less focus has been afforded

towards how ASIH might interrupt the construction of men's variable and highly rewarding body projects outside of these deficit driven models of appraisal.

2.16 Third Framework: AAS users as 'Body Sculptors'

A smaller number of studies have looked to critique the use of AAS from a less pathologizing viewpoint. These inquiries investigate not only the harms of AAS use, but also the varied meanings and rewards body sculptors assign to their use in construction of their "*varied body projects*" Keane (2005: 200). Amongst seminal works investigating the social lives of UK male AAS users are the ethnographies of Lee Monaghan (1999a; 1999b, 2001a, 2001b, 2002). Within his corpus of work Monaghan looks through participant observation towards various vocabularies of motive for illicit steroid use amongst bodybuilders (Monaghan, 2002) amongst men in four South Wales gymnasiums. The gym culture is viewed from a Foucauldian perspective, where various "*practices*", and "*technologies of the self*" are exercised by normalised subjects "*in pursuit of self-improvement, happiness and healthiness*" (Monaghan, 2001b: 332). Monaghan highlights how for those inculcated into bodybuilding sub-culture (as opposed to mainstream gym users), AAS use was a "*situationally appropriate and relatively innocuous practice for dedicated muscle enthusiasts*" aligned to a goal of "*self-fulfilment*" (Monaghan, 2002: 696) and a legitimate way to achieve this goal.

Whilst participants in Monaghan's studies largely disregarded any psychoactive effects from AAS use, there was a recognition that bodybuilders "*derive aesthetic pleasure from their own and other members' body modification practices*" (Monaghan, 2002: 700) which when combined with AAS use contributes towards the experience of bodily pleasures associated with intense weight lifting (Monaghan, 2001a). The bodybuilder identity is embroiled in a series of "*ascetic regimes, which characterise the everyday life world of bodybuilding*" (Monaghan, 2001: 43), resulting from an "*ethno-physiological appreciation of excessive muscularity*" (Monaghan, 2001: 74). Gym members

rejected condemnation of their drug use, denying injury to society from their sub-cultural practices which justified continuation of their AAS use (Monaghan, 2001b).

Narratives of minimizing harm to themselves via the use of ethnopharmacological parameters, such as cycling drug use to ensure periods of abstinence, were evidenced by an often-quick return of testicular functioning post cessation of AAS. These ethnographies of "*body sculptors*" (Monaghan, 2001a, p.19) reflect a broad range of ethnopharmacological practices involving both AAS and other ancillary compounds. The men report being fully cognisant of the benefits and risks of their AAS use, largely feeling that they hold greater pharmacological knowledge of AAS effects than that of medical professionals. Often study participants perceived their drug use as "*similar to risk taking amongst others adopting active lifestyles; offers the possibility of gains as well as losses*" (Monaghan, 1999: 727). The boundaries regarding AAS users' justifications for their drug use are situationally contingent, subject to both "*strategic vagueness and tactical improvisation*" (Monaghan, 2000: 14).

In a critique of medical sociology regarding health, Monaghan (2001b) challenges the continued focus on disease and illness in much of the literature, noting the lack of medical investigation into positive experiences of health and wellbeing. Monaghan also rejects the dualities of health and illness, highlighting that "*the concrete corporeal manifestations of health in everyday life- components of and pre-conditions for embodied social practices- may, paradoxically, erode bodily capital while simultaneously contributing to it*" (Monaghan, 2001b: 331). What Monaghan means here, is that whilst taking AAS can be detrimental to the health of bodybuilders, the social practice of building a pleasing and rewarding body may at the same time contribute to improving the overall wellness state of the individual. AAS using muscle enthusiasts described being able to derive "*sensual pleasures from their vibrant physicality*" (Monaghan, 2001b: 331), and how being "*embroiled in the positive moment of bodybuilding*" (Monaghan, 2001b, p.331) can be beneficial for mental, physical, and social health. Working out and taking AAS was perceived by study participants as a 'healthy lifestyle' compared to previous behaviours of drinking alcohol whilst sitting in front of

the TV and being relatively sedentary. The external corporal form and its 'healthy appearance' were seen by study participants as a priority over their internal health, particularly during contest times when the physique would be judged by others against "*ethno-physiological or subcultural aesthetic criteria*" (Monaghan, 2001b: 337). An interesting analysis of existing dualities between the health of the inner and outer body, draws on accounts from AAS users' perceptions of looking good on the outside, leading to them feeling good, which may then have a positive physiological effect: "*looking good, feeling good*" (Monaghan, 2001b: 330). AAS users also discussed the potential of AAS use and bodybuilding to slow and challenge the linear decline of the body experienced with age, noting the sub-cultural appreciation of 'mature muscle' developed over time.

In a study of 2000 U.S. AAS users, the bodybuilding sub-culture was seen to offer a spatially contingent arena within which men positively discussed their collective goal-driven behaviours orientated towards the desire to increase *strength and muscularity*. Study participants reported setting themselves '*high goals*' with many identifying as '*perfectionists*' that generally viewed life '*as a competition*' (Cohen et al, 2007: 5). The study claimed that AAS users "*have an idea of how they wish to appear, and as a 'goal directed group' adopted a structured non-medical anabolic androgenic steroid users (NMAAS) regimen, along with diet, exercise and other components to attain a desired physique or outcome*" (Cohen et al, 2007: 10). The study found that continued use of AAS was motivated by (in weighted order) loss of muscle mass, loss of strength, decreased attractiveness, and decreased physical ability, with nearly 70% of the 2000 participants in the study considering loss of access to AAS a troubling issue for them. Virtually all respondents in the study (98.8%) denied continuing using AAS for their euphoria-inducing effects. An important distinction was made by the authors of the study to show that whilst study participants' motivations for AAS use reflected a desire to improve their physiques, this did not necessarily mean their AAS use was driven by body image disorder (Cohen et al, 2007a: 10). Despite a recognition amongst respondents in the sample of the negative effects they wished to avoid when AAS use ceased, these were not as important as the

positive re-enforces of AAS use of anticipated gains which were sighted more frequently (Cohen et al, 2007a: 10).

A study of Australian bodybuilders showed how development of social capital provided access to AAS materials which eventually resulted in a reported drug use-training link where AAS became central to study participants lives (Maycock, 2000). Immersion in a bodybuilding lifestyle reportedly provided new social networks (predominantly AAS purveyors and other AAS users) which facilitated a transition into drug using practices. Bodybuilders mediated internal conflicts regarding their AAS use through developing new social networks occupied by AAS using peers. Continued use of AAS was strongly re-enforced by peer networks as has been previously noted (Goldstein, 1990), and the rewarding effects of AAS on their body. On cessation of AAS use, the men reported a sense of loss, and pressure from peers to return to drug use, leading some to remove themselves from peer groups inhabited by other AAS users. Fears of returning to how they looked previously also motivated men to continue using AAS. Most men in the study also intended to return to AAS use in the future to counteract the effects of aging and as part of self-prescribed hormone replacement therapy (Maycock, 2000).

Participant observation of Australian AAS users in four bodybuilding gymnasiums revealed the relational nature of AAS using practices within sub-cultural groups. Once gym members commenced AAS use they became part of an *"in-crowd"* (Maycock and Howatt, 2007: 859), entering a quasi-educational domain where they were *"taught how to train, walk, speak and eat properly"* (Maycock and Howat, 2007: 859) by other more experienced group members. Groups of AAS users were seen to have *"rules of entry and a hierarchy"* (Maycock and Howatt, 2007: .859) which meant new members were required to become known to other members (reflecting the value of both social and symbolic capitals) and verified through their practices as part of their outsider to insider transition and acceptance into the new group. More experienced gym members administered AAS injections to novice users, strengthening social bonds. Increases in muscle size and strength facilitated

symbolical capital from co-trainers, further strengthening the social bonds of the group as well as providing access to employment opportunities in security work. Despite the experiences of harms encountered by new AAS users, they defended those supplying them with AAS, revealing a sense of belonging and loyalty to their sub-cultural peers. The study reveals that social capital may not always bring about positive outcomes in health and wellbeing.

Whilst proponents of the pathologizing view of AAS users Kanayama (2009a) continue to call for greater legal and medical control over AAS due to their capacity to mediate brain reward pathways and lead to a dependence syndrome, Monaghan (2009) returned to outlining the flaws in applying a purely 'clinical gaze' to AAS use. The flaws include attempting to extrapolate findings of AAS addiction from rat studies to humans and using isolated case examples of psychopathology to make sweeping generalisations about bodybuilders to justify development of diagnostic criteria for AAS dependence and medical treatments to cure the psychologically and medically disordered user. Monaghan (2009) calls for greater attention to be given to the "*symbolically mediated interpretations*" (Monaghan, 2009: 1979) of bodybuilders as the largest user group of these substances. He highlights the need to "*connect with users' meanings and practices, rather than be willing to label them as disordered*" (Monaghan, 2009: 1979), if advances are to be made in developing approaches to harm reduction which are practically relevant within the sub-cultures where these practices take place. Monaghan references the value of approaches such as his previous ethnography in revealing that AAS users "*develop ways of life that may be considered normal, meaningful and reasonable once one gets close to them*" (Monaghan, 2009: 1979) including culturally appropriated controls on drug use by self-described "*competent risk assessors and managers*" (Monaghan, 2009: 1979). In a proposal I draw upon in this research project, Monaghan suggests that "*biological and social explanations (for AAS use) need not be antagonistic*" (Monaghan, 2009: 1979), but in contrast may work to construct a fuller account of AAS use.

In a study of UK AAS users, participants' motivations for use were described as wishing to get "*a better-looking body*" (Kimergard, 2015: 289), often to compensate for dissatisfaction of other body parts including hair loss. A balanced view was provided in respect of motivations to use AAS being either highly personal or motivated by the desire to achieve a better body (Kimergard, 2015: 290). Participants discussed the positive impacts AAS use, and bodybuilding had on their lives by replacing former problems such as obesity, back pain, and depression and displacing previously negative behaviours such as recreational drug use, including cannabis smoking. Positive accounts surrounded general enjoyment whilst at the gym training which they would miss on non-training days, and a fear of returning to "*the kind of health and body shape I had before*" (Kimergard, 2015: 292). A consensus amongst most participants surrounded their belief that "*very few people suffer any serious side effects, if any at all*" (Kimergard, 2015: 292) from AAS use.

In their UK study of 24 AAS users, Richardson et al (2019) note that the current ease in accessing AAS via a wide range of sources including the dark web means men are able to achieve 'superhero status' where their bodies are concerned within a short time frame, providing them with a high degree of symbolic status (Richardson et al, 2019). Whilst the study may be considered pathologizing in its references to the risk of addictive behaviors where AAS use links to issues such as body dysmorphia and muscle dysmorphia, the accounts of AAS use by non-athletes driven by '*social competition*' with fellow gym members for muscle size is insightful in revealing the contextually situated motivations for AAS use which are spatially located within the gymnasium (Richardson et al, 2019, p.29). The study also notes that despite instant access to AAS, many lack the pharmacological awareness and experience to understand the implications of their AAS over the long term. These issues may be compounded by what has been described as a code of silence when it comes to discussing their AAS use. The study highlights the need for further research into users' experiences and their desire to "*attain social and physical capital*" (Richardson et al, 2019, p.29).

2.16.i Reflections on the progress of investigations within the body sculptor framework

Six years on from my initial reading of the works of Keane (2002; 2003; 2005) and her feminist critique of the limitations in viewing AAS users through “*a rhetoric of masculine decline and cultural victimhood*” (Keane, 2005: 203), and examples of alternative approaches beyond the pathologizing lens of clinical medicine (Monaghan 1999a; 1999b; 2001a; 2001b; 2002; 2009), it appears there has been little shift in the weight of research investigations into AAS use. In a UK analysis of the literature published on AAS investigations since 2005, Moore et al (2019) conclude that “*the discursive constitution of the male steroid user*” (Keane, 2005: 1) as ‘illicit drug user’, or ‘body image disordered’ continues to pervade throughout many studies (Halkitis et al., 2008; Walker and Joubet, 2011; Melki et al., 2015; Fabris et al., 2018). One study mentioned previously (Jenssen and Johannessen, 2015) even manages to include both frameworks into their research findings which see men start using AAS because of body insecurities, as well as them going on to become addicted to AAS due to modifications in brain reward pathways following extended periods of use.

Positively, several studies are seen as furthering previous work undertaken by Monaghan, including accounts of decisions to use AAS as being made “*on the basis of careful research*” to “*gain muscle mass*” (Grogan et al, 2006: 849), as well as being driven by a craving to “*get ripped*” or “*feeling strong*”, which had a profoundly positive impact on users’ psyche, leading to them feeling “*like Superman*” (Petrocelli et al, 2008: 1194). A further study notes that AAS use may have positive as well as negative drivers (Kimergård and McVeigh, 2014: 3).

Several studies have been challenged for being driven by a desire to investigate only the harms of AAS use, rather than developing an approach which also facilitates insight into the rewards and self-fulfilment that men associate with the construction of their body projects (Moore et al, 2019). That review concludes that, in the 20 years since Monaghan’s ethnographies on the varied practices and meanings of AAS use, “*much still remains to be learned*” particularly regarding the rationales body sculptors use to justify their use of AAS individually and collectively and the strategies they employ to navigate the harms encountered because of these practices (Moore et al., 2019: 15). A broader

understanding of the subjective meanings behind AAS use and the settings in which these narratives are contextualised is proposed to inform the design of “more credible and engaging policy responses” (Moore et al, 2019: 15) to support the health of AAS users.

2.16.ii Conclusion to literature review: Locating this study in the ‘body sculptors’ framework

This concludes the review of the background context regarding AAS hormones and the frameworks through which AAS users are perceived within research inquiries in existing literature. It is clear from the review that the discourse regarding AAS use is dominated by clinical medicine which pathologizes users of AAS as clinically disordered and addicted to AAS compounds due to their psychoactive effects. However, given the salience of research inquiries which look at both reward and consequences of health behaviour bridging the “*dichotomy of health, or disorder*” (Keane, 2005, p. 201), I decided to firmly locate this research inquiry in what I uniquely described as the *body sculptors’* framework. This framework includes a very limited and time specific set of research inquiries that have taken a more appreciative view of the rewards and meanings behind men’s’ AAS use which moves away from the disorder described in the body image and illicit drug user frameworks. This thesis has sought to understand a range of vocabularies from body sculptors with an ‘ethno-physiological appreciation of muscularity’ (Monaghan, 2001: 74), focusing on the rewards appropriated from construction of men’s variable body projects, the harms they experience from AAS, and how these harms are navigated via the use of ethnopharmacology within the context of the bodybuilding cosmos. This approach builds on previous reflections that as a goal-orientated group of body sculptors the desire to improve one physique does not necessarily have to emanate from a disorder psychopathology (Cohen et al, 2007a, p.10).

The dysphoric symptoms of ASIHS are reported to be magnified once AAS use is discontinued at the end of a AAS cycle (Tan and Scally, 2009), leaving body sculptors with a reduced ability to engage productively in their bodybuilding workouts (Goldstein, 1990). As a result, I wanted to specifically

understand within this study how AAS users navigate this junction in their AAS cycles, the impact of ASIH on their ability to engage rewardingly in construction of their variable body projects, and how experiences (including those of help seeking), might contribute towards decisions amongst body sculptors to enter into continuous and problematic patterns of AAS use. The decision to focus on both the rewards of AAS use and the deleterious effects of ASIH may appear somewhat 'clinical', and in contradiction to the sociological nature of the study at first consideration. I propose that applying focus to participants' experiences of the phenomenon of ASIH does not place this study into the pathologizing and discursive frameworks of *illicit drug use* or *body image disorder* already highlighted in the review. Indeed, it has been noted that there is no reason for the fields of biology and social research to be antagonistic in investigations surrounding AAS use (Monaghan, 2009,1980). The two together can offer a broader view of AAS users' narratives of rewards, as well as the various ethnopharmacological practices utilised to ameliorate AAS associated harms in a well-recognised public health approach to understand the multifactorial nature of health and illness.

2.17 Developing a conceptual lens to investigate body sculptors' AAS using practices.

In constructing this research into men's variable body projects within the spatially contingent boundaries of the bodybuilding gymnasium, my reading was orientated towards the works of Marcel Mauss (1973 [1935]), Pierre Bourdieu (2009 [1977];2004) and Loic Wacquant (1995;2004) as seminal texts in the sociology of the body. These texts are now summarised to form their contribution to my decision to utilise Pierre Bourdieu's *Theory of Practice* (2009 [1997]) as the conceptual lens for this study and to develop the concept of *muscle capital* as a means by which to understand the spatially contingent goal of body sculptor immersion into AAS use and the rewards these practices provided to men within this study. This approach helped me move away from the dominant discourse of addiction and disorder which pervades the literature on mens use of AAS currently and offers a unique contribution to knowledge in this study.

-Wacquant (2004) Body and Soul: Notebook of an apprentice boxer

One of my personal texts that I have read several times prior to engaging in this study is the wonderfully graphic account from the French sociologist Loic Wacquant (2004) of his time learning the pugilistic art within the Woodlawn boys boxing club situated in Chicago's predominantly Black neighbourhood. The study utilises many of the concepts of Bourdieu's *Theory of Practice* (2009 [1977]) to help illuminate the paradox of "*an ultra-individual sport, whose apprenticeship is quintessentially collective*" (Wacquant, 2004: 100) and highly dependent upon reciprocity and collective agreements on the level of violence which will be employed during physical drills in workouts with fellow gym members.

The boxing gymnasium is revealed as a highly ritualised, complex, and hierarchical structure, "*something of a temple*" (Wacquant, 2004: 35), an arena where a member is invited to "*discover himself, better yet to produce himself*" via bodily routines which are "*monastic, even penitential in character*" (Wacquant, 2004: 15). Boxing training offers the reward of acceptance into a virile membership which provides an escape from the banality of everyday life for the men who make it their business to learn the craft of pugilism. Wacquant draws on Mauss (1973 [1934]) in his description of the various training techniques of the body exercised in a series of physical drills which take place in the "*least known and least spectacular side; the drab and obsessive routine of the workout*" (Wacquant, 2004: 6). Within the workouts, however, the men in the gym receive "*a host of small pleasures*" at the transformation and comprehension of one's body as the pugilistic tool, aligned to the discipline of "*a skilled, if repetitive manual craft*" (Mauss, 1973 [1935]: 68-69). Wacquant draws on Bourdieu's (2009 [1977]) concepts of habitus within his analysis of the process by which the pugilist engages in pedagogical work to "*internalize a set of dispositions that are intemperately mental and physical*" (Wacquant, 2004: 95) via a process which is pre-reflexive and instinctive, allowing techniques of the body to become "*inscribed within one's bodily schema*" (p.69). The training routines of boxers have a "*communal tempo*", a rhythm, based on a respect for the pugilistic art and its heritage that one must maintain through "*doxic adhesion*" to the rules of the

gym (Wacquant, 2004: 124), to capitalise on one's body as a form of currency and eventually make it profitable as bodily capital.

The 'bodily capital' of a boxer is a commodity, a form of cultural capital, which is symbolically at risk every time he trains, should a novice mistake reveal his lack of mastery of both technique and temporality entwined within the doxa of the gym. Bodily capital, when deployed appropriately, ensures profitability, highlighting its ability to be exchanged for other capitals which may be cultural, symbolic, or economic. However, this body capital must be used sparingly, with temporality, if it is to continue to remain a site via which one receives pleasure, a sense of meaning, and reward: "*one must use one's body without using it up*" (Wacquant, 2004: 130).

Practical acquisition and embodiment of training techniques, as well as adherence to scheduled rest and dietary regimes of the pugilist, enables bodily capital to 'fructify' (Wacquant, 2004: 128) in the rewards it provides. Gym members invest themselves in a range of temporal practices: rising early, training hard, eating well, sleeping early, and avoiding the potentially derailing lure of women and drink. The practical acquisition of the pugilistic habitus is seen as a product of the encounter with the very field that produced it, both corporeal and mental. The boxer learns ways of moving, body position, posture, ways of thinking, evaluating, and comprehending the social world which are embodied as practical reason, transmitted via a process of "*collective learning by doing*" (Wacquant, 2004: 123). Adherence to the "*temporal nature of training*" (Wacquant, 2004: 86) reflects "*a practical mastery of time*" (Wacquant, 2004: 143) enabling a novice boxer to "*hoard corporeal energy*" (Wacquant, 2004, p.142) in "*a skilled management of bodily capital*" (Wacquant, 2004: 145). This can be deployed in the desire to attain success in the ring, a sense of purpose in life, and a reality that is both logical and at the same time meaningful and rewarding.

Wacquant's ethnography and use of participant observation helped him construct a rich account of the spatially contingent practices of boxers including hours spent in the gymnasium as a boxer himself, "*undergoing a practical initiation into it, in real time and space*" (Wacquant, 2004: 51). I decided to utilise a similar approach to Wacquant within this study by placing myself within the body

building gymnasium via the use of a participant observation method to understand how bodybuilders interact with each other and the effects these encounters have upon men's decision making regarding AAS use. My motivation here was to identify the nuances of AAS using practices which may offer a different view to those which perceive men's use of AAS emanating from only disorder or addiction.

-Mauss (1973 [1935]) Techniques of the body

In his seminal work *techniques of the body* (1973 [1935]) Mauss also provides an ethnography of the body, revealing the ways in which "from society to society, men know how to use their bodies" (Mauss 1973 [1935]: 70) leading them to adopt various specialist bodily techniques. Mauss describes the transmission of *habits* of movement using the French term *habitus*, to reflect the embodiment of an ensemble of techniques and practical efficiencies in movement that are not so much individual as societal in their making, consisting of biology, psychology and sociology, producing what Mauss terms a "*total man*" (1973 [1935]: 73). In learning various body techniques Mauss suggests that "*individuals borrow from a series of movements which constitute it from the action executed in front of him or with him by others*" (Mauss 1973[1935]: 73). Mauss describes how manual techniques require a familiarity with certain instruments, which if unavailable and replaced with a different instrument can become impossible to use, reflecting that often a technique or "*a manual knack, can only be learned slowly*" (Mauss,1973 [1935], p.71). The most important aspect of technique for Mauss is tradition, which above all distinguishes men from the animals. The human body is seen as *man's first and most natural instrument*, which is deployed into effective practice via "*the constant adaption to a physical, mechanical or chemical aim in a series of assembled actions, and assembled for the individual, not by himself alone, but by all his education, by the whole society to which he belongs*" (Mauss 1973[1935], pp. 75-76). Once seen in practice, those who know the tradition of a technique and have respected its study can be conceived as "*those who know what they are up to*" (Mauss, 1973 [1935], p.78) as they have mastered certain practices to ensure

maximum efficiency of bodily input, providing maximum rewards from their bodily investments. This account from Mauss (1973[1935]) re-enforced my interest in locating this research inquiry within the bodybuilding gymnasium to gain an understanding of mens body goals, their bodily inputs(via weight training techniques and AAS use) and the subjective rewards they gained in the investment of their bodies in this manner.

-Bourdieu (2009 [1977]; 2007) 'Outline of a Theory of Practice' and 'Masculine Domination'

As the theoretical lens for Wacquant's study and the sociological framework from which the notion of *bodily capital* emanates, the texts of Pierre Bourdieu (2009 [1977]) became my next focus to understand the role of the body in the social world. Bourdieu uses the term *body hexis* in his work *Masculine Domination* (2007) to describe the way that various aspects of the social world become embodied in the physical form over time, eventually modifying the "*shape of the physique and the way it is carried*" and presented to others (Bourdieu, 2007: 64). The practical experience of the body within the social world becomes inscribed as a set of pre-reflexive dispositions or tendencies which are embodied into agent's corporal and mental schemes of perception, visible in individuals' posture, their gait when they walk and the common-sense way of using the body to one's advantage in social settings (Bourdieu, 2009 [1977]: 15).

A person's practical experience of their body is "*continuously re-enforced by the reactions (generated by the same schemes), that one's body produces in others,*" ensuring the durability of a person's relation to their body within the boundary of various fields of practice (Bourdieu 2007: 65). The transmission, or transfer, of these generative schemes to the body within cultural fields, and their inherent values, is made possible by what Bourdieu terms "*a hidden pedagogy; capable of instilling a whole cosmology, an ethic, a metaphysic, a political philosophy through injunctions as insignificant as 'stand up straight'*" (Bourdieu 2009 [1977]: 94). Quick to address the critique of structuralism against his theory of body habitus, Bourdieu states that rather than a mechanical determinism disciplining the body, it is the habitus that governs the body, itself a result of the

mediations and orientations assigned to it by embodiment of the social world within which it was created (Bourdieu, 2009 [1977]: 95). The *body hexis* is "a whole system of techniques involving the body and tools and charged with a host of social meanings and values. It is the durable organization of the body that without discourse is learned via a process of mimesis from the social collective (2009 [1977]: 87). The body hexis is gendered within a culture of masculine domination, evident in gestures and movements impregnated with gender and power. The masculine denotes the need for a man to "stand up straight and honour the person he approaches; by looking him in the eye," and to adopt a temporality of the body which reflects someone who "knows where he is going and knows he will arrive on time", a confidence which is the opposite of timidity (Bourdieu, 2009 [1977]: 94). Bourdieu notes that the habitus is a symbolic form of power. Its effect, "like the release of a spring is magic" in its ability to trigger a disposition within a particular social situation, locating immediately "its conditions of possibility" (Bourdieu, 2007 [2001]: 38). In turn, these dispositions and subsequent actions may translate into an economic value, or other commodity equivalents, again raising the notion of the body as corporal capital. Bourdieu's theory outlines the way in which social spaces act as relational field of power where the dominant and dominated compete for inter-subjectively valued capitals within fields of practice. Therein develops a doxic attitude, or common-sense, of the various practices. This enables agents to propel their trajectory to appropriate the most highly prized capital within the boundary of the social field.

Bourdieu's notion of how the body can be a capital resource of value within a competitive social field of practice and how the gymnasium as a structural field might become embodied over time within mens habitus and body hexis to influence their decision making around entering into and sustaining AAS practices to gain subjective reward provided a sociological framework via which to critique motivations for continuous and problematic patterns of AAS use that included a focus on both structure and agency.

2.17.ii Gender capital and physical capital

The texts from Bourdieu (2009 [1977]) and Wacquant (1995; 2004) have informed construction of concepts such as *gender capital* (Bridges, 2009), and *physical capital* (Schilling, 2004) as the focus of previous research inquiries. 'Gender capital' is described as a hybrid capital (Bridges, 2009: 84). It builds on Bourdieu's concept of cultural capital and the theory of hegemonic masculinity to explore the contextually contingent value of gender as a cultural commodity, particularly its lack of durability across various social fields. In what can be described as a further pathologizing account of bodybuilders, Wacquant's (1995) *bodily capital* and Connell's (2002) theory of gender categories and relations are used by Bridges (2009) to critique the findings of his one-year ethnography of bodybuilding gymnasiums in the US, revealing how gender is a relationally accomplished concept. Whilst men's muscular bodies are seen to provide a high degree of cultural capital and status within the boundary of the gymnasium field, they were often ridiculed and stigmatized in other fields leading to a lack of confidence and insecurity in the men's efforts to create an adequately gendered representation of a masculine self. The complexity of gender constructions was highlighted through Bridges' critique of the ironically feminine activities of bodybuilders, such as shaving the body, and posing in small bikini briefs when competing, which were situationally sanctioned as masculine in the boundary of the gymnasium (Bridges, 2009). Men's efforts in the gym are described as an impassioned plea for attention and recognition, embroiled with gender insecurity, mirroring narratives of 'little big men' from other studies of body builders (Klein, 1993). The concept of gender capital is shown to be a situationally contingent and politically infused resource, which can be a valuable commodity in one social space, but one that is subject to stigma and ridicule in other arenas.

Schilling (2004) uses the concept of *physical capital* to explore the ways in which the body, its size, shape, and appearance affect the value placed upon it in social fields, and its role in reproducing social inequalities. In a similar vein to Bridges' (2009) conception of '*gender capital*', Schilling's (2004) '*physical capital*' is seen as a tool of transaction, capable of transforming the capital of the

body into other capitals (social, economic, cultural). Through the lens of physical capital, Schilling looks to critique the reproduction of gender inequalities via the concept of habitus and its durable effects in limiting young girls' interest in PE at school and the subsequent lack of opportunities for young women to develop a professional sporting career compared to boys. Specifically, Schilling (2004) looks to address what he calls the deterministic nature of Bourdieu's concept of habitus, particularly body habitus, recognising the effects of embodied history on body schema and internalised ways of viewing the self which become difficult to think beyond. His key critique of the body as cultural capital is focused on the inability within Bourdieu's concept of habitus to account for agents' ability to change their social trajectory, including their view of themselves. Through the pragmatist concept of situated action, Schilling develops a series of linear modalities (habit, crisis, and creative revelation), through which he proposes agents hold the capacity to break free of their social history and perceive their physical capital in different ways (Schilling, 2004).

The notion of *physical capital* and situated action holds promise as a way that an episode of 'crisis' in someone's life, can "*shatter the body schema and associated habitual action, and result in 'ad hoc' behaviour orientated towards short term survival* (Schilling, 2004: 481). What is less clear is what kind of 'crisis' may be required to shatter the habitus, and how dramatic its effects must be to provide an agent with the potential to think outside of their social history. If as described, a crisis leads to a creative revelation in the way people see their bodies and the development of new habits which over time become enduring, I find it difficult to see how the notion of situated action is significantly different from Bourdieu's notion of habitus. Whilst Bourdieu accepted to a degree the determining impact of habitus to the extent that it shapes tendencies, likes and dislikes, and schematic ways of seeing one's self and the world, he also recognised that individuals can hold the potential to decrease the influence of habitus by recognising its impact and applying critical reflexivity (Bourdieu, 1992: 126- 131).

2.17.iii Defining ‘muscle capital’ as the field contingent goal of body sculptors

Following further reading of Bourdieu’s (2010; 2009 [1977]; 2007) and Wacquant’s (1995; 2004; 2011) accounts of the social body as a form of currency, I determined the utility of developing a concept of capital through which to understand body sculptors’ engagements in various AAS practices to achieve a collectively agreed upon and spatially contingent set of body goals including strength and muscularity (Cohen et al, 2007a). Within this study, I have extended the concept of *body hexis* (Bourdieu, 2009 [1977]; 2007) as the habitus of the body and the notion of the corporal form as ‘*bodily capital*’ and currency (Wacquant, 1995), to develop a concept of *muscle capital*. In defining what *muscle capital* should represent, I drew upon Monaghan’s reference to male bodies having popular symbolic currency, when they are “*strong looking, low fat physiques-constructed through disciplined exercise and self- controlled or civilised dietary practices*” (Monaghan, 2001b: 338). Early conversations with study participants and staff at the gymnasium case study site revealed that despite variability in the rationale and motives behind body sculptors’ desires to achieve bodily goals, there were similarities in the body qualities many aspired towards, reflective of their “*appreciation of excessive muscularity*” (Monaghan, 2001a: 74). Using these similarities, I developed the concept of ‘*muscle capital*’ to define the collective goal study participants wish to appropriate. *Muscle capital* represents muscular size, strength, symmetry, and shape, as well as the competitive bodybuilding success associated with this capital.

Muscle capital is considered a situationally located and appropriated capital, inter-subjectively valued within the boundary of the bodybuilding cosmos, towards which study participants’ variable workout and drug-using practices are orientated. The acquisition of ‘*muscle capital*’ reflects the ability of a body sculptor to ‘comprehend’ and ‘adopt’ the shifts in temporality and timing of various practices, in line with the doxic nature of the gymnasium as a spatio-temporal and relational field. These practices, such as bodybuilding workouts, rest and sleep patterns, diet, supplement use and varied ethnopharmacology practices, make available the conditions required for the development of

'muscle capital'. Its appropriation as a commodity signifies within an agent an accumulation of both corporeal 'energy' (Bourdieu, 1986) and 'self- fulfilment' that are meaningful and rewarding. *Muscle capital* is 'cultural capital' embodied within schemata of bodybuilders' habitus, both cognitive and corporeal as bodily hexis (Bourdieu, 2009 [1977]). It derives symbolic value and can be transformed within field boundaries into both economic and social capital, contributing towards its maintenance within a relational field of practice.

Chapter Three: Methodology Chapter

3.0 Introduction to constructivist ontology

This chapter outlines the ontological positioning of this study as constructivist, with a subjectivist epistemology. Bourdieu's constructivist structuralism is described as the conceptual lens via which this study explores AAS use within the parameters of a subjectivist methodology which utilises a case study method (including use of participant observation and semi structured interviews).

Theoretical perspectives provide a guide to how the world is (Strauss, 1955) and a roadmap of the journey a researcher may undertake to answer a research question or aims. Theoretical anchoring also enables the correct interpretation of research findings, as *"even carefully collected results can be misleading if the underlying context of assumptions is wrong"* (Heinrich, 1984: 151). Ultimately, theory offers the linkage between ontological, epistemological, and methodological considerations, though the level at which their influence is situated has been contested (Anfara & Mertz, 2006).

Denzin and Lincoln (2003), for example, suggest that a theoretical perspective starts with the ontological view of reality, which then informs how we perceive knowledge (epistemology), and its appropriate methodological approaches and methods of inquiry.

In contrast this linkage can be seen from an alternative perspective where *"research is constructed from the methods we use"* (Crotty, 1998: 2) and that these methods of inquiry are the catalyst for methodological and epistemological viewpoints. During the journey to clarify my own ontological position I found these terms confusing and often used in a manner that varied from one text to another. Crotty states the most crucial term to understand is the epistemological stance, as this underpins the whole research process. Ontology is omitted from Crotty's theoretical discussions as he views it as implausible to separate epistemology from ontology, as: *"to talk about the construction of meaning (epistemology) is to talk about the construction of a meaningful reality (ontology)"* (Crotty, 1998: 10). Therefore, it is the nature of knowledge (epistemology) that steers a

researcher's choice of theoretical framework and methodologies. Constructivism has been described as a theory of what knowledge is- an epistemology. It emerged from criticisms of behaviourist learning theories which view the human mind as predictable, programmable, and mechanistic, ignoring the role of individual idiosyncrasies or the social contexts through which knowledge and meaning are developed (Mayer 1996; Phillips, 1995). Guba and Lincoln (1998) describe constructivist research as relativist, transactional and subjective. Relativism means there is no objective reality to be known, only the one people actively construct (Hugly and Sayward, 1987). The exchanges between people help them form a sense of the world and their place within it; therefore, it is these relations that help individuals construct reality. As a constructivist researcher my intention was to gather the subjective views of body sculptors and to construct an impression of the bodybuilding cosmos 'the way they see it' (Ratner, 2008).

Constructivism apposes purely positivist theories, viewing knowledge as actively constructed by individuals and /or collectives depending on whichever lens of constructivism is used (radical or social). Phillips (1995) praises constructivism for bringing to the forefront issues of epistemology, and, in the main, constructivism is classed as an epistemological position (Gray, 2014; Crotty, 1988) with subjectivist foundations, though it has also been proposed as both as a relativist ontology (Bryman, 2008: 19) and a theoretical or paradigmatic perspective (Guba and Lincoln, 1994).

My view is that constructivism is both an ontology and epistemology, but regardless of its classification, constructivism holds that there is no objective truth, only interpretations of the world (Hugly and Sayward, 1987). Any version of reality results from the body sculptors in this study deploying themselves into the social world which is already impregnated with meaning (Silverman, 1997). Subjective human creation sits at the centre of constructivist philosophy, not at the total dismissal of objectivity, but in a more circular subjective-objective dialogue, representative of both interpretive as well as pluralistic dynamics (Crabtree and Miller, 1999). Constructivists do not therefore dismiss the existence of a real world but do contest the ability of positivist empiricists to

be able to describe the nature of social reality (Sayer, 1997). Traditional distinctions between epistemological and ontological viewpoints become less visible in constructivist research as, *“the investigator and object of investigation are interactively linked, so that findings are literally created as the investigation proceeds* (Lincoln and Guba, 1985: 207).

3.0.i Constructivist-structuralism as conceptual framework of this study

The need became apparent within this research inquiry to identify a suitable conceptual framework reflective of my constructivist ontological positioning that accounted for how actors’ agencies affect structures, and how these structures influence actors’ agencies. All epistemologies have been criticised based on conjecture (Scotland, 2012) and their inability to provide an account of the social world which equally recognises both structure and agency. In the case of structuralism, agents’ actions and interactions are perceived as resulting from the weight of structural forces bearing down on individuals with little autonomy or free will. With subjectivism, the degree of agency afforded to social actors ignores the very real way in which social class, ideologies and power pervade every sphere of social life, constraining and shaping our view of social reality. Bourdieu (1989) recognises that these oppositions are *“rarely expressed and above all realised in scientific practice”* (Bourdieu, 1989: 15). Whilst this research project sits within a constructivist ontology, there is a recognition that tensions between objective and subjective ontological positions can lead to methodological difficulties (Cupchick, 2001), and it is for this reason that I looked towards the work of Bourdieu as a conceptual framework in this study which accounts for both the agency of bodybuilders decision making as well as the impact of the gymnasium as a structural setting with its own cultural norms and traditions.

‘Constructivist Structuralism’ (Bourdieu, 1989: 14) is the philosophical foundation of Bourdieu’s ‘theory of practice’ (TOP) (Bourdieu, 2009 [1977]). TOP provides a theory of social practices following Bourdieu’s criticism of both objective and subjective representations of human action and

their conflicting epistemologies or “*modes of knowledge*” (Grenfell, 2008: 43). Bourdieu saw that the world could not be completely represented by either the natural sciences or phenomenology (the term he uses to encapsulate a range of ethnomethodological approaches), though rather than discounting each epistemology he determined the need to “*go beyond mutual antagonism, while maintaining what has been gained from each*” (Grenfell, 2008: 43) resulting in his development of a TOP (Bourdieu, 2009 [1977]). Bourdieu’s view is that the traditions and cultural norms of objective social structures eventually become embodied by agents over time, resulting in a framework of cognitive structures or ‘schemas’ (plural schemata) better known as habitus. This habitus influence’s agents’ actions or practices. There is both individual and collective enterprise amongst agents which constructs and re-produces the social reality within relational spaces known as ‘fields’ (Bourdieu, 1989), providing an escape from agents being mere automatons (Grenfell, 2012). Fields are relational spaces where agents compete for positional power through the accumulation of various species of capital which are inter-subjectively valued by field inhabitants. All fields have a common-sense logic (doxa) that Bourdieu describes as the *doxic* mode of practice. When encountered by agents’ habitus (embodied history), this doxa provides agents with a sense of their potential to accrue and dispense various species of capital within that field in a manner which provides recognition and reward. Practice within the social world is therefore constructed of the interplay between “*habitus (capital) + field = practice*” (Grenfell, 2012: 50). Social agents are perceived as subjects who actively accrue ‘being’ (Noble, 2004), reflecting the notion that Bourdieu views the world as an ‘economy of social being’ (Ghasan, 2009) where people actively compete within fields of practice for a sense of being and meaningful reality as a cumulative self. The *illusio* or attractiveness of each field provides a gravitational force and a trajectory. Once invested in the practices of a field and the rewards these bring (in appropriating capital that is intersubjectively valued) agents become “*taken in[and] by the game*” of capital accrual, and *illusio* leads them to invest themselves in the struggle for the rewards of capital (Bourdieu and Wacquant 1992; Threadgold, 2019).

Agents' practices within relational fields are also seen as contributing to the maintenance and/ or re-configuration of the structure of fields in a cyclical and re-enforcing process, affording the potential for agents to act within and influence the structural nature of the social field they inhabit. Bourdieu's methodological tools of habitus, field and capital are now described to provide a logic of his theory of practice (Bourdieu, 2009 [1977]).

3.0.ii Bourdieu's key concepts: Habitus, Field, and Capital

Habitus is the concept used by Bourdieu to describe the set of cognitive mental structures that constrain, but not totally determine, an agent's thoughts, emotions, perceptions, and bodily practices (Bourdieu, 1990 [1980]). Bourdieu defines habitus as:

"a system of durable, transposable dispositions, structured structures, predisposed to function as structuring structures, that is, principles which generate and organize practices and representations that can be objectively adapted to their outcomes without presupposing a conscious aiming at ends or an express mastery of the operations necessary in order to attain them." (Bourdieu, 1990 [1980]: 53)

An agent's habitus is the voluntarist element of Bourdieu's theory, which becomes established through primary socialization during early childhood experiences of family and parental relations. Schemes of perception and action that are strongly linked to parents' social position (or class habitus) are internalised during early childhood, remaining relatively stable across the agent's life course. The primary habitus provides the foundation for the development of secondary habitus from one's education at school, university and other life experiences which then become summarised into a single habitus. To a degree the primary habitus is forgotten and *"becomes embodied history, internalised as second nature and so is forgotten as history"* (Bourdieu, 1990 [1980]: 56). However, it remains ingrained, never losing its effect in being able to re-enforce itself self in relation to the way life experiences are processed, interpreted, and embodied.

The habitus provides a *“strategy generating principle enabling agents to cope with unforeseen and ever-changing situations”* (Bourdieu, 2009 [1977]: 2). However, the habitus state is also not eternal, as the accrual of capital can shift the nature of new life experiences leading to a re-formation of the habitus (Bourdieu and Wacquant, 1992). This offers an element of agency, depending on the field within which practice takes place. The notion of habitus extends to both the cognitive schema of individuals and their corporal form, as *body hexis*. This reflects a sense of a *“habituated body that is temporally structured and kinetically remodelled according to the specific demands of the field”* (Wacquant, 2004: 60) to which it has been exposed over time. The body (as with the mind) is inscribed by life’s histories as it experiences and responds to the requirements encountered from various social fields of practice, reflecting a *“political mythology realized, embodied, turned into a permanent disposition, a durable manner of standing, speaking and thereby feeling and thinking”* (Bourdieu, 2009 [1977]: 93-94). Agents’ physical representation of themselves within a social space can offer an insight into how habitus is *“tied directly to the body’s motor functions”* (Bourdieu, 2009 [1977]: 87). This reflects Bourdieu’s belief that an agent’s body is *“a socially informed body, that is structured according to socially ascribed patterns of sense and taste* (Bourdieu, 2009 [1977]: 124). If *habitus* represents the micro or agency in Bourdieu’s theory, then his concept of *field* represents the macro, or structural component, though these components should not be seen in isolation, as habitus, field and capital (the resources available to agents), work synergistically to provide an explanation of social action or practice. Bourdieu defines field as networks, or configurations of objective relations between positions of power:

“These positions are objectively defined, in their existence and in the determinations, they impose upon their occupants, agents or institutions by their present and potential situation (situs) in the structure of the distribution of species of power (or capital) whose possession commands access to the specific profits that are at stake in the field, as well as by their objective relation to the other positions” (Bourdieu & Wacquant, 1992: 97).

Fields are relational arenas of practice and power, where actors become embroiled in struggles to occupy a network of competing positions (objective structure of relations) whilst adhering to the non- formal rules or taken for granted assumptions defined by the field's 'doxa' (Bourdieu, 2009 [1977]). The shared meaning and values of a field become to varying degrees embodied through agents' practice and time spent operating within a field. They then become arbitrary, taken for granted and reproduced over time. Each field values specific resources or *capital*, the appropriation of which has the potential to determine an agent's level of distinction and respective trajectory for success, providing a field position of power. The engagements and relationships between agents within a field are not as haphazard as simple interactions of chance but are well orchestrated 'relations' that are impregnated with meaning and are tactical in nature. Field occupants look to advantage themselves through social relations which may assist them in appropriating the capital most highly valued within a field (which within this study is that of *muscle capital*). The position an agent holds within a field creates self-evident rules of practice - "*a sense of limits*" (Grenfell, 2012: 115) in line with the field's doxa. Doxa, is less formal than rules or written commands, more a common-sense logic of possibilities, which emanates from agents' pre-reflexive and unconscious beliefs as a sense of "*implicit guidance*" (Bourdieu, 2009 [1977]: 29). The doxa of the field remains concealed by tradition: "*what is essential goes without saying because it comes without saying, the tradition is silent, not least about itself as a tradition*" (Bourdieu, 2009 [1977]: 167). Doxa manifests in a form of "*misrecognised shared allegiance to the rules of the game on the part of agents with similar habitus*" (Grenfell, 2012: 117). These processes of history and tradition conceal the power dynamics and symbolic violence (or *soft violence*) of field practices, as well as ensuring the reproduction of practices and hence inequalities in power between those who vie for *muscle capital*. Once an agent perceives the rewards of a field as worthy of their efforts, they fall under the gravity of its *illusio*, and form a trajectory where they invest themselves in these activities, "*every participant who wants to succeed within the field must be prepared to engage or invest in the game*"

in some way; and believe in its significance, that is, believe in that the benefits promised by the field are desirable” (Heidegren and Lundberg, 2010: 12).

The habitus provides agents with a practical sense of possibility once they encounter the gymnasium’s doxa (traditions and history), and it is shaped further by the capital an agent can dispense to their advantage (Grenfell, 2012: 50). Bourdieu outlines four types of capital resources available to agents including economic, cultural, social, and symbolic capital, which although distinct can be converted into other forms of capital and are therefore representative of a system of capital resources (Walther, 2014).

All forms of capital are eventually reducible to the currency of economical capital (Bourdieu, 1986). *Economic capital* relates to a person’s revenue or fortune and is a financial commodity that is easily utilised and transformed into other forms of capital. *Cultural capital* is the primary commodity in the development of taste (and therefore status in a social field), taking the form of an embodied, objectivised, or institutionalized commodity. In its incorporated or embodied form, cultural capital relates to a set of durable systems of dispositions that represent the entirety of an agent’s intellectual qualifications and human capital. They are inculcated or embodied over time, shaping likes, dislikes, appreciations, tendencies, and taste (Bourdieu, 1983). Objectified forms of capital are represented through material objects such as art, books, or instruments, with institutionalized forms reflected in formal recognition of qualities or achievements from institutions such as certificates of competence, diplomas, or qualifications. *Social capital* is reflective of a person’s social connections or familial networks that legitimize class membership and provide access to material resources, information, or knowledge. *Symbolic capital* is reflective of honour or recognition, which can only be ascribed by other members or competitors upon a field of practice and is reflective of the ownership of qualities others in a field see as valuable or worth pursuing.

All four forms of capital can be dispensed by an agent within their struggle for positionality within a field of power. Both habitus (internal cognitive schemas) and field doxa (silent logic or taken for

granted modes of thinking and acting) help provide agents with a sense of what is possible within a relational field of practice and strategies with which to deploy the appropriate forms and quantities of capital according to the legitimised non-formal rules, tastes, and regularities of a field. By conforming to the traditions of the field doxa, agents contribute to the maintenance of its structural order and hence enact the cyclical relationship between agent and structure. The potential for agents to pursue individual interests by deploying capital resources within a field suggests agents retain an element of voluntarism within the weight of structural forces and a *“propensity to orientate themselves actively”* (Bourdieu and Wacquant, 1992: 108). Whilst objective forces are always considered to be at play within field relations, there is also *“a subjective mode, where agents manipulate their self-image in presenting themselves to the world”* (Grenfell, 2012: 217). Bourdieu recognises however that agents act *“intentionally without intentions”* (Walther, 2014: 15) due to the pre-reflexive nature of the habitus and the influence of field doxa. Hence, whilst individuals do make their own choices in *“the game”* (Bourdieu, 2009 [1997]: 12) of capital accrual (within this study muscle capital) and their search for a meaningful and rewarding reality (being), they do not consciously choose the principles of these choices, as these are embodied history (long forgotten) within cognitive and bodily schema from their experiences of the social world, and are therefore influenced by structure (Wacquant, 1989). Bourdieu defines a three-level process of methods which should be conducted once a project of interest (case) has been decided (Bourdieu and Wacquant, 1992). The first process is a review of literature relating to the field of study and wider fields, particularly political fields of power and wider ideologies which may define the way a subject of interest becomes understood within society. This is followed by the observation of field inhabitants ‘in practice’ to enable mapping of the objective structural relations (participant objectification) between them as they compete for authority within the field of interest. Finally, there is the collection of agents’ habitus and life histories through semi-structured interviews (Bourdieu and Wacquant, 1992: 104-107; see also Grenfell, 2012: 221).

3.0 iii How I have used Bourdieu's theory of practice (TOP) in this study

In my desire to explore alternative accounts of AAS use outside of the pathologizing ideologies of addiction and disorder that currently pervade the literature I have utilised Bourdieu's methods to construct a sociological inquiry that looks at the interplay between both the structural forces of bodybuilding's sub- culture as well as the role of the individual agency of men training in these gymnasiums. By focusing on the panoply of factors likely to influence men's decisions around AAS use I have been able to offer a more nuanced and appreciative account of the subjective rewards bodybuilder gain from using AAS as part of their bodybuilding lifestyle. This has included utilising Bourdieu's concepts within this study in the following way:

- I have conceived the bodybuilding gymnasium as the structural field within which the tradition and culture of body building practices become embodied over time to varying degrees within the habitus (cognitive and corporal) of the gym members who work-out and socialize there.
- I have examined study participant habitus (or agency) during semi-structured interviews to understand how their life histories and exposure to various environments/ fields of practice over time has impacted upon their decision-making regarding bodybuilding and AAS use. Interviews have illuminated the subjective rewards study participants gained from using AAS as well as the many challenges they have experienced and navigated during their attempts to cease AAS use.
- I have witnessed (using a case study method and participant observation) study participants deployment of various species of capital in the gymnasium to their advantage in attempts to navigate the field of bodybuilding and progress their individual body projects in a manner they find rewarding. Bourdieu's four capital domains (cultural, social, symbolic, economic) were assessed and catalogued for each participant within the case study site (**see Appendix Ten: Accounts of Participants Habitus and Capital**).
- I have 'developed the concept of muscle capital' as the commodity most inter-subjectively valued within the bodybuilding gymnasium to understand the goal of all bodybuilder's collective practices within this study (including weight training and AAS use).
- I have been able to witness first-hand through my 'active participant observer' status in the case study gymnasium the challenges of participants in navigating the field of bodybuilding in the quest to attain muscle capital.
- I have been able to reflexively explore my own habitus via the use of Gibbs (1998) reflective cycle, and the capital resources available to me during my temporary adoption of a dual

research / bodybuilder identity whilst gathering data. By undertaking regular workouts in the case study gymnasium alongside participants and observing bodybuilding in real-time I have been able to offer a unique insight into mens motivations for their various AAS using practices.

3.1 Principal research methods: Case study design

The case study method used in this research project included a ten-month period (between August 2016 and June 2017) of participant observation of ten gym members at a bodybuilding gymnasium in the West Midlands of England. Semi structured interviews were completed with fifteen men who were current or previous users' of AAS. Eight men were recruited for face-to face interviews from the bodybuilding gymnasium where observations took place. A further seven semi structured interviews were completed by telephone with body sculptors recruited via a substance misuse harm reduction service for AAS users' in South Yorkshire.

3.2 Case study method: Overview

Both Yin (2003) and Stake (1995; 2005) recognise the grounding of case studies in the constructivist paradigm, accounting for the subjective construction of reality, whilst not dismissing outright the notion of objectivity (Baxter and Jack, 2008). Although case studies have been used since the 1900's they are still misunderstood and surrounded by confusion as to their status as a methodological choice or as in this case a research method (Gerring, 2004). Starman (2013) suggests case studies are possibly better defined as a research type within the qualitative field. By moving away from seeing the case study as a methodological choice (quantitative or qualitative) we also can begin to conceptualise the case study as being simply the case of interest that we have chosen to explore (Flyvbjerg, 2011), with whichever approaches we choose to study 'the case' in question (Yin, 2003; Stake,2005). This research project's qualitative methodology benefits from the idiographic nature of

its data collecting framework, reflecting awareness of multiple individual realities to explore in relation to body sculptors continuous and problematic patterns of AAS use. The case study method has been utilised by Bourdieu (1993) to reveal the arbitrary nature of practices in the social world by objectifying relations between agents in a specific field of interest (Grenfell, 2012). As a standalone research method, a case study can have several distinct components including identification of the case, the study location, study design, data collection, data analysis, and presentation of findings (Yin, 2012).

Whilst case studies may be grounded in either positivist or constructivist paradigms (Yazan, 2015), those emerging from a constructivist epistemology typically undertake a review of the literature and construction of a theoretical framework (which in this study is Bourdieu's *theory of practice*) before utilising data collection techniques such as interviews and observations (Merriam, 1998). Merriman explains that "*purposive or purposeful sampling usually occurs before data is gathered*" (Merriman, 1988: 66) as this helps to determine the case study site which will be useful in helping to understand the nature of the issue under investigation. Choosing a bodybuilding gym as the case study meant I was able to locate myself in a social space to understand the nature of the rewards body sculptors glean from a wide variety of bodybuilding practices (including AAS use) and their experiences of discontinuing AAS use "*in its real-world context*" (Bromley, 1986: 1). Shavelson and Towne (2002) suggest the primary consideration for utilising the case study method is the descriptive or explanatory nature that can help when "*the boundaries between the phenomenon and context are not clearly evident*" (Yin, 2003: 13). Witnessing bodybuilding's sub-cultural practices in their natural setting illuminated the transactional nature of the social life of gymnasium members, as well as helping to provide a visual representation of some of the issues raised during participant interviews.

Case studies and ethnographies are classified as different qualitative research approaches (Creswell, 2013). Whilst distinctions are drawn between the bounded (Stake, 2005) and outward-facing (Khan, 2002, see Van Wynsbereghe and Khan, 2007: 84) nature of case studies and the inward-facing focus

of ethnographical studies (Cohen and Court 2003), their methods of observations and interviews can share similarities (Creswell, 2013). One further distinction between the two research approaches is the length of time spent with the group under study. In ethnography, a year is ordinarily considered a minimum period for immersion within a sub-cultural setting (Suryani, 2008). The time available to me as a father of three children in full time work to undertake these studies was limited, with most participant observation sessions taking place in evenings after work (usually for one to two hours), and on weekends when not at family gatherings. This period of data collection lasted only ten months. As a result, this case study can be differentiated from ethnography in that it provided a time-limited and *“in-depth description and analysis of a case or cases”* (Creswell, 2013: 104), rather than focusing on describing a *“cultural portrait”* over *“extended time in the field”* (Creswell, 2013: 104-105). The following section describes participant observation as the first of two methods of data collection utilised within this case study (the second being semi-structured interviews addressed later in this chapter). A description of the bodybuilding gymnasium where participant observation took place is also provided.

3.3 Participant observation method: Overview

Participant observation has been classified as both a case study and ethnographic method of data collection (DeWalt and DeWalt, 2002). My participant-observer approach drew heavily on those outlined by Spradley (1980), and Wolcott (2001), where an emphasis is placed on the need to move gracefully within the culture under observation. Key principles for researchers on entry to a case study site include, *“practicing reciprocity in whatever terms are appropriate for that culture, being tolerant of ambiguity and the need to be adaptable and flexible, as well as having the determination and faith in oneself to alleviate culture shock”* (Wolcott, 2001: 96). This approach required me to take seriously the challenge of ‘participating’ (Spradley, 1980; Wolcott, 2001) in bodybuilding’s sub-cultural practices. This level of participation in the field enabled me to actively observe the

construction of men's body projects occurring in the bodybuilding cosmos, including who talked to whom, whose opinions were respected in the field (DeWalt and DeWalt, 2000), and how decisions were made between gym members on workout routines.

A purposive sampling strategy was used during the ten-months of the case study, where a deliberate effort was made to interact with gym members who seemed the most likely to be relevant to the study inclusion criteria (Bryman, 2008). In this study the inclusion criteria included men who were currently or have previously been engaged in the use of AAS. Bourdieu's direction when undertaking a smaller scale project is to focus attention on the most significant individuals in the social space, as these are the most useful because they are likely to "*occupy positions of power, where they are able to determine the value of field specific capitals*" (Grenfell, 2012: 241). In the gym member sample that made up the focus of observations, eight of the ten were classified (from observation sessions and subsequent interviews in some cases) as holding significant capitals of value, making them key to the research topic. I was able to identify and focus on gym members who occupied more senior positions of power within the gym (based on their physical size, strength, competitive experience, and orthodox dress code). These characteristics provided some men with an elevated level of symbolic capital (Bourdieu, 2009 [1977]), meaning that they were influential in shaping cultural tastes and practices amongst other gym members.

At certain points, there was a natural snowballing of contacts during my own workouts in the case study gymnasium where it was not uncommon for other gym members to want to 'jump in' to use a piece of equipment I was using. This frequently led to spontaneous exchanges with new trainers of interest. When it felt appropriate, and at the earliest natural points in the initial conversation with a new gym member, I would clarify '*the researcher's status as a researcher*' (Bryman, 2008: 410). The day-to-day conversations with participants during observation periods involved me immersing myself in training practices including observing behaviour, listening to what was said, and asking questions (Bryman, 2008). This approach was integral to my being able to eventually establish the

AAS-using status of individuals (i.e. AAS user, past user, or never-user) and if they were a user, their position in relation to being 'on' or 'off' cycle.

During participant observations I witnessed the many strategies used by body sculptors to expand their social networks and advantage their ability to access knowledge in and around the technical domains of bodybuilding training. Bourdieu recognises that agents' practices within a field are not arbitrary interactions, but are tactical in nature, limited by occupancy of various types of capital valued in a field. The levels of capital agents can mobilize and dispense in line with the unwritten field rules (doxa) dictated agents' abilities to propel their progress in the gym (Bourdieu,1990 [1980]).

3.3.i. Level of participant observation: Active participant status

Approaches to participant observation range across a scale of involvement. In 'non-participation' there is complete detachment from the topic under research. For example, in the study of rugby, this would involve watching a rugby game on the television. The involvement then increases to 'passive participation', where the observer may be seated in the stands at a rugby game, and to more 'active participation' where the observer might begin to study, learn and practice the techniques under observation by attending a rugby training session. The highest level of participant observation engagement is 'complete participation', where the participant observer takes on the role of those under study, which in the example given would be playing rugby, for a team, in a game at some level of competition (Spradley,1980).

In this study I would locate myself in the region of active participation, due to my involvement in learning and performing bodybuilding techniques on a regular basis. I also had a regular presence in the field of interest where these techniques are practiced by others, as well as my induction into the routine of operations in the field (entrance to the gym, the counter banter, consumption of pre-workout supplements, training and spotting, recovery drinks and post training dialogue). The reason

I did not reach the role of complete participant is that I did not adopt the role of a competitive bodybuilder, and whilst I trained alongside them and changed some of my diet to include the use of protein powders and pre-workouts at the gym, I did not use AAS, or post cycle therapy drugs, and therefore could not experience the effects of use and discontinuation from these substances. When researchers look to study behaviours within their natural habitat, they are often faced with a dilemma as to the level to which they are prepared to 'go native' (O'Reilly, 2009). In the study of drug use this is particularly apparent, as the researcher must make the moral decision whether to comply with these acts (Becker, 1963), and 'complete participation' (Spradley, 1980) by a researcher will likely mean committing the deviant acts under study.

Going native and engaging in deviant behaviours such as drug use can risk compromising objectivity in a research project, decreasing the analytic distance from the social group being studied (O'Reilly, 2009). However, one of the reasons this level of participation can be valuable is that without committing the deviant act and gaining the trust of others within the social group, it may be impossible to "*discern some vital aspects of the criminally deviant behaviour and the structure of law-breaking subcultures*" (Becker, 1966: 176). As the personal use of AAS is not illegal in the UK, the issue of law breaking was not a factor to have to consider within this research. I also felt my adoption of many of the day-to-day rituals (excluding drug use and competition) of a typical gym member enabled me to obtain a level of credibility in the case study site to the point that drug use was not a necessity to gain insight into participants' experiences. Becker (1966) states that even if there is no active participation in 'the deviant act' being studied during field work, there is still a potential that the investigator may "*witness such acts, or be taken into confidence about them, and not to blow the whistle*" (Becker, 1966: 176). During this study that was not the case and I did not observe any illegal acts.

3.3. ii Location of participant observations: Detail on the case study site

The case study was a bodybuilding gymnasium housed in a three-storey Victorian building situated on an industrial estate in the heart of the Black Country in the West Midlands of England. Further details are provided in section **4.1.i The bodybuilding cosmos: Describing the gymnasium as a spatial field.**

3.3.iii Negotiating access to the case study site

A period of several months was spent informally negotiating access to the case study site prior to ethics approval to commence formal data collection. Gaining access is one of the least prominent areas in literature (Feldman et al, 2003), often seen as a mere tactical issue (Gummesson, 2000), although it was possibly one of the most time-consuming aspects of the research project (Burgess, 1984). Wasserman and Jeffery (2007) suggest that gaining access requires researchers to have a very specific set of social skills and is highly dependent on whether the study will be of any benefit to the organisation or case study group (Coleman, 1996). This issue may be made significantly more problematic when the research topic or likely questions are sensitive in nature (Okumus et al., 2007) as they were with this research. Access itself is not a single act of contractual agreement (Feldman, et al, 2003), rather an ongoing process of negotiation, often with numerous stakeholders, requiring strategic planning, and challenging work of being in the right place at the right time, and on occasions some degree of luck (Van Maanen and Kolb, 1985). Initially I identified two potential case study gymnasiums following Shenton's proposal that "*studies staged in different settings might enable a more inclusive, overall picture to be gained*" (Shenton, 2004: 71) of the phenomenon of interest. However, a fire at one of the gymnasiums prior to the commencement of data collection activities had meant it had been closed due to structural safety issues. The gatekeeper and owner of this gymnasium contacted me to advise that it would not be open for the foreseeable future and that as a result he could no longer be a part of the study. Following this I was left with a single

gymnasium as the case study site. The implications of only having one site from which data would be collected were mainly a loss of triangulation in the data which can be helpful in determining the transferability of case study findings to other settings (Yin, 1984). Despite this, I was mindful to not become pre-occupied with generalisability as external validity, and *“demonstrating how the work at hand can be applied to a wider population”* (Shenton, 2004: 69) are more applicable to positivist research paradigms. Focusing on comparison, has also been argued as downplaying the complexity of each case (Stake, 2005), and so devaluing the unique insight provided by bounding a case from the initiation to make it feasible and more manageable (Creswell, 2013). Theoretical frameworks for gaining access in fieldwork tend to focus on key stages of the access process of ‘getting in, getting on, getting out and getting back’ (Buchanan et al., 1988). I found the following three-element framework useful to follow:

- 1) *gaining physical access, getting close to the topic of interest,*
 - 2) *maintenance or continued physical presence*
 - 3) *developing mental access to be able to understand what is happening in the field of study.*
- (Gummerrsson, 2000).

3.3.iv Access Stage One: Original Research Practices

Shenton et al., (2004) recognise that gaining access to research settings and study participants is one of the most challenging aspects of field work in qualitative studies. Without access to a research setting or participants to study there will be no data to generate insight into the question at hand. Spradley states that recording *“how you made the selection of case study sites and first impressions, will prove of value later”* (Spradley,1980: 63). At the initiation of the research project, I had decided that any potential case study location needed to be situated close to where I lived for me to be able to visit the site frequently enough over a proposed data collection period. Two bodybuilding gymnasiums were identified from a Google search in the city where I lived. Images on both gyms Facebook pages showed both male and female gym members with an extreme degree of

muscularity who were actively engaged in competitive bodybuilding. I decided to visit both gyms, firstly to ascertain whether the images I had seen on-line reflected the reality of the people training there, secondly to identify and engage with any gatekeepers with whom I would be able to contextualise my research interests and to understand whether or not they would be likely to share these interests and provide access explore these issues within their gymnasium as a case study site.

On approaching the first gymnasium I found the car park was busy, fuelling my levels of anxiety as I got out of the car to climb the thick industrial metal steps leading up four flights of stairs to the gym. As I reached the final set of steps the metal stairs vibrated to 90's hip hop music and the clanging noise of metal on metal which filled the air along with an overwhelming scent of stale sweat. At the top of the stairs next to the door to the gym there was a seven-foot life sized poster of a competing bodybuilder, hugely muscular, tanned and oiled from head to toe whilst wearing tiny briefs with veins popping as he held a contorted muscular pose. On opening the door into the gym I could see the same man from the poster sat behind a counter where signage clearly outlined that gym fees should be paid before proceeding into the training area.

After an exchange of pleasantries with the man behind the counter who it turned out was the gym owner and payment of my £3 training fee I proceeded to the vast training area where the cold open space contained a group of men wearing sweat suits and black rubber gardening gloves either chatting or lifting weights. In general my presence in the gym received little interest other than the odd cursory glance and I decided to be cautious on my first visit to the gym using weight machines on the periphery of the exercise area, avoiding the collection of heavy free weights strewn across the floor in the centre of the gymnasium where most trainers were situated. Whilst training I noted two gym members scribbling in pocket size diaries after each set of exercises they had completed which I had taken to be some account of record keeping. I eventually caught the attention of one of the men as he lifted his head from his note making and asked if cataloguing his workout was helpful. The man appeared happy enough to chat, and after some small talk explained that his recording of

the weight used and repetitions completed in the workout session helped to map his progress whilst he was returning from injury. He asked what my goals were in training and I replied honestly that I was looking to get a little bigger and stronger which had always been an aim of mine whilst in my martial arts practice but something I'd ever managed to achieve. Our chat concluded with the suggestion that I might benefit from a similar approach to systematically recording my training activities and I thanked him for his help. My initial experience of the gym was positive and as I concluded my workout, I left feeling confident that there was a potential to engage productively with gym members who given their physiques I felt would may be likely to have some experience of using AAS. What was less clear was how I would go about making this whole research idea happen and so I resolved to continue attending the gymnasium to identify what if any opportunities were available to engage with gatekeepers who might provide access to undertake my research project.

On completion of my third training session at the gym I tentatively engaged in small talk with the owner of the gymnasium whilst he made me a protein drink which I had noted most trainers consumed following the completion of their workout activities. Whilst shovelling scoops of protein powder into a blender sat behind the gym's reception area, we chatted a little more about our mutual experience of martial arts over the years. It turned out we had both trained under the same Brazilian jujitsu instructor (though at contrasting times) many years ago. As we had a common interest of martial arts I mentioned briefly how I was enjoying my training at the gym but also finding it challenging to fit around my other sporting interests including martial arts and ironman triathlon as well as my university studies. The gym owner inquired as to the nature of my academic interests which opened the door for me to explain in a broad manner a little about my ideas for a research project to counteract and challenge the dominant medical model which pervades existing literature regarding theories around men's motivations to use AAS. Following a few seconds of a tumble weed moment both the owner and a member of staff stood behind the counter agreed this was an interesting idea. I was conscious of not over playing the issue and, feeling like the research idea had passed the first stumbling block to gaining acceptance within this setting I made my

excuses and left the gym with a concluding offer to share two research papers which may be of interest to the gym owner. I followed up by dropping off two research papers (Keane, 2005, Tan and Scally, 2009) to the gym owner the next time I trained and over the coming weeks our dialogue regarding a potential use of the gymnasium as a case study site to engage with bodybuilders to gain insight into their motivations and experiences of AAS initiation and discontinuation was eventually agreed upon. The gym owner signed a consent form confirming this access permission (see **Appendix Four: Gymnasium Consent Form**). With initial access permissions secured, an agreement was made for me to include the gym owner and staff in the design of the study and to share the findings of the study with the gym owner and interested study participants in the format of an executive summary.

3.3.v Access Stage Two: Maintenance and practice in the field

The next element of physical access was getting close enough as participant-observer to the men training in the gym to be able to describe my academic interest in AAS use and record a “*systematic description of events, behaviours and artefacts in the social setting chosen for study*” (Marshall and Rossman, 1989: 79). This was where my learning of the bodybuilding craft became something to take seriously (Wacquant, 2004), with me affording a great deal of time to reading on-line articles regarding various training techniques and their effects. During the initial period of case study engagement, I began to observe these training methods and techniques in practice from body sculptors. I also spoke to many gym members about the support strategies they used to facilitate muscle growth from their training, including nutrition and supplement use. During initial workouts with training supervisors assigned to me by the gym owner to ensure I was inducted into workouts safely, my awareness increased of the need to adopt gym-speak (using colloquial terms to describe a range of training practices). This included using terms such as reps, sets, and replacing the term ‘anabolic steroids’ for less formal terms such as ‘*juice*’, ‘*gear*’ and ‘*stuff*’, as well as replacing the

pejorative term 'drug withdrawal' with more descriptive terms such as '*coming-off*' or '*being off-cycle*'.

Despite my adoption of a '*participant -as-observer*' status (Bryman, 2008: 410) I was aware that as an outsider researcher (Breen, 2007) my presence in the gym would have some effect on how the field operated and how other men in the gym may act during my presence in the setting (Bonner and Toldhurst, 2002). In a tactical attempt to minimise this effect, I repurposed a range of training apparel (t-shirts and sweat tops) from my time as an amateur boxer. Whilst in the case study I wore my old boxing clothing, deliberately displaying my arm and leg tattoos (which I had acquired whilst training and fighting Muay Thai boxing in South East Asia) as forms of 'objectified' and 'embodied' cultural capital (Bourdieu, 2009 [1977]). Deploying these capitals afforded me a level of credibility amongst the group I wished to study, possibly due to similarities between the corporeal nature of the work involved in boxing and that of bodybuilding, where one is constantly "*working on oneself (self-improvement), in an effort that pre-supposes a personal cost*" (Bourdieu, 1986: 245).

In dispensing cultural capital in both embodied and objectified forms, I was able to evidence a history of body work that I had personally undertaken and "*cannot be done at second hand*" (Bourdieu, 1986: 245). Several gym members approached me during initial entry into the case study to ask where I had fought and who I had trained with, providing the catalyst for development of a network of social connections. By observing gym members in the performance of their workouts, and jointly engaging in these training practices, I was able to facilitate an acquisition of the language and corporeal movements of a bodybuilder. My exposure to the broader cultural regularities and training practices within the gym enabled me to understand the workings of the research setting (Spradley, 1980). My peripheral group membership (Adler and Adler, 1987) was a paradoxical one, because of my desire to "*try to be acutely tuned-in to the experiences and meaning systems of others*" (Maykut and Morehouse, 1994: 123), whilst needing to be aware of how my own subjectivities and biases could influence what I was trying to understand.

As I did not have complete member-researcher status (Adler and Adler, 1987) amongst the group I was observing and engaging with I was unable to completely share their relative experiences of competition, success, and failure, or taking and discontinuing AAS use, prompting a reflection of whether “*you have to be one to know one?*” (Fay, 1996: 9). The position of full member researcher is “*the ultimate existential dual role*” (Adler and Adler, 1987: 73), and risks creating situations where researchers are confronted with difficult decisions on how to understand, and explain behaviours of research participants, who are also friends to which they have loyalties. This position can create role conflict (Asselin, 2003), limiting researcher reflexivity, and potentially jeopardising the authenticity of a study, as the researcher then “*knows too much or is too close to the project and may be too similar to those being studied*” (Kanuha, 2000: 444). As a constructivist researcher, I recognise that there is no such thing as objective truth (Hugly and Sayward, 1987), requiring me to recognise my own biases, and their influence upon this research project. To not have done so, would mean “*you do not appreciate the force of what you’re leaving out; you are not fully in command of what you’re doing*” (Rose, 1985: 77). In constructing an impression of the world, the way participants saw it (Ratner, 2008), I offer a unique insight into the cultural phenomenon of bodybuilding and associated AAS broad ethnopharmacology use following my engagement with the men who were at the heart of this sub-culture.

3.3.vi Access Stage Three: Developing mental access through practice

The gymnasium has been described as “*a complex and polysemous institution, overloaded with functions and representations which do not readily reveal themselves to the outside observer*” (Wacquant, 2004: 13). Whilst the tactical nature of practices and struggles for positions of power within the case study gym were not immediately apparent, over time I observed and engaged in these practices (as part of my active membership role) during fieldwork. Time spent training and talking with bodybuilders provided insight into the way their thinking was aligned to their individual goals and the various strategies they employed in their quest to progress their bodily gains. A select group of study participants provided accounts of their own and other trainers’ drug-using practices

which continue to be seen within the bodybuilding field as “*a legitimate means of achieving a sub-culturally prescribed goal*” (Monaghan, 1999b: 708). During the data collection period there were numerous surface level observations and interactions¹ with multiple gym members. More in-depth contacts with gym members were limited to ten bodybuilders over the ten-month period of field work. Contact with study participants was established during workouts in the gym, and at the gym’s counter or social area pre-and-post my own workouts.

Despite initial reservations in taking an active membership role (Adler and Adler, 1987), adoption of training practices during busy workout periods in the gym (typically 5-7 pm on weekdays but also many weekends) generated multiple opportunities to connect with gym members. These contacts were usually initiated by me during movement from one training station to the next, where conversations in between exercise sets provided a feel for how gym members felt about the research project and the value any findings may provide for them. Without the participation element of ‘participant observations’ it would have been difficult to develop the level of insight required to have mental access to the lives of study participants, and the meaning they place of sub-cultural practices within the bodybuilding cosmos. See an example of this in **(Appendix Thirteen: The big reveal)** where I am allowed access to a restricted opportunity to review the progress made by a competing bodybuilder two weeks prior to his show). Whilst this approach had its benefits, as a father of three with a full-time job and my own ironman triathlon training to undertake, my time in the case study was limited, meaning this study was less of an ethnography, and more of a snap shot of the social practices of bodybuilders.

¹ ‘Surface level interactions’ were those where I had enough regular presence and social status in the gym to have become visually familiar to trainers (resulting in exchanges of general pleasantries), yet for other reasons (mainly time constraints) I was unable to develop a level of contact deep enough to provide insight into their individual characteristics (various capitals, likes/ dislikes or general trajectory in the gym).

3.3.vii Promotion of research project

I erected two posters promoting the research project which contained my photo in the gymnasium, **see Appendix Six: Poster Advert for Study**. The posters described the nature of the research as well as guiding those interested in the study to online resources (participant information sheets and consent forms for those interested in taking part in an interview) available to view in a 'Dropbox' account. The gym counter on the upper floor of the case study was one of the two sites in the gym where the poster promoting awareness of the research study was located. The second location was in the gym changing rooms.

3.3.viii Process of observations in the study site

Spradley (1980) recognises the '*dual-purpose*' of participant observers in a case study, separating their identity from those in the social space who are only there to engage in activities, rather than collect data. The second difference is '*explicit awareness*', and whilst an everyday gym member may enter the case study and simply engage in the activities of lifting weights, my participant-observer status extended my role to be consciously aware of what was going on around me during gym sessions. My focus during data collection sessions in the gymnasium was to engage in a process of "*participant objectivation*" (Grenfell, 2012: 241). This involved considering the species of capital body sculptors held, in their general physical appearance; their mode of dress; and the people they engaged with during training and socially, in and around the gym changing rooms or whilst drinking a protein drink after training had ended. I observed the gym members' movements around the gymnasium, how they negotiated and occupied various spatial domains, and their '*feel for the game*' (Bourdieu, 2009 [1977]: 12) of accumulating muscle capital. Through this, I was able to record an account of the "*objective structure of relations*" (Bourdieu and Wacquant, 1992: 104-107) between the body sculptors of interest, culminating in a cataloguing of study participants' capital levels along with accounts of habitus from interview data. This information can be seen in **(Appendix Ten: Accounts of participants' habitus and capital)**.

An example of the scrutiny I adopted towards body sculptors' activities was observation of the techniques employed during movement to and from various workout stations, often movements that were filled with aspects of hesitancy, risk, and power dynamics. The transition to and from new training domains in the gym is embroiled in unwritten rules, accepted processes, hierarchies, and routines. Without the application of Spradley's third concept of a '*wide-angle lens*', the "*tacit, cultural rules for using and interacting*" (Spradley, 1980: 56) between agents may have been less visible, rather than being seen as tactical in nature (Bourdieu, 2009 [1977]). When gym members approached the current user of gym equipment they would often inquire, '*how many sets you got left?*'. This gave a guide to how long someone may be using the equipment before it became free. There was then a disengagement routine performed by the person exiting the workout station. This included notifying the incoming user that they had finished with the apparatus with either verbal and non-verbal cues, a nod of the head, and the offer to remove or 'strip' the weight they had been using prior the equipment handover and wiping down any sweat from the station. Once the various exercise stations or free weights became available to the new user, my observations moved to scrutinizing how the new user of the equipment appraised any weights left on the machine by the previous trainer, removing or adding weight depending on their needs. In adding weight to a previous trainer's lift there was a symbolic statement that they lifted more; they were stronger, more accomplished as a body sculptor. The intricacy and routine employed in manoeuvring themselves into the equipment (itself a production of repetition and time spent observing others whilst studying the craft of 'body sculpting'), became a fascinating performance to observe. I noted how the new trainer would become at one with machine as they settled into the padded seats; their grip of equipment before their initial lift; the cadence and range of motion with which the weight was moved; and the point at which they appeared to signify the need for a 'spot' (help lifting the weight) if they were training with a partner. All this routine was something which other trainers observed and over time repeated as *mimesis* (Bourdieu, 2009 [1977]), contributing to the doxic order and temporal rhythms of practices within the gymnasium.

3.3.ix Recording participant observations

Several strategies for recording observations and contacts were used, including making mental notes if the situation made it inappropriate to record the exchange there and then. **Condensed accounts** were often recorded in the notes section on my mobile phone in between performing sets of exercises whilst training with other gym members which could be written up into **expanded accounts** in my electronic field journal at the end of the evening session, comprising of “*little phrases, quotes, key words and the like*” (Lofland and Lofland 1995: 90).

On occasion, reflections were revisited and developed as reflections do develop over time, when I was able to review scenarios based on additional information or new perspectives that had become apparent to me. Where possible I made immediate notes of things people had said if they appeared important, or sparked some idea, or feeling within me. In these cases, I attempted to “*make a verbatim record of what people say*” (Spradley, 1980: 67), as delaying fieldnote entries might have risked paraphrasing what people have said, and losing the specific cultural meaning associated to their comments. A section of the fieldnote record was reserved for a journal of how I felt, barriers I met and overcame, and personal accounts of my time in the field. Guba and Lincoln (1981) suggest the researcher is effectively the research instrument, and therefore I felt there was a need to record and explore the subjectivities of the filter through which I saw field situations because these were shaping how I experienced, recorded, and gave context and meaning to events. At the outset of fieldwork, my fieldnotes were more descriptive in nature, more general, and lacking details, what Spradley (1980) terms ‘grand tour’ observations. As time passed, and specific issues became of interest, the observations became shorter and more focused into mini-tour observations. The case study site contained distinct physical areas, which I recorded as a ‘*domain analysis*’ providing a taxonomy of the areas where observations and conversations with gym members had taken place, including:

- *Gym counter where people pay fees to train or purchase food/ supplements*

- *Behind the counter space restricted to staff and select members of the gym*
- *Physical weight training areas (open to all)*
- *Boxing and martial arts areas (located on a separate level)*
- *Post training relaxation areas*
- *Changing rooms*
- *Sports massage/ tanning room*
- *The four flights of stairs exiting the building*

As time progressed, I considered focusing observations on specific spaces within the gym, such as on the gym counter, the squat rack area of the gym reserved for the stronger more confident trainees, partly due to time restrictions. However, the size of the gym meant that a lingering presence in one area felt awkward, and risked alienating people training in the gym who might feel my attention to their activities was overbearing. Based on this I maintained a general focus on all domains within the research site. The inclusion of an 'analysis and interpretation' section in my fieldnote record provided a place to record my general thoughts, interpretations, and the insights I had gained during the field of the cultural practices, and meanings they held for bodybuilders. This input provided a link between my recordings and the final process of theme development and eventual thematic analysis (Spradley, 1980: 72). Record keeping of observations, experiences and events, and the application of a type of introspective reflection enabled me to capture what it felt like to be part of these experiences. Whilst introspection may not be objective, it can *"greatly enrich the data an ethnographer gathers through participant observation"* (Spadley, 1980: 58). References made to field notes in this thesis use the format of (FN 00/00/00 P0). FN represents field note, followed by the day, month, and year the note was made and the participant to whom the account referred. My own reflections during an observation are presented merely with the field note date (FN/00/00/00). The following section outlines the second data collection method of semi-structured interviews utilised with 15 body sculptors.

3.4 Semi-structured interview method: Overview

Mason (1996) suggests researchers should consider how well data collection tools match their ontological, and epistemological values. The use of semi-structured interviews assumes data will be *“generated via the interaction, because either the interviewee(s), or the interaction itself, are the data sources”* (Mason, 1996: 38). Semi-structured interviews reflect my constructivist ontological views where reality is constructed through agents’ deployment of themselves into the social world, and their experiences and interpretations of their discoveries. From an epistemological perspective, knowledge is understood in this constructivist study as dynamic, transactional, and subjective (Bryman, 2008). Interviews provide a means by which data can be accessed by talking and listening to people, or *‘conversations with a purpose’* (Burgess, 1984: 102). Through these conversations of purpose, I was able to engage in a research method that accounted for the attitudes, feelings and beliefs of the men being studied (Arskey and Knight, 1998).

The open nature of the questions used within semi structured interviews enabled me to *“provide an authentic insight into people’s experiences”* (Silverman, 1993: 91), which may otherwise be difficult to obtain with less flexible research tools (Bowling, 2002). My interest was in understanding body sculptors’ views on the rewards of bodybuilding and AAS use and experiences of AAS discontinuation, and whilst structured or closed interviews could have limited participants responses to those determined by a closed schedule, the semi structured interview enabled me to hear what the participant saw as relevant. As with any research method there are epistemological limitations in interviewing people about their experiences. Other forms of interview, such as closed or structured interviews, may attempt to minimize bias through *“the standardization of the questions asked; and the way they are asked”* (Mason, 1996: 40). By ensuring people are asked the same question, in the same order, manner and tone, it may be inferred that the research stimulus is the same in each case, and that standardisation is achieved, factors important in ensuring reliability and validity in quantitative research. A structured interview schedule, with closed questions, and a fixed range of

answers can reduce interviewer variability in the asking of questions and recording of interview answers (Bryman, 2008). The closed interview can allow researchers to gain insight on specific topics they are interested in understanding, limiting respondent choice to the topic of interest, which can be useful for testing a specific theory, in a deductive manner. In contrast, qualitative researchers accept the open and flexible nature of semi structured interviews as a natural replication of the unstandardized social world they are looking to comprehend (Mason 1996).

3.4.i Schedule and piloting of interviews

A pilot run of the interview process was agreed with a member of gym staff at the case study site who had volunteered to let me go through the draft interview schedule with him prior to seeking ethics committee approval. Piloting my research interviews provided me with an *“introduction into the unknown world”* (Sampson, 2004: 399) of the bodybuilding cosmos and a glimpse of the cultural context of the case study. Despite this, when searching through the literature I found that use of pilot studies in qualitative studies was under-reported (Van Teijlingen, 2001). The pilot interview did not provide any contribution to the study itself but did offer me an opportunity to complete a pre-test and *‘trying out’* (Baker, 1994: 182) of the data collection instrument. Before the interview commenced, I read through a short pre-interview narrative that I had prepared to be used with all participants with the pilot volunteer. The pre-interview narrative mirrored the participant information sheet contents, outlining the intention of the research project, clearly confirming the confidentiality of the participants interview contributions and helping to ensure the participant was able to give informed consent (Jacob and Furgerson, 2012).

The pilot interview was particularly important in determining the time it would take to complete the full interview process, as this information needed to be included in the future participant information sheet. Another of the advantages of the pilot testing was that it provided me with a means of assessing whether the research protocol was realistic and workable, which led to revisions

prior to the implementation of the study to remove repetition in questions (Kvale, 2006). By testing and refining the interview schedule it is also possible to ensure internal validity of the interview tool through the amendment of questions which ensure you are capturing data on what you claim to be researching (Peat, et al 2002). In addition to identifying a few ambiguities and possibly leading questions (which I subsequently revised), I was also provided with an opportunity to '*test equipment, record timings and re-word any questions that are not answered as expected*' (Peat et al., 2002: 123).

The digital audio recorder I used was newly purchased and I had placed brand new batteries into the machine prior to the pilot interview. The recorder was placed on a small table in between me and the pilot participant. The microphone was located at the far end of the digital recorder which I placed facing the participant whilst we spoke. During the interview I made numerous glances towards the equipment to check the red record light was on, though I tried to do this in a discreet way so as not to interrupt the flow of the interview. Following the pilot interview, I checked the recording and was very happy with the audio quality. There were also no background sounds which might have impacted negatively on the quality of the data. When the pilot interview concluded I also went through a short narrative giving the pilot participant my contact details and asking for his permission to contact him in the future as it could prove to be helpful in "*soliciting feedback from one's respondents on the inquirer's findings*" (Schwandt, 1997: 88). When the potential participant group is likely to be small due to issues of topic sensitivity and access this process saves "*squandering the population you wish to interview*" (Jacob and Furgerson, 2012: 6) by using tools that lack validity or through errors in recording devices. The pilot process was helpful in refining the interview schedule, assessing the timeframe of the interview process, and ensuring the appropriateness of the recording equipment and venue (Bloor et al, 2001).

3.4.ii Selection of interview respondents

A purposive sampling strategy was used to engage with men from the case study gym who it appeared were most likely to be relevant to the study inclusion criteria (Bryman, 2008; Denzin and Lincoln, 2000), and would be most suited during interviews to “*adequately answer[s] the research question*” (Marshall, 1996: 522). Purposive sampling was also used to recruit seven body sculptors for interviews from a community harm reduction service located in South Yorkshire, England. The harm reduction clinic provides services for AAS users and had expressed an interest in the research project at a national conference on Image and Performance Enhancing Drugs (IPEDs) held at Liverpool John Moores University in 2016. The service agreed to promote the opportunity to take part in the study amongst their client group. This targeted approach to participant recruitment is “*a more intellectual strategy than simple demographic stratification*” (Marshall, 1996: 523), with the potential to “*clarify and deepen understanding*” (Neuman, 2000 p.196) of the research topic in question.

A key ethical consideration when deciding upon the best research method to choose is “*the extent to which the research participant gains something*” (Oliver, 2010: 56) from inclusion within the research process. Reiss and Judd (2000) suggest that personal interviews provide a platform from which interviewees are then able to tell their story, providing a unique opportunity for reflection that can be “*thought provoking, informative and sometimes beneficial*” (Reiss and Judd, 2000: 307). This opportunity however should be balanced against the risks less structured one-to-one interviews hold, where participants are at risk from over-disclosure, particularly where sensitive topics are concerned. Rubin and Mitchell (1976) however suggest there is little evidence of this and that participants may even benefit from the opportunity of telling their story.

3.4.iii Face to Face Interviews

The fifteen Interviews in my study only commenced following ethical approval and were conducted in two formats. The face-to-face interviews (8) took place at the gymnasium case study in a room on the floor below the gymnasium providing a setting which was familiar to research participants, making them feel at ease with the interview experience (Morgan 1997). Permission to use a small room usually set aside for sports massage and pre-competition tanning was offered by the gym owner and was decided as the venue for face-to-face interviews. All face-to-face exchanges were initiated with me asking if there were any issues participants wanted to clarify or discuss before providing consent; signed consent forms were then collected from participants. Interviews were audio recorded as writing a verbatim log of discussions during the interview can be inaccurate and cause unnatural interruptions within investigative conversations (Bloor et al., 2001). This approach enabled me to focus upon the discussion taking place, as well as liberating me, giving opportunity to observe the interviewee's non-verbal cues and record these as part of a rich catalogue of data to be compared alongside transcriptions (Fielding, 2003).

3.4.iv Telephone Interviews

Telephone interviews were considered following a phone call from a body sculptor who was interested in taking part in the study but had concerns over AAS use disclosure affecting his professional occupation. It is widely acknowledged that interviews are a negotiated accomplishment between researcher and participant that are shaped by the context of the research setting in which they take place (Fontana & Frey, 2000), and the researcher should make every effort to take account of participants concerns regarding confidentiality, time, expense, and travel by conducting the interviews in the manner of their choosing (Doddy & Noonan, 2013). Before agreeing with requests for telephone interviews, I had to determine the operational validity of whether the recording of interviews over the phone would work, and ethical permission to amend the data collection strategy for the study. To check feasibility, during the pilot, a phone call using a mobile handset for the gym's

landline was placed on loudspeaker in the interview room used for face-to-face interviews, and the audio recorder device was used to record the conversation exchange. I also stood outside the door of the interview room on the stairway whilst a gym member of staff spoke on the handset on loud speaker to ensure no one on the stair way could hear any of the conversation. The subsequent recording was not as clear as when used in face-to-face interviews but was of high enough data quality to be able to transcribe. A specific amendment request to the original ethics permission (**Appendix seven: Ethics permission A**) was submitted for approval to conduct telephone interviews and approved by the Faculty Academic Ethics Committee for this addition to the project's data collection and recording strategy (**Appendix Eight: Ethics permission B**). All subsequent telephone interviews were pre-arranged and conducted within the room designated in the case study gym for face-to-face interviews at a time convenient to both me and the interviewee. The same interview schedule was used as in face-to-face format (**Appendix Five: Interview Schedule**).

3.4.v Interviewee Characteristics

Table 1: Interviewee Characteristics below includes interview participant demographics and recruitment source, the date interviews took place, along with a description of whether the interview was face-to-face, or by telephone and how consent was gained and recorded.

Table 2: Interviewee Characteristics

Participant Code	Demographics	AGE	Location of interviewee	Recruitment Source	Interview Date	Interview type	Informed Consent Type
23/08/16 ETHICS APPROVAL RECEIVED FROM COMMITTEE FOR FACE TO FACE INTERVIEWS							
P1	MALE (WHITE)	37	WEST MIDLANDS	CASE STUDY GYM	25/08/16	FACE TO FACE	WRITTEN
P2	MALE (WHITE)	43	WEST MIDLANDS	CASE STUDY GYM	01/11/16	FACE TO FACE	WRITTEN
P3	MALE (WHITE)	44	WEST MIDLANDS	CASE STUDY GYM	03/11/16	FACE TO FACE	WRITTEN
03/11/16 ETHICS APPROVAL RECEIVED FROM COMMITTEE FOR TELEPHONE INTERVIEWS							
P4	MALE (S/ASIAN)	50	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	11/11/16	PHONE	VERBAL
P5	MALE (S/ASIAN)	42	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	16/11/16	PHONE	VERBAL

P6	MALE (S/ASIAN)		35	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	28/11/16	PHONE	VERBAL
P7	MALE (WHITE)		50	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	15/12/16	PHONE	VERBAL
P8	MALE (S/ASIAN)		38	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	18/12/16	PHONE	VERBAL
P9	MALE (S/ASIAN)		39	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	15/01/17	PHONE	VERBAL
P10	MALE (WHITE)		46	WEST MIDLANDS	CASE STUDY GYM	08/02/17	FACE TO FACE	WRITTEN
P11	MALE (WHITE)		52	WEST MIDLANDS	CASE STUDY GYM	17/02/17	FACE TO FACE	WRITTEN
P12	MALE (MIXED RACE)		32	WEST MIDLANDS	CASE STUDY GYM	24/02/17	FACE TO FACE	WRITTEN
P13	MALE (WHITE)		43	SOUTH YORKSHIRE	HARM REDUCTION SERVICE	26/03/17	PHONE	VERBAL
P14	MALE (WHITE)		32	WEST MIDLANDS	CASE STUDY GYM	25/04/17	FACE TO FACE	WRITTEN
P15	MALE (WHITE)		32	WEST MIDLANDS	CASE STUDY GYM	27/04/17	FACE TO FACE	WRITTEN

3.5 Withdrawing from the case study site

Following a ten-month period of participant observations, I concluded observational activities at the case study site two months earlier than originally planned at the outset of the project. Whilst exit from the field in popular ethnographies such as Wacquant's *Body and Soul* (2004) resulted from actualisation in a moment of triumph (in Wacquant's case competing in a golden gloves boxing match), for me there was no such glorifying event or milestone to signify the end of the field work. If I am honest, I had harboured a vision early in the study of maybe getting on stage to compete as a body sculptor in a natural show, though I soon learned that I had neither the genetics for competitive success in body sculpting, or the inclination to adopt the monastic training regimes or extreme nutritional and ethnopharmacological practices required to compensate for my low levels of natural muscularity. My decision to end data collection came following a re-reading of my field notes and a subsequent feeling that I had reached a point where areas of interest in the original outline of the study and those that had emerged during the research had been answered. Categories that had emerged had become saturated with data and *"no new or relevant data seem to be emerging; and the category is well developed"* (Strauss and Corbin, 1998: 212).

Most literature relating to exiting from fieldwork focuses on preventing harm, or exploitation to particularly vulnerable participants, and responsible ethical practice (Taylor, 1991). Simply not turning up at the gym on an evening or at the weekend as I had done for several months was not an option I had considered, as I deemed this to be disrespectful to the members I had developed friendships with. Stebbins (1991) poses the question as to whether researchers ever actually leave the field, due to the profound, and lasting impact of exposure and immersion within cultural contexts that were previously unknown. Withdrawing from the field of study is a complex process, best seen as *“an experience to live through, rather than an act to be managed”* (Michailova, et al ,2013: 143).

As every study is different, there is no prescriptive process to follow with which to conclude field activities or remove oneself from the site of observations (Shaffir and Stebbins,1991). I felt I owed a great deal to the people who had helped and supported me in my time in the case study, and it may be for this reason that field research *“lacks closure”* (Van Maanen 2010: 234). In part, the challenges of disengaging with the field of study are related to the meaningful relationships I had developed during that time spent at the gymnasium. These relationships were a factor in me adopting the language of ‘unwinding’ from the site of research (Michailova et al.,2013) as opposed to exiting it.

Unwinding from the field can still have implications for both participants and researchers which I feel should be acknowledged. For myself, unwinding from the field signalled the closure of an important phase in my PhD study, but also the end of a routine which had itself become an enjoyable phase in my personal and social life (Shaffir et al., 1980). Baumeister and Leary (1995) recognise that even in small scale fieldwork, where time with participants is limited, bonds are made, which participants may also find difficult to end. This issue is particularly relevant when trusting relationships (involving discussions of drug use for example), or reciprocal relationships, such as the ones developed between myself and other gym members when training or ‘spotting’ each other, have developed (Ortiz, 2004). It was not until I started to discuss the data collection phase of my research coming to

an end with the gym owner and a few of the people I had been training with, that I suddenly became aware that I was going to miss part of this environment and certainly some of the people there.

What was more surprising was that people at the gym seemed genuinely sad that I may not be there for the usual training banter in the future: *“researchers are often unaware of how the members regard them until they are either about to leave or are out the door”* (Altheide, 1980: 303).

There had been a development during the observation period of quite a few long-term established gym members and physically big characters (including competing bodybuilders) leaving the gym to train elsewhere. Two new gyms had opened directly within a half mile of the location of the case site offering brand new state-of-the-art bodybuilding equipment, cheaper membership rates and 24hr access. The departure of key members from the gym had led other less prominent members to follow and this had significantly affected attendance at the gym and any further potential for engagements with body sculptors. Losing gym memberships had also had financial implications for the owner of the case study site and was understandably a cause of stress, more so for the lack of loyalty the gym owner felt members had shown than the loss of revenue. These factors combined had brought about a natural end to access to many of the participants who were the focus of observations within the field, and an honest conversation with the gym owner (who had been the main gatekeeper and sponsor of the research) concluded the data collection phase in an amiable way.

When unwinding from the field of observation it is important to recall how one initially gained access, and the people involved in this process, as *“how one leaves the field depends a great deal on how one entered it”* (Letkemann, 1980: 292). I had negotiated access to the case study site with the gym owner (and in part his staff) at the outset of the project, in exchange for providing greater insight into the long-term consequences of exposure to AAS. This type of informal agreement is part of a relational contract between the researcher and gate keeper and plays an integral part in entry, and disengagement from, the field (Shaffir and Stebbins, 1991). To hold up my end of the

arrangement, I provided the only three men who continued to train in the gymnasium with a copy of the study abstract (P3, P10, P12) from which there was a general agreement with study findings.

3.9 Analysis Strategies

Tesch (1990) argues that there is no right or wrong way to analyse qualitative data, so long as the method of data analysis chosen attempts to treat evidence fairly and without bias. When considering the most appropriate method to analyse the data I had collected, it made sense to me to consider how this aligned to the study's conceptual framework, data collection methods, as well as the audiences to whom my research findings may be relevant. At the outset of this research project, I had discussed with my supervisors the relevance of study findings to two key audiences:

- **Academics** may be particularly interested in my novel use of Bourdieu's theoretical principles to counteract/ critique the narrow and pathologizing accounts of AAS use which currently dominate the literature.
- **Public health practitioners** may be more interested in the practical application of my study findings and recommendations and how these might inform harm reduction practices and services for AAS user's.

Whilst the above audiences would no doubt have an overall interest in both the theoretical and practical application of this study's findings, in presenting findings I was conscious that public health/ harm reduction practitioners may be less concerned with my approach in challenging the scholastic fallacy which is inherent within both the body image disorder/ addiction frameworks, whilst academics would be most interested in my novel use of Bourdieu rather than how commissioned services may be re-structured to implement the harm reduction recommendations developed as a result of this research inquiry. Given these challenges I resolved to utilize a dual approach to data analysis consisting initially of a 'thematic analysis process' to help draw out data which could have a direct and timely impact upon public health/ harm reduction practices. Following this I utilised Bourdieu's analysis framework of 'structural topography' which looks at the field of interest (in this

study this is the bodybuilding case study), the power dynamics within it, participants positionality of power within the field of study, and the interplay between field and the habitus/ capital of participants which provided a more nuanced account of the rewards of engaging in bodybuilding's sub-cultural practice of using AAS. This dual approach to analysis is now discussed in detail.

3.9.i Thematic Analysis Process

Boyatzis (1998) suggests thematic analysis is not simply a method of data analysis, more a tool for application in numerous fields, providing researchers with *'theoretical freedom: and a flexible and useful research tool which can potentially provide a rich and detailed, yet complex account of data'* (Braun and Clarke, 2006: 78). This project benefited from using thematic analysis, which is highly inductive, allowing for themes or patterns to emerge independently of researcher constraints, direction, or pre-existing coding frameworks (Frith and Gleeson, 2004).

A strength of thematic analysis is the fact it is *'data driven'* (Braun and Clarke, 2006: 83), allowing for the coding of both interview and field note data into emergent rather than pre-existing codes that may have been developed through a researcher's specific area of interest in a subject area. One criticism of researchers analysing qualitative data is that if themes or patterns reside anywhere *'they reside within our heads'* (Ely et al., 1997: 205), and researchers should not be so naive as to believe they simply *'give voice'* (Fine, 2002: 218) to yet unrecognised segments of verbal evidence. I was explicit (through reflective practice) in the recognition of my own bias as a health professional. On several occasions I made the conscious effort to simply listen to the accounts from participants rather than responding in a manner that might challenge respondents' constructions of health behaviour.

Analysis commenced at the point of data collection within this study (Braun & Clarke, 2006), with limited notes being made on any points of interest, or emerging concepts during face-to-face interviews due to the desire to not interrupt the flow of the dialogue and maintain face to face contact and interest. Telephone interviews provided more freedom for me to make notes

continuously without compromising researcher-interviewee rapport. During participant-observations I asked participants to clarify the meaning behind certain slang terms and phrases related to training routines and practices. For example: *Stacking* is a term used to refer to the combination of more than one drug being used at the same time, often involving both an injectable and an oral compound as this method of consumption is believed to enhance the overall effectiveness of the drug use regime. One area of continuous confusion was participants discussing the substances they had previously used, or were currently using, as these drugs can have both a generic and brand name (example: *tamoxifen* (generic name) and *Nolvadex* (Brand name)). This process was akin to needing to understand a new language whilst “*visiting a distant land*” (Becker and Geer, 1957: 29). If there was further uncertainty, clarification was sought with the gym owner during the closing down of the gym when other members had left, though I was clear never to discuss the nature of participants with the gym owner, only the substances which I required clarification on. Following completion of interviews all audio recordings were transcribed to provide a ‘*rigorous and thorough verbatim account*’ (Braun & Clarke, 2006: 88) of participants’ thoughts and experiences including pauses, interruptions, overlaps and participants’ body language (Silverman, 1997).

The process of transcription of field and interview notes provided a valuable opportunity to begin to engage with the data which is ‘*a key phase of data analysis within interpretative qualitative methodology*’ (Bird, 2005: 227). Immersion in both interview and fieldnote data through repeated reading and re-reading stimulated theoretical ideas in ‘*a more recursive process*’ (Braun & Clarke, 2006 p.86), with continuous moving back and forth between various stages of analysis to ensure data were presented with meaning rather than simply summarised (Silverman, 2006). The analysis used in this research followed six key phases (Braun & Clarke, 2006: 87), with the transcribing of field notes and interview recordings the initial phase followed secondly by searching across the data set (interview transcripts, fieldnotes) to find repeated patterns of meaning, and the creation and application of codes to the data based on Bourdieu’s tools and concepts. The third phase entailed

these codes being collated into potential themes (using an Excel spreadsheet), and the gathering and grouping of data relevant to each theme. As part of phase four these themes were reviewed against coded extracts and overall data picture to develop a thematic map of the structural field, habitus of agents and capital ownership and deployment. Phase five included refining each theme specific including generating clear definitions and names for each theme. The sixth and final phase included analysis of extracted texts in relation to the research aims. This produced an account of the subjective rewards body sculptors gained from the development of their variable body projects and their experiences on discontinuation of AAS practices. The highly inductive approach to data analysis within this study enabled key themes to emerge from data independently of researcher constraints or direction (Frith and Gleeson, 2004).

3.9.ii Analysing Bourdieu's Key Concepts in the data: *Capital and Habitus*

Following thematic analysis of interview data, all fieldnote records were then assigned to the relevant interview participant to build a '*structural topography*' (Bourdieu and Wacquant, 1992) of the gymnasium as a field of practice. This included assessing the ownership and distribution of the "*portfolio of capital*" (Grenfell, 2012: 87) amongst ten body builders' who I saw with varying regularity in the gymnasium during my period of participant observation. The ownership of capital provided study participants with an objective field position of power (Bourdieu, 2009 [1977]) capital has the ability to "*buy positioning within a field*" (Grenfell, 2012: 222) and propel a body sculptor' trajectory to accumulating *muscle capital*. Capital on entry and early navigation of the body building cosmos was assessed against all four forms of Bourdieu's capital domains which include cultural, social, economic, and symbolic capital (Bourdieu, 1986) summarised below.

-Social capital: the set of relationships that a single actor has with other actors and upon which they can draw to advance and/ or protect their interests. Bourdieu specifies that social capital can be less visible than economic capital, but not less powerful in determining the ability of actors to compete in the social field.

-Cultural capital : the knowledge of any kind that actors accumulate as a consequence of living in a particular context where for example, people read newspapers, watch movies, go to the theatre, listen to music, etc. The interests of social groups are reflected in the sources of knowledge that they provide to their members who, internalizing these sources, advance the interests of their group and contribute to reproduce the overall social structure.

-Symbolic capital : the prestige and social status resulting from recognition by related actors of an individual's cultural and social capital, which Bourdieu conceptualized in order to demonstrate that power does not necessarily result from economic capital only. Although distinguished from economic capital, symbolic capital can be converted into it.

-Economic capital : an accumulation of material resources, such as money and the ownership of houses, cars, business, and any other kind of asset that actors can dispose of as a consequence of belonging to a particular family or group. Although the reproduction of socio-economic inequality depends on the transmission of these resources from one generation to the next. Bourdieu argues that economic capital cannot by itself explain the structural and reproductive character of inequality (Bourdieu, 1986).

How these forms of capital translated into practice within the gymnasium are outlined later in the thesis in **chapter 4.2 Forms of capital in the bodybuilding cosmos**. Eight of the ten men I had extended contact with in the bodybuilding gymnasium were deemed to hold high levels of capital, with the other two holding low capital levels. See (**Appendix Ten: Accounts of habitus and capital**). The eight men with high capital all took part in face-to-face interviews enabling in-depth insight into both the capital resources they held on entry to the bodybuilding cosmos and the life histories behind their habitus which provided them with a feel for the bodybuilding game (Bourdieu, 2009 [1977: 12]). The two men with low capital from the case study gym declined to take part in semi-structured interviews, partly I believe due to their desire to disassociate themselves from their previous AAS user identity but were happy to chat at length during conversations in the gym about

their previous experiences of sourcing, using, and ending AAS use which proved useful. These two men were happy with me making notes of our conversations for use in the study. Their contributions are not provided in quotation format as I was only able to paraphrase their narratives at pace within the note's sections of my mobile whilst we spoke at the gymnasium. The contributions hence are recounted as field note extracts with the date on which conversations about AAS use with these two men took place. Both men had no previous connections to the gymnasium before joining, or experience of any sporting fields (other than participant 16 playing five a side football and participant 17 skateboarding). As a result of interviews not taking place, I had only a partial sense of these men's life histories (and habitus), though they were not the group I had the most interest in based on Bourdieu's direction that in a small-scale study such as this one "*data about the most significant individuals and institutions in the social space are the most useful; because of their powerful influence on the field*" (Grenfell, 2012: 241). My observations of both P16 and 17 training in the gym did enable me to gauge a sense of the capital resources they had at their disposal and how these influenced their 'feel for the game' (Bourdieu, 2009 [1977]: 12) of developing their own body projects and appropriating *muscle capital*.

As I was unable to observe the seven men recruited for telephone interview 'in practice' in the gymnasium, they were not included within the mapping of structural relations outlined in (**Appendix Ten: Accounts of habitus and capital**). For six of the seven men interviewed by telephone I was able to obtain insight into their life histories and the degrees of capital they held both on entry to the bodybuilding cosmos, as well as how this had been deployed to their advantage when working towards their body project goals. However, my interview with participant 13 was short in duration (less than five minutes) compared to those conducted with other participants of between 40 mins-80 mins. Participant 13 only answered questions 8,9,10 on the interview schedule with him steering the conversation to talk specifically about his patterns of AAS cycling and pharmacological strategy to manage AAS discontinuation which he was aware his peers had also provided to me. As a result, participant 13 is only featured within these elements of the thesis findings. I did consider for a time

whether to include this partial glimpse into the participants body sculpting practices and decided given the small sample size and challenges in accessing members of a sub-cultural practice involving substance use that this content should remain. Overall, I was reassured those accounts provided during telephone interviews were authentic representations of body sculptors' life histories and experiences of AAS use due to all seven men either knowing of each other, or being friends, which resulted in the snowballing of sample connections.

In **Chapter 4.0 Journeying through the body sculpting cosmos**, the cosmos is considered to include both the case study gymnasium where observations took place and the wider field of bodybuilding represented in accounts of training in other gymnasiums from body sculptors interviewed by telephone (Participants 4,5,6,7,8,9) participant 13 did not provide any details of the gym where he trained. I describe accounts of practice in the world of bodybuilding from all 17 body sculptors' (including the 15 men interviewed and discussions with 2 men not interviewed P16 and P17), though greater focus is orientated towards the eight men I interviewed and trained with in the case study gymnasium who held what I considered to be high capital (including participants 1,2,3,10,11,12,14,15). The total processes of capital analysis following participation observation and thematic analysis of interview transcripts has provided a rich and descriptive data set which reveals the *logic of practice* (Bourdieu, 2009 [1977]) surrounding both the rewards and harms of practice within the field of bodybuilding. This practice can be represented with the equation of (*habitus*) (*capital*) + *field* = *practice* (Grenfell, 2012: 50).

3.10 Power, positionality, and own role

Foucault states that power is rarely centralised, but dispersed through capillaries of society, meaning it is found everywhere, and "*comes from everywhere*" (Foucault 1998: 63). It could be suggested on face value that there was a distinct power imbalance during the data collection phase of this study between the interviewer (as the creator of these social interactions and their stage) and the interviewees (Kvale, 2006). Intimidating interview locations and the anxiety of the interview process

can lead to interviewees feeling pressured to please or impress the interviewer by saying what they want to hear in a form of social desirability response bias (Hofisi et al, 2014). I believed that by hosting the interviews in a bodybuilding gym setting participants were familiar with, I might be able to place participants at ease and reduce any anxiety they might feel about being interviewed (Brinkman & Kvale, 2005). This approach was to the best of my knowledge successful, as I was unable to detect any hesitations or unplanned breaks in the conversational flows experienced in piloting.

The interview schedule was formed at the beginning of the research based on the broad overall questions that I felt needed to be answered (Babbie and Moulton 2001), and later refined through piloting with a member of staff from the case study site. Whilst the schedule used refined the direction of interview discussions, the open-ended questions in the interview schedule provided a flexible but focused basis for conversation, giving participants a great deal of flexibility in how they responded (Bryman, 2004). In comparison to more structured interview schedules and questions, semi structured interviews provide participants with the opportunity to expand on issues they felt were important (Robson, 2002). This resulted in some interviews lasting almost 1hr 20 minutes, with the typical interview time around 40 minutes, though one interviewee (participant 13) completed his interview in less than 5 minutes due to his desire to focus purely on discussing his approach to cycling and post cycle pharmacology, as well as him having another appointment that evening.

Qualitative interviews, particularly those of a semi-structured nature are unique in the potential for both parties to hold knowledge that the other person does not (Nunkoosing, 2005), creating a power see-saw. On the one hand, I held the full context of the nature of the research topic, and the aims of the study; whilst on the other, the participants were the experts whose lived experiences were the focus of research questions (Karnieli-Miller et al., 2009). As a result, it may be suggested that power is a shared concept in semi structured interviews, represented by a contested dynamic where *“both the interviewer and the interviewee are constantly seeking to (dis)equalize their*

respective authorities" (Nunkoosing, 2005: 699). Participants control their decision to engage in research projects, or not, based upon the extent of information they are provided with about the research aims and process. The provision of participant information sheets and overview of the research project on the Human Enhancement Drug Network web page, enabled participants to be fully informed in their decision to engage with the research by offering informed consent (Mack, et al, 2005).

An example of power-sharing dynamics in the interview context was highlighted when participants were asked to describe the regime, and names of the bodybuilding drugs they had taken previously (both on and off cycle). Interviewees disclosed what they felt was appropriate about their previous level of drug use, often using slang terms to describe the drugs, and the regimes in which they had been taken. As much of the language used in this discourse was distinctly related to the sub-culture I was looking to understand and unknown to myself as '*an outsider*' (Dwyer and Buckle, 2009), I was in a position of having to ask interviewees to share their native language and meanings with me, as they felt appropriate. On occasion, it felt that asking these questions would interrupt the flow of the dialogue between myself and interviewees, so I resolved it would be more effective to seek clarity on the terms after the interviews, either through a Google search or by asking the gym owner.

In this element of the research process, I was completely dependent on the knowledge interviewees held about their practices within this sub-cultural context (Karnieli-Miller et al., 2009). Interviewees determined the nature of what they said, and how they said it during exchanges, controlling the tempo and timing of the discussions. Some interviews lasted well over an hour, requiring me to summarize and repeat back the interviewee's comments to check for clarity. As previously mentioned, other participants responded more directly to questions, with less reflection and/or redirection of discussion to associated topic areas, leading to shorter interview times of 40 minutes and one exception of an interview taking less than 5 minutes. Reliance on research participants' expert knowledge and experiences to shed light on the research topic, led me to abandon a degree

of control to participants by enabling them to control the interview pace, nature and flow, with me “*deliberately taking a less powerful role*” (Hoffman, 2007: 321). Despite having to do this, I felt that I was able to develop a good rapport with most interviewees, leading to a relationship of trust. This trust was also partly facilitated through snowballing of interview contacts. One member of the interview sample who contacted me confided that their friend (a previous interviewee) had said I was an okay guy, and trustworthy.

3.11 Ethical considerations and process

The first aspect to consider regarding this study is the sensitivity surrounding research of substance use. The personal use of AAS is not illegal within the United Kingdom. Supply and distribution are illegal under Class C of the Misuse of Drugs Act (Department of Health, 1971) and scheduled under Schedule 4 Part II of the Misuse of Drugs Regulations (Department of Health, 2001). One of the many ways in which AAS can be purchased is via the internet, but so long as the drugs are purchased from a UK website (with a UK supplier) this does not fall under the boundaries of illegality. As the focus of this research project was orientated towards exploring body sculptors’ historical experiences of personal rewards from using AAS and their experiences of exiting AAS use, these activities did not place me in the realm of investigating illegal activities. At no time during the data collection for this study did I witness the distribution, or use, of AAS, or any other illegal activities. As a result, there were no legal conflicts of interest to report within this study under existing legislation.

3.11.i Non-maleficence and Beneficence

All social research is required to conform to a range of ethical principles looking to “*reduce harm to participants, lack of informed consent, invasion of privacy and deception*” (Diener and Crandall, 1978: 19). Not doing any harm to study participants (*non-maleficence*) was a primary consideration in this research project. AAS are likely to be used by a wide social spectrum of the population (Graham et al, 2008). It was therefore difficult to predict any specific pre-existing vulnerabilities

study participants may have had prior to engagement within the study, as any discussions can stimulate reflection on topics people may find distressing (Richard and Schwartz, 2002). I took a proactive approach to make study participants aware that, should they be required, pathways had been made available to access psychological wellbeing counselling services (either face to face or via telephone). This support service was facilitated via the '*Dudley Counselling Centre*' whom I approached prior to seeking ethics approval and had agreed to provide support to study participants should it be required (**see Appendix Nine: Psychological Support for Participants**). A follow-up conversation with the counselling service confirmed that there were no requests received for support in relation to this study.

The overriding aim of ethical considerations is to reduce the likelihood that participants might experience harm in relation to their participation within the research project (Bowling, 2002). I proactively mitigated these risks through the provision of a participant information sheet (see **Appendix Two**) and consent form (see **Appendix Three**) prior to research interviews taking place, and available online (<https://www.dropbox.com/home/Off%20cycle%20experiences>). Posters were erected within two locations in the case study notifying gym members of the research topic context to be as overt as possible regarding my presence in the case study gymnasium (**see Appendix Six: Poster Advert for Study**). During any interviews I gently steered the conversation towards new topics of interest, initially probing to make sure the participant was happy with the line of inquiry. This provided opportunity for the participant to decline to discuss this area further if they felt any unease (Oliver, 2010).

The second potential risk to participants was that of breaching their confidentiality because of researcher malpractice. I was conscious throughout all elements of the research to uphold participants' anonymity; this extended to the choice of interview location. Interviews were held in a locked room to which I had been given a key by the gym owner. The room was on a separate floor from the gymnasium with a separate entrance, offering a discreet opportunity to enter the room with minimal risk of being seen by other gym members. Piloting had ensured conversations could

not be heard by anyone listening outside of the room. Once the interview had been completed, all consent forms were stored securely, with hard copies handed into Faculty research governance staff for secure storage by the university. Recordings of interviews were downloaded from the audio recorder and then deleted. The downloaded audio files and electronically transcribed records are saved and stored in my BCU student secure OneDrive storage, as per Birmingham City University research governance procedures. The final element of consideration for potential harm would be that of disclosure of participant characteristics including geographical location of the case study gymnasium. I avoided this issue by not including any photographs collected during my time in the gymnasium in this thesis and not referring to the gymnasium name during any part of the thesis. Whilst I have provided a description of the study setting's characteristics, these are ambiguous enough to ensure the same level of confidentiality was afforded to secondary analysis as was afforded to the primary data collection process.

Whilst *beneficence*, or acting to benefit the participants, was challenging to achieve in this study, confirmation from the gym owner that he now offers harm reduction advice to gym members using, or thinking of using AAS made me feel that my obligation to act for the benefit of others had been achieved in an indirect manner. Also, preliminary study findings have already been shared with GP trainees on rotation at my public health department, with Directors of Public Health across two Local Authorities and Commissioners of community substance misuse treatment services. I hope to build on the dissemination of preliminary study findings through formal publication at a future time should this thesis be accepted. Hopefully, these activities may help inform harm reduction practices in the field of support for AAS users.

3.11.ii Informed Consent

Social science research ethics are bound to the central concept of informed consent (Bryman, 2008). The participant information sheet (PIS) was developed providing a cogent overview of the research aims, process and focus and how any data collected would be used. The participant information

sheet (PIS) was made available at the case study gymnasium reception, at harm reduction services used for participant recruitment in South Yorkshire and made available online via a Dropbox site. This ensured that *“the core of information about the research has been circulated; and all respondents receive the same standard information”* (Oliver, 2010: 31). This information was supported by verbal dialogue with potential participants around any points of ambiguity, ensuring they were competent, adequately informed and had reached a decision to take part in the research without coercion (Flick, 2009). As already discussed, a written consent form was used to record consent prior to commencement of face-to-face interviews, and verbal consent was recorded for phone interviews prior to commencement of interviews in line with Faculty Academic Ethics Committee approval (see **Appendix Seven** and **Appendix Eight**). Men taking part in phone interviews had already previously been directed to the participant information sheet and consent form via an online Dropbox site during an initial phone call where the interview slot had been agreed.

Consent during field work was a continuous process. I was compelled to announce my identity as a researcher to those new gym members I encountered. I also made constant reference to my research project to the gym members with whom I had an ongoing rapport, re-enforcing my researcher status. Two of the ten gym members included in the structural analysis of the field did not wish to take part in formal semi-structured interviews. Partly I felt this was due to their desire to distance themselves from an AAS user identity. Both men were aware of my researcher status and were happy to discuss their experiences of AAS use with me during conversations. These conversations were recorded in my field note entry for that day.

3.11.iii Invasion of privacy and avoiding deception

This area of ethical consideration was particularly relevant to field work in the case study site. Whilst every attempt was made to announce my presence (both through posters in the gym and by continuously introducing myself to all new contacts), ultimately the very act of being in a public space meant I was privy to discussions by gym members who were not proactively engaged in

talking and training with me. My position was to ignore all conversations that were not associated with the topic of research under investigation from anyone to whom I had not explained my researcher role. I felt the greatest risk within fieldwork within the case study gymnasium was overstepping the level of access that general training and chats provided. I was very careful to be courteous, polite and tread tentatively during new contacts, and constantly sought approval for new conversational directions. There were certain members of the gym whom, due to their physical size, aggressive displays during training, or just their general demeanour, I actively avoided during field work. The final element of ethical consideration reflects any presentation of the research project as something other than its true nature (Bryman, 2008). The goals of the research were made explicitly clear throughout promotion of the research project: the posters in the gym, the use of participant information sheets with all interview study participants and the promotion of the study online (via membership of the Human Enhancement Drugs Network: <https://humanenhancementdrugs.com/>).

The other element of consideration for telephone interviews was informed consent, as the individuals would not be making physical contact with me. I proposed that any 'body sculptors' expressing an interest in taking part in the study by emailing, texting or calling my mobile phone (advertised on the HED network website referred to earlier), would be sent a link to the participant information sheet, and consent form, via a Dropbox account. On each occasion I confirmed to participants that I would be happy to call them and carry the costs of any phone calls (pre-agreed with gym owner that I would reimburse him), though on most occasions participants said they would rather call me. Prospective interviewees were then asked during the phone call with the audio recorder running to confirm they had read the participant information sheet and consent form. Once this was confirmed participants were asked to consent to taking part in the study, and to the interview being recorded for transcription at the initiation of the phone call prior to the formal interview taking place.

I took written notes during the interview conversations to highlight points of interest, and in case of recording equipment malfunction or in case recordings were not be clear enough to transcribed (Burke- Smalley and Miller 2001). Although interacting with participants via telephone can mean loss of non-verbal language interaction during interviews, reducing social communication between researcher and participant, the telephone mode of data collection did appear to place participants at ease, empowering them with greater control during the interview process (Taylor, 2002). I found that participants were very open in these telephone interviews, sometimes more so than face-to-face interviews. The ability to make notes on reflections, and areas of interest, without worrying about losing rapport (as in a face-to-face interview), worked well in phone interviews, and meant I was able to make more detailed reflections on areas of interest. Engaging with participants from their separate interview locations (via telephone) can mean loss of non-verbal language interaction, reducing social communication between researcher and participant (Oltman, 2016). However, in this research I found that telephone modes of data collection had the potential to place participants at ease, empowering them with greater control during the interview process (Taylor, 2002).

3.11.iv Data Storage

Hard copy of access to consent forms from gym owner and consent forms from face-to-face interviews were hand delivered to HELS staff at BCU where they were sealed and signed in front of me and stored in university archives. Field note prompts made in the notes section of my mobile phone during participant observation sessions were immediately deleted the same day once transferred into my electronic field journal (usually whilst still at the gymnasium). This is stored in the BCU secure student OneDrive. Original audio recordings of telephone and face to face interviews were deleted from the digital recorder once the audio files had been electronically downloaded and are stored on the BCU secure student one drive. All participant coding from field work and interviews was also stored on the BCU secure student one drive. These processes assured participant

anonymity in respect of interview data by ensuring *'it is impossible for other persons to identify the participants, or for any institution to use it against the participant'* (Flick, 2009: 40).

3.12 Validity and Trustworthiness

Flick (2009) suggests that empirical research in the natural sciences should focus upon objectivity, where the outcomes of investigations are reliable, valid, and generalizable. This research project has however taken a qualitative approach to understand the subjective, unique experiences of male body sculptors within a distinct time and place (Shenton and Hayter, 2004). Whilst criticism is targeted towards qualitative research in relation to it being unreliable, invalid and lacking scientific rigour (Robson, 1999), there is ongoing debate towards the relevance of reliability and validity in qualitative research (Long and Johnson, 2000; Rolfe, 2006), as these terms can be considered as representative of a more positivist research paradigm (Golafshani, 2003). Whilst many researchers utilise reliability and validity in qualitative studies in the same manner as they are used in the quantitative world (Mason, 1996; Le Compte and Goetz, 1982; Kirk and Miller (1986), others suggest the quality of any study should be judged within the terms of its own paradigm (Healy and Perry, 2000). Rather than reliability and validity conflicting with the strategies employed in qualitative investigation, these scientific concepts may require redefining within a qualitative research context (Strauss and Corbin, 1990).

Validity in quantitative research may be best viewed as a test of whether the research is truthful and honestly measures what it was intended to measure (Joppe, 2000). This is also true in qualitative research, for if your research is valid, you are *"measuring what you say you are"* (Mason, 2007: 39). Efforts to ensure validity within the research involved the piloting and testing of the semi-structured interview schedule with gatekeepers within the case study site. This allowed removal, or clarification, of ambiguous terms and any research question formations which may have limited responses from research participants (Flick, 2009). As the narratives provided by study participants

within interviews and participant observations offered broad and varying accounts of their and their co-trainers' rationales for AAS use and their experiences of AAS discontinuation, some recent and some historical, validity may be inferred.

Internal validity focuses on the rigour of study design and how well you have accounted for all independent variables, so that you can be sure of any correlation or causal relationship between these and the dependent variable. Internal validity is a focus of the natural sciences (Leininger, 1994) where there is a greater likelihood of certainty around the range of independent variables you are likely to have to control for. **External validity** is also highly problematic for qualitative researchers due to the uniqueness of social settings, meaning study findings cannot be generalized. By contrast, the length of time spent within the field collecting ethnographic data enables participation and immersion within the study group, providing ample time for the researcher to reflect on the appropriateness of the "*match between researcher's observations and the theoretical ideas and concepts they develop*" (Bryman, 2008: 376).

Reliability is a further challenging concept in qualitative studies, particularly *external reliability*, as one cannot freeze the social setting within which a study has taken place (LaCompte and Goetz, 1982). The uniqueness of human behaviour and the many constructions of reality which exist in the social world mean the social environment where data was collected in this study is impossible to replicate exactly, meaning **replicability** would be difficult to achieve. **Internal reliability** relates more to the ability of co-researchers to provide a consensus of what is seen and heard within the field (Bryman, 2008). However, a constructivist stance means that any interpretation of the social world is directly related to the lens through which events and experiences are seen and heard by researchers. The aim of this study was to construct "*as good a representation of the field relationships as possible*" (Grenfell, 2012: 240) by accounting for participants' actions and experiences as well as the structural field within which these take place. However, these are undoubtedly related to the researcher's own unique habitus and position occupied within the field

(Bourdieu and Wacquant, 1992). I was pro-active in seeking explanations from field participants and interviewees for any foreign or ambiguous terms relating to practices, as well as re-checking points that required clarification with the owner of the case study site during the closing of the gym. This may be perceived as going some way to meeting the requirements of internal reliability criteria. The issue of **generalisability** is more relevant in the field of positivism and as this study's aim is to provide insight into men's experiences and interpretations of AAS discontinuation in a defined space and time, generalizability was less of a concern for me. I was looking to gain insight into individual experiences of a phenomenon, or subtypes of experiences which result in what George and Bennett's (2005) identify as a 'building block' case study, which could be effective in formulating a more comprehensive theory for body sculptors' actions within the off cycle. Starman (2013) further suggests that, through continued replication of such a case study model (including its processes and individual characteristics), even a sole case study can be theoretically important.

3.12.i Alternative Criteria in qualitative research

Validity is closely aligned to trustworthiness (Lincoln and Guba, 1985) in qualitative research and this can be broken down into the subcategories of credibility, transferability, dependability, confirmability, and authenticity. Firstly, **Credibility** can be subsumed into two frameworks, 'triangulation' and 'member checking' (Patton, 1999). Triangulation includes utilising a range of data sources and data collection tools to gain a more complete account of the research problem. From the outset of this research project, I sought to gain insight into a range of participants both from within the case study site in the West Midlands and more widely via snowballing of participants utilising a harm reduction services in South Yorkshire. Attempts were made during field work observations to engage with "*the most significant individuals*" who were "*the most useful*" (Grenfell, 2012: 241) to the study's goal of understanding the rewards gleaned from body work construction and the appropriation of *muscle capital* and the challenges of discontinuing AAS. Research findings

(in abstract form) have been shared with a small group of study participants from the case study gym for member checking and approval. However, as Bryman recognises, it is “*highly questionable whether research participants can validate the researcher’s analysis, since this entails inferences being made for an audience of social science peers*” (Bryman, 2008: 378). Participants are members of a sub-cultural group who have their own ways of interpreting, communicating, and describing their social world. It took some describing of the academic concepts I had used to frame the study findings to the three men still training at the gymnasium, though there was a general agreement the research findings were a true representation of the men’s experiences.

Transferability concerns how likely it is that the study findings might be applied by other researchers to similar issues in another context or setting. The ability to replicate the research environment, including the uniqueness at a specific point in time of the social groups involved in data collection means the ability to transfer the research to wider contexts is limited, a problem in qualitative research more generally. I have however provided detailed accounts of the research process and context, to allow any prospective researchers to “*make judgments about the transferability of findings to other milieu*” (Bryman, 2008: 378). **Dependability** applies to the auditing of the research process. I kept a detailed record of the processes involved at various stages of the research, including the recording of pre-access notes of securing a case study site, recordings of participant observations and transcription of interview recordings, as well as decisions relating to analysis and choice of theoretical lens as outlined within this thesis. This process can always be enhanced further through validation by a second researcher though this was not possible as I was the only researcher, and it is rare that this process is undertaken in qualitative studies (Bryman, 2008). Decisions made in the field and during broader thesis construction were regularly discussed at monthly meetings with my supervisory team, offering some level of external scrutiny.

Confirmability outlines that whilst complete researcher objectivity is near-impossible to achieve in social research, researchers must be seen to have “*acted in good faith*” (Bryman, 2008: 379) by

providing a fair and non-biased account of the nature of research findings. The use of Bourdieu's theory as a conceptual framework has explicitly forced me to concentrate on reflexivity, including the application of "*the same epistemological approach to the researcher/ philosopher as to the researched*" (Grenfell, 2012: 224) and the examination of my own habitus and its relation to the choice of research topic and method utilised to explore the issue of interest, **see section 5.7** of this thesis). Reflexivity is a key epistemological principle for Bourdieu, to avoid falling within the confines of '*scholastic fallacy*' by offering a misrepresentation of the social world that simply follows the established pre-suppositions of the academic world (Bourdieu, [2000, 1979]: 10). During the data collection period I utilised the reflective cycle model (Gibbs, 1988) whenever an issue arose that prompted an emotional response on my behalf. This critical reflective practice provided me with an opportunity to understand my own pre-reflexive patterns of thinking and how they informed my subjective view of events that took place in the case study and during interviews.

Finally, ***authenticity*** is reflective of the impact of the research on the social groups involved and whether the research has been purposeful in improving participants' awareness of theirs and others positionality in the research area of interest (Bryman, 2008: 379). One of the most rewarding impacts of this research project was reflected in a discussion with the gymnasium owner at the end of a workout whilst we were reflecting on the research project. He stated that he now tells all men, particularly younger body sculptors, to think about the amount and length of AAS use and the effects this will have over time on their natural hormonal production (FN 08/06/17). The fact that conversations of a harm reduction nature are now taking place in the gym made me feel the research project had been worthwhile from both an academic and professional practice perspective.

Chapter Four: Journeying through the bodybuilding cosmos

4.0 Chapter Introduction

This chapter provides an outline of key themes arising from fifteen interviews with study participants who were currently using or had a history of using AAS to support their bodybuilding goals. Interview participants were assigned a number (P1 through to P15). Two men who did not take part in interviews but discussed historical accounts of AAS use and discontinuation during two participant observation sessions are recorded as P16 and P17. The conversations I had with these and other gym members in the case study gymnasium were recorded in field note records. All gym members were verbally made aware of my researcher status which was also promoted by two research posters in the gymnasium, see **appendix six: Poster Advert for Study**.

As previously described in **section 3.3**, field note records of observations and conversations during the ten-months participant observation period are presented in the format FN 00/00/00 P0. FN represents 'field note' followed by the day/month/year of field note entry and the number assigned to the participant concerned. Where I refer to my own personal reflections from field note entries no participant number is included unless my reflection is orientated towards a study participant.

4.1.i The bodybuilding cosmos: Describing the gymnasium as a spatial field

The heavy black painted cast iron door at the entrance to the bodybuilding gymnasium opens into a cavernous room with high whitewashed walls, its ceiling covered in redundant industrial piping and air ducts. Immediately you are aware that this is a far cry from the popular fitness gym's now thriving in high streets across the country. The only windows are single paned yellow/brown in colour, too high to see out of, but wide enough to illuminate the gym's 1500 square-foot footprint. Suspended strip lights reflect off the gym's thick black rubber industrial flooring upon which sit seemingly endless rows of exercise workstations. The workstations are metal in construction, uniformly white, paint peeling from the frames, with thick red cushioned pads for trainers to sit

upon during use. Tubular metal pipes protrude at varying angles from the stations enabling round steel plates to be added to the machines, increasing the weight (and difficulty) of an exercise. Other workstations in the gym have pre-loaded plates within their construction, enabling trainers to easily increase or decrease the load to be moved during a workout. Handheld dumbbells sit neatly paired upon iron racks spanning the length of one of the gym's internal wall's, whilst others lie on the floor abandoned by trainers after their use. Various walls in the gym have photos of male and female bodybuilder's, muscular and tanned, wearing brightly coloured briefs and bikinis as they pose in celebration of their competitive success next to waist high trophies. The remaining walls feature posters of bodybuilding greats and the respective body parts that led them to fame during their competitive heydays. The American bodybuilder Tom Platz quads and hamstrings feature in the largest poster providing an example of extreme muscularity, providing motivation for all who train below it.

To use the facilities at the gymnasium, members present their membership card at the gym counter or a pay-as-you-go training fee. Once the reception counter is navigated, trainers are free to enter the gym's training area and begin their workout. The workstations sit in rows equidistance from each other in a similar manner to the machines of production which would have resided in the building during its industrial past. Each individual machine faces in the direction of one the gym's walls with eight feet high mirrors spanning its length, underneath which are metal racks of handheld dumbbells sit, ranging from 2.5kg to 85kg each in weight. The gym mirrors function as a means by which gym members can monitor their execution of a 'lift', assessing form, cadence and range of motion ensuring the maximum benefit is achieved from the exercise under performance. Lifting a weight with poor form means the trainers progress will be impeded, or worse, risks injury and a prescribed period of training abstinence, a bodybuilder's worst nightmare. Whilst the layout of workout stations in the gym may seem haphazard to the untrained eye, this belies the calculated strategy employed in the positioning of equipment to support trainer's seamless transition from station to station. Experienced bodybuilders train using 'split routines' where muscles are exercised in specific

groupings during each gym visit (back and shoulders, legs and biceps, chest and triceps). During subsequent gym visits, trainers will focus on exercising antagonist muscle groups, giving the muscles activated in the previous session time to rest and recover. To ensure gym members can easily transition from one machine to the next during a workout, various pieces of equipment required for each split routine are strategically clustered together. Exercising of body parts in this manner is usually repeated in a cyclical pattern ensuring appropriate balance of effort and training stimulus towards the whole body across a week. This strategy typically continues for around twelve weeks when a routine may be changed by a trainer to avoid a plateau in progress. Towards the far end of the gym a staircase leads down to the lower floor of the building. The basement level of the gym is identical in dimensions to the upper, with a full-size boxing ring sat at its centre, surrounded by a dozen boxing bags hung from the ceiling. Beneath the staircase that leads down to the lower level sits the squat rack station an iron box shaped structure, bolted to the floor and reaching ten feet into the air. The structure affectionately known as 'the rack' provides gym members with a meter square area within which they are confined during performance of powerlifting exercises such as the deadlift and squat. Around the rack sit a range of training stations designed to place resistance on either the quadriceps, hamstrings or calve muscles of the legs. Often these stations are used to 'pre-exhaust' smaller muscle groups prior to them being pushed to new thresholds within the rack.

The downstairs area of the gym is less uniform in layout than the equipment upstairs, in part due to space being limited. It is also an area avoided by many recreational trainers who are more concerned with improving the characteristics of the muscles in their upper body. At the opposite end of the lower level is the cardio area made up of truly retro aerobic equipment (mainly treadmills and cycles from the early 1990's) which appear to need repair, or replacement, before their worn parts seize permanently. Typically, these are used by men and women adorned in heavy sweat clothing who are looking to shed weight and burn fat as they approach closer to their bodybuilding competition dates. Whilst observation and engagement with competitive gym members was conducted in the basement of the case study on occasion, most of data collection was on the upper gym floor. This

strategy provided access to a wide variety of training types (competitive and non-competitive bodybuilders). The upper floor of the gym also provides members with a less formal space where they consumed a range of pre- and post-exercise nutritional supplements and pharmacology as well as being able to socialize, sharing reflections on their latest workout or progress as they worked towards their body project goals as well as observing other members at work and scrutinizing their training practices. Entry routes into the world of bodybuilding discussed by men in this study are now contextualised in the following section.

4.1.ii Entry Routes into bodybuilding

Motivations amongst the men in this study for starting lifting weights either in a commercial fitness gym, bodybuilding gymnasium, or at home-built gyms, could be broadly summarised into three overarching themes. **Theme one:** reflected participants' desire to be big as a means of survival in areas of deprivation where their upbringing had been tough.

“it was very physical where we were from, it was a hard place and you needed to be physical to look after yourself” (P. 3)

“it was being as big as you possibly could be and therefore you appeared physically hard and most fights are fought with the eyes before the hands” (P.4)

Role models such as action heroes (Bruce Lee and Arnold Schwarzenegger) provided inspiration for the initial formation of body goals based on muscular size, strength, lean physiques, and physical toughness:

“I remember seeing pictures of Arnold, Sergio Olivia and thinking I wanted to develop myself; five hours at a time lifting weights, we bought bodybuilding monthly and diversified with Karate as well, also I played gold for a while but I had got as far as I could go and just thought right I want to enter a bodybuilding competition” (P.11)

Theme two: included participants' induction into the muscle and strength building culture by family members (usually fathers and brothers), or friends of older siblings who were themselves engaged in fields such as powerlifting and bodybuilding. Two participants of South Asian origin had family backgrounds in stone lifting and wrestling meaning they regularly witnessed older males training in

powerlifting activities either at the home, or at a gym. As a result, repeated exposure to fathers and brothers in their power lifting activities (including locally held community stone lifting and strength competitions) stimulated a desire amongst these men to lift weights at an early age.

“my dad was a strongman and competed locally and would pick up stone and compete, I think I had that gene from him” (P.9)

Other men were encouraged to lift weights by older siblings and their peers either within home gym environments (often in garages), or via offers to take them to train in bodybuilding gyms they frequented. Despite the attraction of building a strong physique, not all participants had the confidence to join a bodybuilding gym at the outset of their body sculpting journey and so improvised at home:

“I decided to build a gym in my back garden, I had a massive shed and all my wages, 45 quid a week went on weights, I saved up and saved up and then started going to the Weider shop in town; people made their own weights out of metal bars and cement into plastic cans, yes it was their older brothers who got us into it” (P.3)

Whilst participant 9 did accompany older friends to train in a bodybuilding gym for the first time, he found himself overwhelmed by the experience. Whilst the physiques of established bodybuilders in the gym provided further motivation to embark on developing his own body project, the man decided to train at home to build a base level of strength and size before entering the competitive arena of the bodybuilding gymnasium:

“I was under-weight, and my mates were big and training loads, they asked me to go to the gym, but I didn’t have the confidence to say I’ll train with you. I decided eventually to go for it with a couple of friends, I was more like a spectator on the side which felt weird at the time, so I bought a bench to use at home and pile the pounds on” (P.9).

Theme three: included men’s initial experience of strength training with weights in a gymnasium to support their amateur performance in other sports (including golf, kayaking, karate, boxing).

Experience of sport-specific injuries (mainly back and shoulder problems) meant weight training was

also prescribed by physiotherapists as a means of rehabilitation in a bid to return participants to wider competitive sporting interests.

“I dislocated my shoulder kayaking so started going to the gym to heal that, and I was better at the gym than I was at kayaking” (P.1)

For some of these men, time spent in the gym lifting weights was found to be of greater interest and enjoyment than their primary sporting discipline, resulting in a transfer to spending greater amounts of time engaged in gym work, eventually leading to adoption of a bodybuilding identity:

“Joined the army, boxed in the regiment, then got my nose broken three times and had my licence took off me. So, I started training for size instead of staying smaller” (P.7)

“I was doing martial arts for quite a while and getting injured, wasn’t healing as fast as I used to and was looking for a new hobby where I wasn’t breaking fingers or toes” (P.12)

Once men had eventually transitioned into training in a bodybuilding gymnasium their experiences were influenced by their individual habitus as a form of agency (itself a by-product of their embodiment of various life histories from practice in other social fields). The men’s habitus also informed their ability to deploy to their advantage the various forms of capital resources they had available at their disposal. The forms of capital valued in the bodybuilding cosmos are outlined in the following section.

4.2 Forms of capital in the bodybuilding cosmos

Participant observation and interview data was utilised to map a ‘structural topography’ (Grenfell, 2012) of the bodybuilding cosmos which reflected the positions of orthodoxy held by study participants based on their ownership of various species of capital which were intersubjectively valued within the boundary of the field of bodybuilding. My observations in the gymnasium were focused towards ten gym members. Through interviews with eight of these men and time spent working-out in the gymnasium with the other two I was able to classify their status as holding higher or lower levels of capital specific to the bodybuilding cosmos. See **Appendix 10: Accounts of habitus**

and capital. Capital was defined and recorded using all four forms of Bourdieu's capital domains (cultural, social, economic, and symbolic) which are described below:

-Social capital: who study participants had friendships with at the gym or more widely in the bodybuilding cosmos and the corresponding level of *muscle capital* that person occupied. Are the people you are known-to heavily muscled and strong with a well-balanced physique, do they compete in bodybuilding shows, what titles have they won, how well are they respected by other gym members, what qualities do they possess related to bodybuilding that others may envy or wish to possess, what social connections do they occupy, do they have expert know-how knowledge of ethnopharmacology practices, do they have good access to ethnopharmacology. Knowing these bodybuilders and being associated with them provided study participants with an advantage when looking to progress their own body project.

- Cultural capital: a know-how knowledge of practice regularities in the gymnasium derived from a history of practice within previous social fields containing rules, regularities, and codes of conduct in fields that were competitive in nature. Relational fields such as the armed forces, amateur/professional boxing, martial arts, competition in strong man events or Asian stone lifting gave men a sense of how to align to bodybuilding's field regularities (correct modes of dress, physical conduct, posture, eye contact, verbal conduct, when and how to talk, when not to talk, know-how knowledge of how to taxonomize the body and its various muscle's, as well as a basic knowledge of the equipment frequently used to exercise these muscles). Cultural capital provides a way to practice in a new field that does not draw inappropriate attention to any naivety and allows one to get on with the process of building a body project and developing a stake in the *muscle capital* game. In this sense cultural capital is revealed when the habitus springs into action upon entry to a field and experience of its doxic regularities.

-Symbolic Capital: how men in the study were perceived by others in the gym and the wider bodybuilding cosmos. Symbolic capital typically reflected study participants ownership of other

forms of capital (social, cultural, economic) which others admire, respect and value. Men with high symbolic capital are worthy of being known, due either to their level of *muscle capital*, know how knowledge and experience of competitive bodybuilding, various training techniques, expert knowledge of ethnopharmacology, but also because of their likeability and personality.

-Economic Capital: In its basic form economic currency is required for gym membership, a nutritionally laden high calorific diet, nutritional supplements such as creatine, multi-vitamins, branch chain amino acids (BCAA's), pre-workout stimulants (Grenade/ Ultimate Orange), post training protein shakes, AAS and ancillary drugs (including human growth hormone and PCT products). According to Bourdieu (1986), all forms of capital are modified forms of economic capital which can be transformed into a currency of value within the field at a given time. This notion is reflected in accounts from participant 1 in this study of not paying full price for his AAS due to the social network's he held, offering an advantage in his ability to develop his physique and progress towards his body work goals at a rate in advance of other gym members.

4.3 Starting out in the gymnasium

When I first walked in the bodybuilding gymnasium I become immediately aware of my own habitus which provided me with a feel for the game (Grenfell, 2012) of muscle capital acquisition, and an immediate overwhelming sense of my possibilities, and certainly limitations in this environment. This reflected Bourdieu's notion that the habitus "*like the release of a spring is magic*" in its ability to trigger a disposition within a particular social situation, locating immediately "*its conditions of possibility*" (Bourdieu, 2007 [2001]. p.38), providing a sense of what is or is not possible for an agent in a particular setting. The regularities (rather than rules) of which workout machine to use first, the amount of weight to use, how long to perform that exercise for, how to tell if someone has finished with a set of dumbbells before moving in and picking them up yourself are all silent aspects of the

gymnasiums doxa (in that these things are not written down anywhere), as well as them being unquestioned by the collective, as they are a part of the habitus of the gym (or its 'doxic' traditions). I find the best way to describe the intersection between my own habitus and the doxa of the gymnasium as being one which only I could see, as only I have seen what I have seen, and therefore my own habitus provided me with "*implicit guidance*" (Bourdieu, 2009 [1977]: 29) structured by the embodiment of my historical life experiences thus far.

"Actors do not arrive at a field fully armed with god-like knowledge of the state of play, the positions, beliefs and aptitude of other actors, or the full consequences of their actions, rather they enjoy a particular point of view on proceedings based on their positions, and they come to acquire a sense of tempo, rhythms and unwritten rules of the game through time and experience." (Grenfell, 2012, p. 53)

Having high levels of field specific capital (particularly social and cultural capital) and a sense of how to deploy this capital on entry to the bodybuilding gymnasium meant some study participants were able to quickly tune into the "*temporal rhythms*" (Bourdieu, 2009 [1977]: 232) of a range of bodybuilding practices (including what to wear in the gym, how to work out effectively, how to eat to support muscle growth, what supplements to use such as protein drinks, and how to rest rather than overtraining). These practices were all orientated towards optimally increasing the amount of muscle and strength gained from engaging in lifting weights in the gym. By aligning themselves to the tempo of these field practices, participants reported quickly becoming "*adept at picking up the craft*" (Wacquant, 2011: 86) of body work, thus adhering to the traditions of body buildings doxa, or silent logic.

Bourdieu notes that when an agent's habitus aligns to the doxa of a field, they can understand and "*honour the values*" (Bourdieu, 2009 [1977]: 22) of its doxic traditions and so operate unconsciously as a "*fish in water*" (Grenfell, 2012: 13). Wacquant reflects that "*individuals with different life experiences will have gained varied ways of thinking, feeling and acting*" and that as a result, "*their primary dispositions will be more or less than those required*" (Wacquant, 2011: 86) for successful operation on entry to a social field of practice. The habitus of men with high capital who mostly

described a history of experience in martial arts, boxing, strongman, service in the armed forces or wider sporting fields such as golf and kayaking was seen to contain a repository of ingrained dispositions (Thomson, 1991): 'had 'specific ways of thinking, which helped them to "*classify themselves*" [and their novice status in the gym] and carrying their corporal body and so [exposing them] "*to classification by others*" (Bourdieu, 1989: 19) in respect of their ability to adhere to the unwritten rules of the bodybuilding cosmos.

During my initial observation of these study participants during their training sessions, I witnessed a variety of "*little milieu*" (Wacquant, 2004: 127), such as the etiquette of them removing weights from gym stations once they had been used, wiping down the sweat from a machine in preparation for its use by another gym member, along with the pleasantries they exchanged during the transition from one workout station to another. Once a variety of these milieu were compiled together, they began to reveal to me the seamless "*material and symbolic relations*" (Wacquant, 2006: 127) between body sculptors in the gymnasium through which they looked to progress development of their individual body projects.

Knowing someone who already trained in the gym was described by study participants as creating opportunities to work out together with experts and "*borrow from a series of movements*" (Mauss, 1973 [1935]: 73) they observed during work outs to refine their own workout practices. Despite study participants' affinity for learning these movements, most bodybuilding training techniques were acknowledged by participants to require "*a manual knack that can only be learnt slowly*" (Mauss, 1973 [1935]: 71), with rewards of body building requiring trial and error, or a "*stick-to-it-ness*" (Wacquant, 2004: 143) which carries symbolic value amongst other bodybuilders in the gymnasium. Differences were highlighted by participants between their early experience of working out in a leisure centre or high street fitness gym compared to the benefits of now training in a bodybuilding gymnasium.

"The leisure centre you don't see any heavy lifters, you don't get motivated, in a bodybuilding gym there are heavy lifters and people push you, help you out, if you

are at the leisure centre you are on your own I think that's the difference inside the gym, there is no colour, no race or nothing because you are all doing the same thing with one aim which makes it a lot easier" (P.6)

Stand-out themes in participant accounts regarding the benefits of training in a bodybuilding gym included a sense of inspiration, motivation, collective purpose, as well as it being a spatial arena that provided access to know how knowledge of workout practices from more experienced gym members.

"one of the reasons I train here is because there are lots of guys who compete, they have got the knowledge, I feel motivated when I see other people with the physiques that I would like to achieve and there is a great atmosphere at the gym as well. People are always willing to help you and pass on their knowledge, it has a team or family atmosphere you just don't get at your generic Pure Gym" (P.12)

Early enjoyment of bodybuilding training led to gradual increases in the number of days during the week participants worked out in the gymnasium, expanding social networks further and resulting in exposure to, and eventual adoption of, highly specialized training protocols (segmenting parts of their body to be exercised on specific days in the week), high calorific diet programmes, and supplement use. Applying themselves in "*monastic devotion*" to bodywork techniques in an "*absolute subordination of the self*" (Wacquant, 2004: 60) resulted in reports of initial gains in muscle size and strength amongst study participants which they described as highly rewarding:

"I made gains pretty quick and because of that it got my interest more and more" (P.5).

The collective desire of study participants to invest themselves in developing their individual "*body projects*" (Kean, 2005, p. 200) and the sense of place, time construction and purpose this provided, led them to develop a "*stake in the game*" (Bourdieu and Wacquant, 1992: 97-101) of *muscle capital* acquisition due to its perceived rewards.

"I got to know a lot of the lads who were competing at the gym and it was honestly a home from home, I loved it, it was a buzz" (P.2).

In contrast, two men I classified as occupying a low portfolio of capital (P16 and P17) outlined initially joining the gymnasium to lose weight for an upcoming summer holiday [FN/19/05/17/P17] and to get fit for five-a-side football [FN/02/05/17/P16]. These men described how they observed at a distance the example of other trainer's workouts to "*regulize*" (Bourdieu, 2009 [1977]: 22) their own training practices as they had no prior social contacts in the gym who they could train with, and little experience of navigating similar fields of practice. The lack of structure apparent in these men's training routines and their "*using of the equipment in an unconventional fashion*" (Wacquant, 2004: 55) which I observed during observation sessions, reflected an inability within their habitus to align to the doxic modes of practice required for successful operation within the gym. The misalignment was exemplified further by the jeans and t-shirts the men wore during their workouts which were alien to the dress code of sweatpants, vests and hoodies adorned by more orthodox gym members. I only ever observed P16 and P17 working out by themselves, or within a very small social group who I felt were "*outsiders*" (Becker, 1966, p.4) in comparison to the more muscular men within the gym that held high degrees of cultural, symbolic, and social capital. My working hypothesis was that these men experienced what Bourdieu terms the experience of '*hysteresis*' (Bourdieu, 2009 [1977]: 83), a mismatch or lag in time between their existing habitus (modes of thinking and body competence) and the requirements of successful operation when entering a new structural field of practice: as the habitus is only ever "*conditioned by the pre-given, what has been experienced before*" (Grenfell, 2012: 216).

4.4 Developing and establishing capital: The art of 'the spot'

Progress in bodybuilding [I was reliably told], requires an ability to go very slightly beyond previous 'points of failure' in multiple lifts, across numerous exercises in weekly workouts [FN 11/05/17/P11]. Men with high levels of capital (social, cultural, or symbolic) regularly sought out other gym users to

gain support during their performance of an exercise within which there was some degree of difficulty or risk to their own welfare. This support, colloquially referred to as 'a spot', allows a gym member to push a heavy weight closer to their thresholds of failure in the knowledge that should their momentum in the lift fail, the person supporting the bar they are lifting will take control of the weight and manoeuvre it safely out of the way of them, thus avoiding potential injury. These practices not only form an integral part of a gym member's ability to progress in their personal and highly rewarding "*projects of self-improvement*" (Keane, 2005: 193), but also form part of a sub-cultural ritual of trust and social network development. As gym members begin to lift heavier and heavier weights in their desire to progress muscular gains, the risk of failure during a lift (and subsequent injury) increases significantly.

A request for a spot assumes a high degree of trust in the capability of the 'prospective spotter' and their ability to take control of a substantial weight (and safeguard the gym member) should the lift for any reason go wrong. However, behind the very public request for 'a spot' is also an opportunity to gain symbolic capital on behalf of the body sculptor performing the exercise. Asking for a spot draw's attention and focus from other gym members and provides a platform from which the body sculptor can display their practical efficiency in an exercise and so gain symbolic currency. The act of the lift itself is full of risk for the body sculptor, as other gym members will keep a watchful eye and scrutinise the form, the appropriateness of the weight selected and the number of "*good repetitions*" [FN/11/05/17/P11] through a wide range of motion that are completed prior to failure.

A degree of risk in the lift is transferred to the spotter, as failure to safeguard the body sculptor in the event of them reaching failure within their exercise indicates a lack of spotting competence. Any such display would make future requests for a spot unlikely from the body sculptor involved in the lift (and others in the gym). In contrast, when a good spot is given (with the spotter carefully observing the body sculptors' non-verbal cues during the lift to detect the precise moment prior to

failure when the spotter's support is required) enhances social trust in the spotter, increasing the likelihood other body sculptors will make similar requests for support at some point in the future.

Body sculptors regularly drew upon technique correction during exercise performance from experienced gym members at an early stage of their training journey, reflecting an honouring of body sculpting traditions. The supervision of a spot requires trainers to develop a 'working consensus' (Goffman, 1959,) in their performance of this routine to develop respective degrees of *muscle capital* and in doing so "*honouring the values of the group*" (Bourdieu, 2009 [1977]: 22) through a series of reciprocal practices. The learning of "*the techniques of the body*" (Mauss, 1973 [1935]: 77) amongst study participants only came from them repeatedly engaging in a cycle of practice, reflection, and adaption to their training based on the support and feedback from other body sculptors, highlighting "*the paradox of an ultra-individual sport whose apprenticeship is quintessentially collective*" (Wacquant, 2004: 100). In this sense progress for a body sculptor towards appropriating *muscle capital* is influenced by "*the whole society to which he belongs, in the place he occupies in it*" (Mauss, 1973 [1935]: 76) in the gymnasium.

During one of my own training sessions in the gym I witnessed participant 2 (a popular and likeable body sculptor) rather awkwardly decline the request for a spot from a less experienced gym member. When I asked about this incident on a subsequent occasion P2 explained that he knew the man that had requested the spot had placed too much weight on the bar to be able to execute the lift effectively (meaning the lift was pointless), and that the poor execution of this lift risked him as the spotter becoming injured in the process of the lift going wrong [FN/16/03/17/ P2]. This exchange highlights that contacts between gym members are not as haphazard as interactions, but that "*what exists in the social world are objective relations*" (Bourdieu and Wacquant, 1992: 97) which are tactic in nature and far more deliberate than observers may imagine. These objective relations are well considered and strategized by gym members, with social engagements often orchestrated to propel a body sculptor's trajectory towards muscle capital acquisition.

After many years of competitive bodybuilding success, participant 11 had transitioned to a role as a bodybuilding judge, providing him with new cultural capital (*institutional form*) as someone with technical knowledge of what judges would look for in a body sculptor's physique during a competition, meaning he was a popular character that others would seek advice from. During a workout in the gymnasium participant 11 invited me to gain an experience of the unique cultural practice of spotting during my performance of a set of squats within an area of the gymnasium usually occupied by the bigger more established body sculptors.

There is an unbelievable amount of trust placed in the person spotting you as you enter 'the rack' (a ten feet high, four pillared square steel structure where the squat is performed). I was filled with confidence as my 'sponsor and spotter' helped me select the weights for my lift, ending up with a weight that was more than I had lifted before, but only just. The lift went exceptionally well, with P11 encouraging me as I sank down, then propelled the weights back up with my legs, pushing out many more repetitions than I had before. Not only did P11 spot me, he allowed me to spot him after he had loaded several more weight plates on to the bar (although he probably did not need it), but the point was he gave me that trust, and that is where I feel certain ties develop in the gymnasium from such symbolic exchanges. In one workout I had moved from a novice in the gymnasium, to someone who is seen to be trustworthy to provide a spot, as well as someone known to others who know what they are doing, and so began my own immersion in capital acquisition in the body building cosmos.

Bourdieu's ace in the pack in breaking away from the view that fields are totally determining or constraining structures, is his concept of capital, which can change at any given moment (Bourdieu, 1986). A body sculptor with cultural or symbolic capital can accrue new social capital in the gym because of a spontaneous conversation with another trainer during their workout, which may lead to a request for a *spot*. Through the performance of working out together and developing a new friendship, a body sculptor can access know-how knowledge of working out and various

ethnopharmacological practices which can propel their trajectory in reaching their *muscle capital* goals. Capital in its various forms is “*what makes the games of society something other than simple games of chance, offering at every moment the possibility of miracle*” (Bourdieu, 1986: 241), highlighting the power of agency and the potential for individual change.

4.5 The logic of transitioning towards AAS use: Motivations

The muscular bodies of gym members were constantly on display, particularly during workouts close to body sculptors’ competition dates. Witnessing these physiques which had now shed their layers of adipose tissue to reveal chiselled, muscular, and vascular bodies increased the desire of several men in the study to make further gains in *muscle capital*.

“I always remember going to train one day, and just seeing this bloke who was just everything I wanted to look like, big, strong, tanned...you know like the pictures in muscle mag or flex. I just wanted to be like that” (P.2).

Noticing the progress of other gym members in gaining muscle had prompted participants to consider what else they needed to do to achieve similar outcomes for their own body projects:

“When you’re in the gym there’s a guy next to you who’s also eating 4 meals a day drinking plenty of water but is making greater progress than you, there’s obviously something missing there” (P.8).

The sense that gym members who were competing were possibly enhancing their ability to progress their physiques [by the means of ethnopharmacology] acted as further frustration at men’s lack of progress towards their body goals:

“I’d been training, doing well and then you see the lads competing and they are only training as hard as you but just look better” (P.2).

Eventually, a sense of inter-field competition between gym members led to study participants reporting a decision to transition to AAS use, an example of this is described below.

“you’re sick of putting all that time in and some newbie comes into the gym and suddenly they’re huge and I’ve been here three or four years. I think that’s when I thought it’s time I tried some” (P. 4).

For Bourdieu, fields such as the bodybuilding cosmos are relational fields of practice, “*spaces of conflict and competition*” (Bourdieu and Wacquant, 1992: 17), where agents compete with one another for monopoly, or dominance, over the species of capital “*effective in it*” (Bourdieu and Wacquant, 1992: 17), in this instance, *muscle capital*. Increases in the frequency and duration of the time participants spent training in the gym enabled them to develop a sense of what was required to succeed in their quest for *muscle capital*. A narrative of reaching their ‘genetic limit’ for muscle growth, or ‘hitting a plateau in growth’ after years of training were common themes for justifying the decision to use AAS amongst several men in this study:

“I don’t think there’s anything wrong with using image and performance enhancing drugs anyway, I trained clean for a couple of years, hit my genetic potential in bodybuilding, then started with a few orals and moved onto injections” (P.7).

“everybody got your own natural genetics; you can only go so far” (P.5).

The doxic regularities within the gymnasium normalised the use of AAS amongst gym members over time to the point where decisions to use ethnopharmacology to progress individuals’ body projects became arbitrary, despite an initial dismissal of the desire to use AAS when they first started training:

“I was stubborn, I never wanted to touch gear, I always wanted to prove to people I could get this naturally; but I thought I’ve got to take that step because I felt like I was falling behind “ (P.15)

Reflections on how their perceptions on the use of AAS had shifted from initially dismissing the likelihood of ever using AASs, to now seeing them as a part of the natural order in the bodybuilding cosmos were also common:

“if someone would have said there will get to a point when you will consider using performance enhancing drugs, hormones, and other steroids, I’d have said no, no way. I used performance enhancers to step up on stage and fulfil a lifetime goal. It is not possible, no I’m going to retract that, for me it was not possible to attain an inhuman physique, cause if you’ve got that much muscle and you are that lean it doesn’t work, you can’t really maintain it [without AAS use]” (P.14).

Whilst inter-field competition motivated some men to use AAS, for others the decision emanated from a more personal journey of change and bodily reconstruction, reflective of a desire to attain a degree of mastery over their physical bodies akin to a bodybuilding project:

“I remember though it was really a personal thing, I wasn’t competing against anybody, it was for me. It wasn’t to impress girls or my mates or society generally” (P. 9)

Injuries acquired during bodybuilding workouts provided a high degree of frustration to several participants, limiting their ability to fully engage in their planned training regime. One man marked his entry into AAS use following frustration at the inability of his GP to determine a solution for his shoulder problems which were restricting his ability to work-out in the gym:

“the first time I used steroids was because I nearly tore my shoulder to bits. I trained with no steroids naturally, I went to the doctor and he said rest and take paracetamol and you will be fine ... so a friend of mine said take this (steroids) and I felt I had no option so I took it and it fixed me” (P.6)

For one man the transition to using AAS was a natural development of his competitive body sculpting journey, supporting his transition from natural bodybuilding to competing in shows to those that by default were ‘not natural’:

“I saw natural bodybuilding and then I saw proper bodybuilding and I thought it’s time to get into proper bodybuilding” (P.7)

Entry into competitive bodybuilding was contextualised by some participants as the only justification for using AAS:

“I would never have taken anything ever if I wasn’t competing, I don’t see the point in it, it was a means to an end really” (P.11)

Across the sample of competitive body sculptors, the use of AAS for recreational purposes was perceived with a sense of illegitimacy. Recreational AAS users were often contextualised as lazy, or lacking discipline due to a perception that they should be able to achieve reasonable results from their training with hard work, a well-planned training programme and a good diet:

“It’s stupid, they don’t need it half of them, they only want to look good, they don’t have a goal or focus about competing, their symmetry, aesthetics or even if not competing it’s like fake, not real bodybuilding” (P.2)

Competing bodybuilders framed their AAS use as a necessary tool to help them maintain the rigorous demands of the pre-competition training regimes which on average lasted a minimum of 16 weeks. AAS were contextualised as enabling their highly disciplined bodies [whose muscles had been broken down in training] to recover more quickly due to the anabolic environment the drugs created, as well as masking the pain of injury:

“it’s hard to be in the gym week in week out without picking up an injury and the gear (steroids) fills those gaps as well, helps you recover quicker, mask an injury” (P.5)

Some participants highlighted the benefits of seeking out more experienced bodybuilders in the gym with whom advice and guidance could be sought around injury avoidance.

“there’s a lot to be said for finding yourself a mentor in a gym to ensure you do things properly” (P.4)

The rush by younger males in the gym to use AAS was largely blamed on the influence of social media and reality TV:

“I see young guys now come into the gym now and train for a few weeks and they’re looking to get on some gear and they’re not even eating properly and they’re definitely not training properly, its social media that’s to blame for that these shows like Made in Chelsea and all these kind of things where they see guys looking a certain way” (P.5)

Younger men were highlighted as particularly at high risk of long-term damage associated with excessive use of AAS in a bid to achieve the type of aesthetically pleasing physique commonly associated with reality TV shows:

“the pressure on boys now is like it was 20 years ago on girls to be a certain shape and size” (P.7)

Failure amongst younger men to understand the basic foundations of bodybuilding (in addition to taking supraphysiological doses of AAS) that are required to facilitate muscular growth [such as adequate training intensity and nutritional intake] are framed as reasons why young men take more and more AAS, placing their health at risk:

“What scares me now is you get guys who are juicing like 20 stone blokes but eating like 12 stone women and complaining that they’re not getting results because this aesthetics thing is In. All they want is a little tiny waist and I know that’s great, but you won’t progress like that” (P.2)

In narratives surrounding the abuse of AAS, young men were framed as entering various risk practices to fast-track their body transformation including using fat burners and recreational psychoactive compounds. These risk behaviours by non-competitive body builders were heavily frowned upon amongst more experienced trainers:

“young lads are killing themselves with DMT and anything else to get a six pack, because they don’t want to stop drinking or doing coke at weekend but they still want the body so they will use gear” (P.7)

Contrasting rationales for using AAS within relatively short timeframes of initiation into bodybuilding were provided by two participants with competitive aspirations. A desire to enter a bodybuilding show motivated participant 3 to use AAS within six weeks of joining a gym following encouragement from other members who believed that he was gifted with significant genetic muscle building potential. Use of oral and injectable AAS after training in a gym for only six weeks helped participant 3 to win his first ever bodybuilding show, though he was clear this goal was not achieved just by taking AAS.

“everybody wants to have muscle, but nobody wants to put the work in, it’s about training and commitment, it doesn’t happen overnight” (P.3)

After several months of joining a gym, participant 14 recounted how at the time he had discussed his competitive aspirations with the owner of that gym. The owner made him aware that his body sculpting goal was unlikely to be realised in the absence of AAS, particularly if he wanted to place in the top three of a competition and gain the kudos associated with this achievement:

“at first, I was like, what about putting in the hard work, the effort and having a good diet isn’t that enough, and it was like that’s really honourable, but that won’t win you first place; I knew if I was going to take it to the next level, get up on stage, [pause], there is no such thing as a natural bodybuilder” (P.14).

The relational nature of the exchange between P14 and the gym owner and its effect in changing his initial perspective of his ability to achieve his bodybuilding goals without drug use provides insight into *“how practices are reproduced and transformed by those who carry them”* (Blue, et al, 2016: 38), and the role of the collective in *“imposing the legitimate vision of the world”* (Bourdieu, 1989: 20) upon participants in the field of bodybuilding in a manner where the decision to use AAS became a pre-reflexive one .

4.6 Know-how knowledge and access to AAS

For several men, gaining access to AAS was a relatively easy process to negotiate due to pre-existing social networks with men who had already been immersed in bodybuilding and AAS use for several years. Increases in the frequency and duration of time spent at the gym working out, or socialising with other body sculptors before and after training, led one study participant to highlight that,

“you end up talking to people who are only interested in building muscle” (P.7)

Conversations with other gym members provided know how knowledge of a range of AAS practices,

“likeminded people, 90% of people I came across [in the gym] were nice people and I’ve got information from them anabolic wise” (P.4)

These social exchanges contributed toward the collective quest for *muscle capital* in the bodybuilding cosmos becoming an all-encompassing and meaningful part of trainers' realities:

"I started training with other people, doormen mostly, got me involved with other things, bad men really, but great guys; the gym has always been a home from home for me" (P.2)

References were made by one study participant to first gaining insight into AAS after purchasing a copy of *'The Underground Steroid Handbook'* (Duchaine, 1989), a popular publication amongst AAS users in the mid 1980's. The publication outlined the many AAS produced by pharmaceutical companies at the time along with an outline of the benefits and likely side effects users could expect to experience. Ancillary drugs that could also be taken to combat common side effects from AAS use were also referenced in the handbook, including therapies to restore normal testicular functioning, following discontinuation of AAS:

"so i knew one boy in the gym whose been a life-long friend and I trusted him to get it for me I showed him the photos in the book [The underground steroid handbook] and said that's what I want, nothing else, it was dianabol [an oral AAS] (P.11)

Previous failures to secure access to genuine AAS had consequences for the health and progress of one participant at the initiation of his bodybuilding journey:

"there was a lot of fake stuff back then, I met a Mr Universe at a show and he roped me in, sold me some stuff and it was all cooking oil...I lost weight and got bad acne...and it put me off it for a bit, I had acne down to my hands" (P.2)

The gravity of risk associated with sourcing a product that would require intra-muscular injection into their bodies was well appreciated amongst most participants:

"you're injecting something into your body so there has to be trust from these people" (P.8)

Negative experiences sourcing legitimate AAS were shared amongst men in the gym to help them navigate this issue,

“I knew already not to buy gear from the biggest guy in the gym, cause the biggest guy in the gym will sell you anything to make money, every second person in the gym is an expert, and you quickly learn to ignore the experts, over a period of time I went on different days, speaking to other competitive bodybuilders that I knew, you know, you began to sort out the wheat from the chaff” (P.7)

For body participants with a structuring habitus capable of regulating their body work practices in line with *“the temporal forms , or the spatial structures”* (Bourdieu, 2009 [1977]: 163) of the gymnasium arena, it was possible to gain access to high quality AAS with relative ease. Reference from participant 1 during a discussion in the gym of acting as a quasi-test subject for new AAS that purveyors wanted feedback on, resulted in him claiming to never pay full price for his ethnopharmacology, providing an advantage in the amount of AAS he could use, and his potential to propel his trajectory towards achieving his body work goals [FN/ 16/12/16/P1].

The following three stage model describes the approach used by participant 14 to determine which AAS he wanted to use and how to get them:

Stage one: Initial research into the range of AAS commonly used by bodybuilders (and their associated effects) was conducted through internet searches and observations of discussions between users in online forums. AAS users openly discuss their experience of AAS and ancillary drugs in several online forums, though it is widely recognised amongst gym users that forum participants often make false claims about a product’s efficacy because of paid involvement with the lab that manufactures said product. Despite this issue, consistency of narratives across a range of AAS forums was believed to offer some form of reliability in user reports about the effectiveness of various AAS. The use of terms in forum threads that indicated a level of quasi-scientific knowledge (such as ‘the half-life’ of a drug, or reference to published research) were also seen to validate the claims made by users.

Stage Two: Once a menu of potential substances of interest was determined, social networks within the gym were used to further validate claims made about the effects of the drugs on-line:

“the gym and face to face was the main fall-back point, the internet is full of so much noise, you follow who sounds credible, read the cited sources, and fine tune, then sense check it with the guys in the gym, have they used it, does the information make sense” (P.14)

Other gym users were reported as willing to discuss their experience with various AAS with the trainer following an eighteen-month period of attendance at the gym, where numerous conversations had taken place about wider bodybuilding issues:

“once you get past the barrier of talking about a taboo subject, have a chat, get a feel for the water, then they talk about it” (P.14)

Peer users' experiences of drug use (including benefits and side effects during a cycle), as well as the likelihood of drugs containing the same product and dosage displayed on the packaging were common features in these discussions.

Stage Three: Following consensus between internet forum claims about a drug and peer user experiences, decisions on which substances to use were formalised by the trainer. Peer trainers were then approached and asked to provide introductions to sources/ purveyors able to provide access to the substances. Participant 14 made several references to the legitimacy of his decision to use AAS in a bid to enable him to fulfil a desire to compete in a bodybuilding show, rather than simply improving his body image. As part of this strategized approach to drug use the trainer was also explicit in the level of rigour applied to the decision-making process, through to the sourcing of AAS via trusted peer networks:

“I took performance enhancing drugs and it was an incredibly weighed up, informed decision, it wasn't oh there's a guy selling them let's take them like smarties. It was okay, what can I get, what's the half-life, the ups and downs. People told me to take things and I weighed up the value and decided that some of them were too dangerous to my health” (P.14)

In a contrasting approach, both participants 16 and 17 discussed accessing AAS from a purveyor who trained at their old gym that they had been sign posted to by another gym member. Both reported initially looking on-line to determine which AAS to use. However, participant 16 was reportedly told by his purveyor that the only AAS available to purchase at the time was an oral AAS called Anavar [FN/02/05/17/P16], whilst participant 17 recalled only being offered a choice of a single testosterone (cypionate) or a testosterone blend, with syringe numbers limited to only a small quantity [FN/19/05/17/P17].

4.7 AAS Administration: Injecting Practices

Participant 15 reported initially having significant fears in relation to injecting AAS, mainly based upon lack of knowledge around safe injecting practices and potential risks in relation to tissue injury:

“a massive fear factor for me was the risk of paralysing yourself if you hit the nerve in the glute that terrified me, it’s not worth the risk (P.15)

The issue of risks to AAS users’ health from poor injecting practices was something the case study gym had attempted to help users navigate by erecting a poster in the men’s changing room showing the safest places to inject to avoid hitting the sciatic nerve in the gluteal muscle. This information was utilised by participant 15 and is outlined below.

“I started off in the bum which is horrible and you can’t sleep for like a few days and the pain is horrible you can’t walk properly, and I thought how do people do this, then I tried my shoulders and was like okay this is alright so I stuck with that” (P.15)

Participant 11 discussed his journey to overcome a fear of injecting himself by asking his partner to perform his initial injections before he eventually felt confident to inject himself:

“my ex-wife then had to put it in my arse, and I fainted on the floor, I had a real fear I didn’t even look, she was a nurse and eventually she taught me into an orange, so I learned the correct way” (P.11)

A common practice amongst first-time users of AAS was to navigate their fear of injecting themselves by being injected (intra-muscularly) by others. Harm reduction advice was given in respect of rotating injection sites to avoid tissue irritation because of the dispersal time required for testosterone esters to dissipate from the injection site and avoid tissue damage:

“I can still remember my first jag was a ml of deca and a ml of sust so it was a 2ml jag and he did it for me, and I remember him explaining how to do it keeping things clean and all that sort of stuff...and the whole time I’ve been using I use the same routine I keep to the same times and I’ve never as much had a blemish. I always alternate my jags as well, everything calves, glutes, my pecs, side rears, triceps” (P.4)

Reference was made by one participants of co-user injection practices taking place in gym toilets, compromising sterility, and placing users at risk of infection:

“there’s so many blokes I come across doing it in gyms in the back of toilets or getting their mate to do it and I’m like, this is your health mate, you could end up losing your fucking arm, if you need to hide this from your mates from your Mrs maybe this isn’t for you” (P.5)

Only one man referred to ever sharing injecting equipment with a co-trainer due to difficulty in gaining access to injecting equipment.

“I’ve shared needles once, they’d been steamed in a kettle, which sounds fuckin stupid now but at the time I was young and wanted the gear in me” (P.2)

Participant 17 reported lack of access to injecting equipment had meant he had re-used the same needles (using online tutorials for instructions of how-to) and had encountered pain around the area of AAS administration in his gluteal [FN/19/05/17/P17].

4.8 Initial rewards of AAS use

Whether participant motives for deciding to use AAS were driven by a desire to become a competitive bodybuilder, or simply aspiring to enhance their physique and progress their individual

body project, they consistently reported high levels of satisfaction once AAS use was combined with their existing training regime.

“My first cycle at 30, the effects were unbelievable: my strength, my conditioning and my body it just restructured, it changed, it re-comped itself to be a machine” (P.9).

Positive effects associated with AAS included increases in appetite, the ability to lift heavier weights for longer during training sessions, and an enhanced ability to recover from workouts in a much shorter timeframe than when they were not using AAS. Increases in strength, and changes in physical appearance (including increased muscularity and reduced body fat) were reported after only a short exposure to AAS due to their effects in being able to push their bodies during workouts in a manner described as previously impossible.

“it’s like when you have anabolic inside you, you can take your body to places it has never been before and it will be repaired in the morning, the training, the food it’s all important to me” (P6).

Effects of introducing AAS alongside existing workout protocols were described further by participant 2 as resulting in improvements in several aspects of his life both inside and outside of the gym.

“Just started lifting heavier, eating more and seeing yourself change, it was awesome and everyone else noticed, suddenly I was changing and felt good. It changed everything for me- my life completely changed for the better. I was confident, outgoing, felt good, looked good” (P.2).

The ability to re-shape their physical body project in line with a prescribed goal were reported to have significant positive effects in increasing body sculptors’ levels of self-esteem and general wellbeing:

“I was always a skinny kid and then suddenly it builds up your self- confidence you know people started noticing your arms in the gym and people would be like your biceps are bursting, and it feels good you know” (P.4)

“I just felt great. My mood was enhanced, obviously I was stronger which just pushed me more, it was great” (P.12)

“It was fantastic, I was feeling good, I was feeling tighter. If you have experienced the best compliments that go with that, your confidence is just... it did wonders”
(P.8)

Seeing tangible progress towards their new body goals, with few if any initial negative side effects, had encouraged participants to adopt these practices for the foreseeable future,

“when I used steroids the first time, I got fantastic results. I trained harder, I was bursting out of my clothes and I thought if I can make progress like this safely then I was happy with this” (P.8)

Several men described AAS use helping them achieve the most symbolically valued commodity of *muscle capital*, that of competitive bodybuilding success which provided these men with prescribed goals, time structure, and an ability to critically appraise progress and learn from previous mistakes:

“I’m very much motivated by having a goal around everything I do; I will throw myself into bodybuilding competitions” (P.15)

“it was a first timers show, the lathams classic, there were 1000 people in the audience, I was shitting myself and I loved it and I won the best presentation of the whole show, the crowd erupted, I loved it!” (P.3)

“its an amazingly rewarding thing [winning a bodybuilding show] but it is such a small line between total fulfilment when you lift that trophy to second place” (P.5)

AAS were framed as a tool which complemented users’ highly disciplined and prescriptive training and diet regimes and not just a quick fix to muscularity:

“Don’t put down what I do to something coming out of a bottle and you don’t need to put the effort in” (P.5)

This notion was re-enforced by a second participant who outlined body sculpting as a highly disciplined and structured life practice which provided a journey of self-discovery only few had the consistency to adhere to:

“it is a mental challenge as well as a physical challenge when you enter a show, you learn so much about yourself mentally, to live in the monastic way we live and nothing compares to what we do, maybe a sumo, but not even a boxer, their

camp is only 10-12 weeks before a fight, whereas im competing now in six months and started dieting for it now” (P.11)

One participant made clear what he felt were the moral differences between users of AAS and users of well-known psychoactive compounds such as opiates and amphetamines. This narrative included the perceived harms caused to wider society from users of dependence-forming substances committing acquisitive crime (house burglary, shop lifting and car theft) to fund their drug use, and subsequent negative effects on perceptions of safety within communities:

“most steroid users earn their money and pay for their stuff, go back to work and are decent people, whereas a drug addict usually is a house breaker and is causing a fuss to society...steroid users are grafters” (P.3)

A denial of injury narrative was consistent amongst other *body sculptors’* who perceived the construction of their body project and associated AAS use as wholly justified compared to the health risk behaviours adopted by mainstream society:

“that is my time when I am in the gym, like therapy (laugh)...I don’t drink, I don’t smoke, I don’t have roid rage, don’t hurt anyone else. It’s just me doing me for me” (P.2)

The only exceptions to these positive reports of initial AAS use were from participant 16 who recalled questioning the authenticity of the AAS tablets he had purchased at the time due to lack of transformational outcomes he experienced from use compared to his initial expectations [FN/02/05/17/P16].

The range of ethnopharmacology used by men at the outset of their body sculpting journey and the changes in these patterns of use are outlined in the following section.

4.9 Patterns of ethnopharmacology

On initial exposure, the length of time using AAS colloquially referred to as a ‘cycle’ or the ‘on-cycle’ ranged from between six to twelve weeks, with similar periods of abstinence during the ‘off-cycle’ period. Most participants were aware via multiple information sources that AAS should be used in a cyclical manner with a limited time of exposure followed by a similar period of rest. This rationale

was typically explained by the body experiencing strain during exposure to AAS, from which a period of rest was required.

“I probably have a couple of months off, take my proviron, bit of clomid, some natural test boosters, Tribulus or something and generally have a rest you know, rest my joints as well”
(P.11)

Exceptions to these cases included participant 14 whose first cycle of AAS was initially planned for twelve weeks, however a decision to compete in his first bodybuilding show led to him spending 36 weeks (over eight months) on-cycle using AAS. The pace and scale at which several participants AAS using practices increased was informed and regulated by the collective effect of other gym users' alignment to the *doxa* of the bodybuilding cosmos. Bourdieu notes that *doxa* “*produces practices which tend to reproduce the regularities immanent in the objective conditions of the production of their generative principles*” (Bourdieu, 2009, [1977]: 78). The role of *doxa* became evident in a discussion with participant 3 [FN/16/02/17/P3] concerning the case of a body sculptor in his early 20's who despite holding what was perceived as significant genetic potential to grow muscle, had employed tactics for *muscle capital* accrual outside of the normal rules of practice which were in “*bad faith*” (Bourdieu, 1986: 255) to the collective norms of the group. The bodybuilder in question was described by participant 3 as having transitioned too quickly in his use of ethnopharmacology in a bid to acquire early professional glory, or what Bourdieu describes as “*a gain in time, a head-start*” (Bourdieu, 1986: 245). When the man in question had become ill with heart problems, his excessive use of AAS was blamed as the route cause by fellow trainers, acting as custodians of the gymnasium's historical traditions.

Several study participants reported adoption of ever complex pharmacological and nutritional regimes such as the use of pre-training stimulants (pre-workouts such as Grenade) to improve training focus and energy during workouts, and consuming protein shakes during a fifteen-minute window post-training for maximum effect, as well as periodically throughout the day as part of the collective rhythms of the field (Bourdieu, 2009 [1977]).

Users of injectable AAS mainly favoured testosterone (usually long-acting esters such as Cypionate or Enanthate) during their first cycle. These were typically 'stacked' (a process of combining two or more AAS at the same time) alongside other injectable compounds such as Deca-durabolin, or oral compounds such as Anavar, Dianabol, and Anapalon (Oxymetholone). During the final four weeks pre-competition, participants reported moving away from longer acting AAS compounds to ones referred to as 'hardeners' with a much shorter half-life. These 'hardeners' were believed to produce less water retention (in comparison to long-acting testosterone), enabling hard-gained muscle tissue to have a greater level of visibility whilst the men were posing on stage:

"you forget very quickly that when you look like that [with little body fat or water] you feel awful when you are that lean, you know walking I would bruise the soles of my feet because I had no fat cells on them" (P.1)

Through the ability of the bodybuilding cosmos to attract (via its doxa) agents with dispositions (habitus) whose practice honours the "implicit guidance" of existing field regularities (Bourdieu, 2009 [1977]: 29), and by them doing what others in the gym do, participants contributed towards the reproduction and maintenance of field regularities over time which are evidenced by the below reference to AAS use being what everyone uses.

"I'm on 2 ml of test but I could drop to 1ml but its only test it's what everyone uses, one tab of Anavar 50 mg, with a half-life of 3 hours does me great and now I've started 1ml of primo every three days, I will switch to water based stuff 3 days out" (P.15)

Six first time users of AAS (P2, P4, P9, P11, P15, P16) commenced AAS use with oral compounds only (Dianabol, Anavar, oral Winstrol, and Pronabol-5). This decision was described as emanating from fears, or reservations around injecting themselves. Only one of these men remained on orals throughout his time using AAS (P9); one gave up using orals after experiencing perceived kidney pains after a few days (P11) and along with the other three men (P2, P4, P15) transferred to injectable AAS on their second cycle to further enhance muscle gains made whilst using orals. Due to

poor outcomes from oral AAS use compared to his initial expectations P16 told me he had exited AAS use and returned to training in the gym without AAS [FN/02/05/17/P16].

The use of oral AAS during a cycle in isolation was frowned upon by participant 14 due them being modified testosterone derivatives which would impair normal testosterone production and fail to replace this hormone in the same way a testosterone injection would, leading to health consequences.

“you use testosterone first, for health reasons and mood, then add other things to it. You have to think about it from a mental point of view: once you take steroids your testosterone will be suppressed. Some things are worse, people are making bad decisions on the drugs they use. One fella told me he was using just Dianabol, you don’t do that, it’s a testosterone derivative, not the same as testosterone so it’s not going to replace the testosterone you stop producing” (P.14)

Participant 2 described eventually returning to using oral AAS only following many years of injecting into his glutes and shoulders due to the development of scar tissue which made injecting extremely painful:

“I got into some veterinary things like equipose and anabolic’s like Winstrol but now I don’t jab [inject] anymore, I have got bad scar tissue in my glutes and delts and just don’t feel comfortable injecting anymore” (P.2)

In his second cycle of AAS, use Participant 17 reported developing a lump under one nipple (which he theorized was gynecomastia). When he approached his AAS purveyor for a resolution to this issue he had been told the remedial ancillary compound required to reduce the lump (an aromatase inhibitor compound named letrozole) was unavailable to purchase. As a result, P17 reported discontinuing AAS use, with the lump in his chest finally resolving itself after several weeks, though on reflection he expressed regret at the harm he had caused to himself [FN/19/05/17/P17]. This account provided an example of how it is overtime that some people “*defect from a practice*” (Blue et al, 2016: 43).

As one participant's desire to appropriate *muscle capital* grew, so did his decision to extend the range of ethnopharmacology he used.

"if someone had told me to lick paint off the wall and it would make me bigger I would have done it because I was desperate to be bigger, train harder, any bits and bobs that I can do" (P.4)

The length of time spent 'on cycle' using AAS tended to increase, particularly amongst those competing professionally, though once competitions for the season were completed, relatively long periods of rest from AAS use were observed amongst some men:

"The longest probably 25 or 30 weeks which is quite an extensive and expensive period of time. Don't forget, you're not a totally sane person when you're dieting [for a bodybuilding show] so you're not eating enough carbs and your brain isn't working properly, so you make rash decisions, you know, I'll take a bit more of that and a bit more of that you know" (P.5)

Adoption of a 'quasi-scientific approach' (Bourdieu, 2009 [1977]) to the planning of AAS cycles was commonplace. Transformational changes in muscle size and strength were accompanied by a change in study participants' cognition as well as their body habitus, including newly strengthened levels of motivation to excel in the realisation of their body goals. Study participants made specific reference to changes in mood experienced whilst using AAS resulting from making progress in their body project, as opposed to any euphoria, or high gained from AAS compounds.

"It's the feeling you have when you're on, you feel stronger, you feel motivated. No one enjoys sticking a needle into your body, there's no hit, it's the feeling for the days and weeks after it and everything goes up a gear, that's the addiction" (P.8)

"I think the way you look gives you that good feeling, steroids don't make you feel good as a drug, it's about looking good, but for me it was something I needed to do to progress to a high standard" (P3)

Following what appeared to be all benefit and no cost in respect of the trade-off from AAS use early in the construction of study participants' body projects, these activities became an increasingly

meaningful and rewarding aspect of participants' day to day lives providing social contact with training partners, and a sense of individual and collective purpose:

"I do get a lot of satisfaction from the gym. I've met a lot of good people; you spend somewhere between 6-8 hours a week with that person and build a bond sort of thing" (P.5)

AAS using practices were so closely associated with rewarding workouts in the gymnasium and development of new social networks that it became apparent how social practices are "so closely coupled they depend on each other, meaning that entire bundles [of practices] are reproduced" (Blue et al, 2016, p. 43) over time in the gymnasium.

4.10 Expectations of what would happen once AAS use is discontinued

Awareness amongst participants of the likely effects upon cessation of AAS use varied widely.

"I didn't use any PCT really because I hadn't got that much knowledge until after a few years" (P.10)

Some had a much clearer idea of how they would accommodate changes to their training routines once AAS use was discontinued,

"Usually the first thing I think its maybe psychological, but you are a bit weaker and don't recover, you tend to be a bit more relaxed with when you're at the gym and keep training sessions intense and short say 45 mins. Anything after that you're probably doing yourself more harm than good" (P.4)

In certain cases, AAS supply networks (purveyors, friends, or co-trainers) acted in a quasi-harm reduction capacity highlighting the need to utilise post cycle therapy (PCT) compounds (typically including HCG, Clomid, Nolvadex) following discontinuation of AAS use in a bid to restore testicular functioning and endogenous testosterone production and offset the harmful effects of high levels of estrogen:

"I got the run down on PCT before I started but it just didn't mean anything to me, all I was about was the results and that was something that got introduced later. Things like deca I was using, I got results almost straight away, I got through the

course okay and that, I had done my PCT. I took the advice, so I was in the right hands, I was fortunate. I pass that advice on myself, it's up to them if they take it or not" (P.8)

Some of the men using non-injectable AAS had been made aware of the likely effects of anabolic steroid induced hypogonadism (ASIH) and the need to compensate for low levels of endogenous testosterone with PCT compounds:

"I did my first of oral Winstrol and one of the lads who got it for me said you'll need to do a PCT on that" (P.9)

In contrast, social networks within the gym also made specific reference to AAS not requiring the use of remedial compounds to restore testosterone functioning on cessation. Some AAS were claimed to have the ability to increase natural testosterone, which given AAS mechanism of action and the impact of ASIH, appears to be a physiological impossibility.

"I didn't want to inject so I had a bit of Anavar I was told it doesn't suppress your natural test, in fact it increases your natural test production, and it doesn't need a PCT. I didn't really know anything about that PCT world. so was glad I didn't have to worry about it, it was all alien to me. I thought this is perfect for me, I tried it and it thickened me up nice, good pumps and it was right I didn't need a PCT, sex drive was great, no ball shrinking" (P.15)

Some participants did invest a significant amount of time researching the effects of AAS prior to use to identify mechanisms by which the gains made in muscle whilst on cycle could be retained after cessation of use:

"The negative effects when you finish a cycle first and foremost are that if you don't get your PCT right, the positive effects from the cycle, the muscle gain, the fat loss, they will go, you will lose your muscle, you will put on fat because you have suppressed your testosterone, and you will be effectively in a depleted state as far as those hormones are concerned; PCT is a safeguard more than anything else" (P.14)

One explanation from participant 7 as to why others (particularly younger males) fail to understand the implications of the journey they are about to embark on via their decision to use AAS is the vast amount of information now available in the gym and online.

"there wasn't a choice like there is today which is why there is a problem and if there are 10 experts in the gym there's a million on the internet. I'm 50 now,

being the expert in the gym I do say to people do your research, talk to people. The problem is now there are kids who are fourteen, fifteen coming into gyms and saying where can I get gear, it's a problem" (P.7)

In total, three men out of the fifteen interviewed specifically said they did not initially use some form of PCT on their first episode of AAS discontinuation (P2, P4, P10) though some did adopt these practices later in their AAS using career. Four participants were unclear as to what stage they introduced PCT use into their post cycle strategies (P1, P3, P6, P13). The remaining eight participants (P5, P7, P8, P9, P11, P12, P14, P15) all initiated PCT regimes from the outset of their AAS using practices. **See Appendix 11: Records of PCT use by Interview Participant** for further details of strategies used.

4.11 Strategies for navigating AAS discontinuation

Challenging experiences on AAS discontinuation were seen by some as an intrinsic and necessary part of the processes required to make incremental gains along the bodybuilding journey to perfection:

"when you come off you expect to lose size; its gonna happen, the idea is you use steroids, put on size, go on PCT, lose a bit, but you are still better than when you started" (P.14)

Participant 2 emphasised the need to avoid using any further compounds once AAS are discontinued such as those included in PCT regimes unless specifically necessary:

"my bit of advice there to people is use it if you need it. The less chemicals you put in your body the better, so if you don't have gyno don't take tamoxifen each time you come off, otherwise when you do need it your body won't react to it" (P.2)

This contrasted with participant 14 view that AAS cycles should not be commenced without PCT as a safeguard in case of abrupt loss of access to AAS which could cause significant health problems.

“If you are doing it, the first you buy is your PCT and you keep that so that if you go wrong on the steroid cycle, or if your dealer vanishes, you’re not left” (P.14)

PCT strategies typically included using tamoxifen, Clomid and/or HCG taken in various combinations to help restore endogenous testosterone production. All-in-one PCT products were also used that contained a mixture of Clomid and Tamoxifen, as well as the steroid Proviron (claimed to lower SHBG and increase free testosterone) and Sildenafil/ (Viagra) to combat erectile dysfunction:

“I really ram home the PCT thing you know, I’m telling you now: if you’ve spent £100 on a course, spend £40 on PCT you know. It’s not just what you look like on the outside, it’s the inside that counts you know, more so than the outside. Once you put some size on you’ll never want to be smaller than that and that’s a hard thing to live with psychologically, they’re like yes, yes, it’s okay I get it- and then years later they’re still on it , so you gave them the advice, they never followed it” (P.4)

Participant 1 included the peptide Triptorelin Gonadotropin Releasing Hormone (GnRH) into his ‘off cycle’ regime, described as a “One shot PCT” (P.1) that could restart normal testosterone functioning. For several other men, HCG was the substance used at the outset of the journey to restore impaired hormonal functioning following cessation of AAS use. Dosage of HCG varied amongst participants from between 1500iu per week for three to four weeks, 1500iu every three days for three weeks, to 10,000iu twice a week for a maximum two-week period. The minimum post cycle exposure to HCG was a total of 4500iu, with the maximum 20,000iu. Variations in post cycle HCG length (and dosage) were typically justified by the time men had spent on cycle and the level of AAS used:

“depends on how heavy your cycle has been obviously, 40mcg for 5 days’ tamoxifen dropping down to 20mcgs, HCG, I would mega dose 10,000ius twice a week for 2 weeks (40,000ius). If you look at its mechanism of action you would not need any longer than 2 weeks” (P.1)

Aside from two men, all other users of HCG also planned to initiate use of tamoxifen (Nolvadex) and Clomid (clomiphene citrate) at the same time during their post cycle plan to stimulate testosterone production and block the negative impact of high levels of estrogen. The use of tamoxifen and

Clomid lasted for at least the same length as the period of HCG administration, and often continued for up to six weeks post AAS cessation. Doses of Clomid were usually higher in the first week of use (between 50mg to 100mg per day), whilst tamoxifen ranged between 20-40mg throughout its use). Both compounds were tapered down over the following weeks. One participant reported use of HCG for three weeks in isolation at the end of a cycle of AAS, only referencing the need for tamoxifen if the HCG period extended past this point, and dismissing the need to ever use Clomid:

“three weeks should cover it. If your gonna do it any longer than that you need tamoxifen with it, and you don’t need the clomid, mainly that’s only for hypogonadism up to around fourteen years of age, it has a place in PCT as well”
(P.13)

Several men planned to cease AAS abruptly,

“me personally I want to stop everything as quickly as possible” (P.5)

but referenced the need to wait around two weeks prior to initiating PCT drugs to allow the AAS to leave their system. This position was supported by another man whose goal was to get AAS out of his system as quickly as possible once a prescribed on-cycle period came to an end:

“never taper down, receptors already maxed out that’s why I plateau, come off as quickly as possible, use HCG after two weeks and Nolvadex” (P.2)

An alternative strategy described by participant 14 was to gradually taper down (and then eliminate) the use of longer acting AAS, eventually only using short half-life compounds in the last few days of an ‘on-cycle’ to not shock his body’s hormonal profiles by suddenly removing the testosterone provided by AAS. Following complete elimination of short acting compounds, a period of one week was left before he commenced his PCT regime:

“so, I got rid of tren, tapered anavar, tapered the test, then came off so there was no hard crash. I imagine you would have real mental health issues if you just stopped everything at once. Then I had a week of nothing, the second week HCG started for three weeks of a constant dose, big dose of tamoxifen and Clomid and your body goes back to test production” (P.14)

A very different PCT strategy described by participant 15 involving the initial use of tamoxifen during the three-week period following cessation of AAS in a bid to manage elevated estrogen and low testosterone levels. Upon reaching the end of the third week, HCG was initiated to help restore natural testosterone functioning:

“well, I use HCG and nolvadex, basically I use the nolvadex for 3 weeks until the gear has finished and wears off, then I start HCG” (F15)

Despite acknowledging the likelihood that the AAS they purchased were largely counterfeit and likely to be produced in UGLs rather than pharmacies, the same beliefs were not extended to PCT compounds. Whilst there was acknowledgment that UGL PCT products may be on the market, most were still believed to be pharmaceutical grade:

“there are UGL ones but most people can get hold of the pharmaceutical grade stuff, there’s only been rare times when Clomid and Nolvadex aren’t available, Proviron there’s time when you can’t get it , it’s been 18 months since there has been a large amount around” (P.4)

Access to PCT compounds was described by participant 13 as sometimes being a problem which some men navigated by timing the end of their course of AAS with a trip back to see family in Pakistan where all in one PCT compounds were widely available,

“a lot of guys will come off the gear when they are going back to Pakistan, right they come off the gear and use clomid and nolvadex for 4 weeks because its freely available in Pakistan” (P.13)

Study participants actual experiences of AAS discontinuation are outlined in the following section.

4.12 Reality of AAS discontinuation: Experience of ASIH

Prolonged exposure to AAS appeared to shift several study participant perceptions of ‘normality’, and how they expected to feel (both physically and mentally) when in the gym during the ‘off-cycle’ phase of AAS use.

“It [bodybuilding] becomes part of your lifestyle, it’s like a drug itself without taking drugs. You can get yourself into a situation where you’re that used to training that when you don’t [once AAS use is discontinued] you just don’t feel the same” (P.10)

During periods of AAS use the habitus of study participants matched the temporal rhythms of practices required to build *muscle capital* (training frequently, lifting heavier and heavier weights, and gaining *muscle capital* in good time, with visible and rapid results in muscle growth and strength from training inputs during workouts) enabling participants to operate functionally and purposefully in the gymnasium as a “*fish in water*” (Grenfell, 2012: 127). Whilst his initial experiences of discontinuing AAS were described by participant 12 as relatively un-problematic after his first AAS cycle ended these experiences became progressively worse over time,

“the first time I came off it was not too drastic, because I’d used a low dosage it wasn’t too hard for my body to adjust, plus I used post cycle therapy as well. It did not really build me up for the expectation of what was going to happen the second time you know, with increased dosages. The second time it was like dropping off the edge of a cliff, awful, complete loss of libido, you know physically unable and just not interested mentally and that was for a period of maybe two months. I expected it to be exactly like the first time but because I had been using more and stronger gear the effects were more dramatic when I came off, perhaps I did not use enough in my PCT. I did the same as last time, but I used Clomid as well, with hindsight I should’ve used more HCG over a longer period, which is the plan for next time as well as the Clomid and the Arimidex” (P.12)

Exiting from AAS use resulted in a significant loss in libido and erectile dysfunction for several men.

For some HCG was seen to help testosterone production to re-commence, supporting their ability to retain a degree of normality in working out in the gym,

“you have that period when you’re on, and you’re like a man possessed, but you’ve got that period when you come off, HCG fills that gap” (P.5)

Other participants felt HCG and other PCT compounds had the potential to also cause harm,

“I have seen lads sit there and cry on PCT because they have taken the whole 5000iu and one go and get emotional off it...that’s why a lot of them won’t take it again” (P.6)

“first time I had my PCT I felt a bit crap, just a bit low, a touch emotional I would say, not as in rage but, without sounding sexist, a bit like a woman who is on their period. It was manageable, I didn’t like it” (P.14)

Though I found it problematic to distinguish whether the emotional effects men reported were caused by PCT compounds, rather than being a natural consequence of plummeting levels of testosterone and high estrogen levels following AAS discontinuation.

“low sense of wellbeing, my moods just lower in myself as a person, I haven’t got as much get up and go in me like that” (P.10)

In part the reduction in mental wellbeing men experienced once AAS use ended may have also resulted from an impaired ability to train productively in the gym and recover and grow from workouts in the absence of AAS androgenic and anabolic effects:

“my natural test now is so low it just doesn’t do anything, so you don’t recover” (P.7)

Whilst this study has deliberately avoided pathologizing accounts of AAS users as men embroiled within a crisis in masculinity (Olivardia, 2001a; 2001b), it would be remiss of me to not draw parallels between the effects of ASIH and a loss of sexual function and desire typically representative of virile masculinity (Khan et al, 2009), as the core of *“manliness and virility par excellence”*, lies within the *“phallic erection”* (Bourdieu, 2001: 13). Loss of muscle size and reductions in the *‘swelling’* of the body, its muscles, or indeed the swelling of the *phallus* due to erectile dysfunction because of ASIH are deeply entwined within notions masculinity and being a *“real man”* (Bourdieu, 2001: 12) which became evident during an interview with participant 2 when reflecting on the long-term implications of his use of AAS:

“I don’t feel like a proper man anymore, I don’t know if that’s because I’m getting older, or if I’ve messed myself up [through the prolonged use of AAS]” (P.2)

Experience of impaired sexual desire and sexual function reported by study participants has been previously noted as motivation for men to re-commence AAS use (Kanayama et al, 2010). Although

this was a troubling aspect for several men, for many the motivation to return to AAS was driven by a desire to get back to working out in the gym productively and advancing their body projects following the changes they had experienced on AAS discontinuation.

“The number of days spent training in the gym were the same, but the time periods were shorter, and the amount of work I would do in the gym was definitely reduced for a period of two months” (P.12)

“you don’t get the same pump, your recovery is longer, strength changes but only a bit. I’d say its more about resting as well, so I only train once or twice a week instead of maybe four or five, then it is just in and out [of the gym] stick to the basics, no fancy stuff, that’s going to be a waste of time” (P.2)

Study participants specifically attributed their experience of health problems to the abrupt loss of testosterone they experienced on AAS discontinuation.

“I had trouble getting my testosterone to kick back in. I had low testosterone for quite a while, and it affected me negatively both physically and mentally; from a mental point of view my testosterone levels were so low, that affected me for a bit, but to be frank, you are watching yourself die, it’s awful, like I am dying ” (P.14)

The de-railing of progress towards the appropriation of body goals which men had formally found so rewarding, created a loss of coherence, with men becoming embroiled in a fight to maintain their existing muscle capital:

“you feel numb, you’re going through losing strength, losing size, feeling low, you’re not aiming towards anything, other than fighting to stay big” (P.2)

This sudden inability to attain *muscle capital* began to fragment body sculptors’ sense of identity, which in one case was reported to have manifested in a historical account of suicidal ideation:

“people who consistently use gear will go through a period of feeling very low and it’s not because of the gear, but that they start to see a non-maintainable image that you can’t keep all the time. A couple of year ago I honestly would have been near suicidal, that was my reality...ummm. It’s just fortunate that I’ve got past that and I understand the big picture as a whole. But I feel that’s something everybody has to go through” (P.1)

“it’s not good, people think it won’t hurt your own test but it does, mainly just tired, bit fed up and that and obviously seeing yourself get smaller is never good (P.2)

4.13 ASIH on AAS discontinuation as a re-interpreted form of hysteresis

Whilst the habitus (embodied ways of thinking and body competence [hexis]) is both “*durable and transposable*” (Bourdieu, 2009 [1977], p.72), it is also “*malleable and transmissible [as it results] from pedagogical work*” (Waquant,2011, p.86). Habitus is known to have the capacity to experience abrupt shifts in response to new experiences (Bourdieu, 2000; Grenfell, 2012, p. 221), and have “*critical moments when it misfires, or is out of phase*” (Bourdieu, 2000, p. 162) with the temporality of field requirements. The following reflection from participant 12 provides a useful example of the misfiring which occurs to men’s habitus on AAS discontinuation,

“It’s like being Superman one day and then all of a sudden one day it hits you and you’re Clark Kent” (P.12)

In its traditional sense, Bourdieu utilises the concept of *hysteresis* to reflect an abrupt shift in the structural conditions of a field which lead to the habitus of field occupants “*misfiring*” (Bourdieu, 2009 [1977]: 20). The concept of hysteresis has been well applied in the study of organisational change theory (Kerr and Robertson, 2009; McDonough and Polzer, 2012) and offers a way to contextualise workers’ inability to make sense of , and align to, newly re-configured field conditions (for instance when a new CEO arrives and changes the products a company produce or the function of a worker’s role in a company for which they have little experience or training). In these instances, *hysteresis* captures the notion of workers “*frustrations and inner turmoil*” (McDonough and Polzer, 2012: 366), due the distance and dissonance between acquired dispositions of their habitus and

those required for success in a newly encountered field, or a re-configured organisational field (Grenfell, 2012).

However, this study identifies *hysteresis* (a mismatch between field and habitus) in this context as arising not from changes in the field, but from altered modes of thinking and body competence which occur because of the phenomenon of ASIH upon AAS discontinuation. Accounts from participant 2 of feeling 'numb' and 'not aiming towards anything' once he discontinued AAS left him effectively feeling like '*a fish out of water*' (Grenfell, 2012) in the gymnasium. Testosterone deficiency has well-established symptoms such as "*cognitive impairment, changes in mood, sleep disturbance, and fatigue, as well as loss of physical strength and muscle mass*" (Hackett, et al, 2016: 2). These issues were apparent in accounts from several participants who referenced a 'reduction in the amount of work they could do in the gym' (participant 12) which resulted in them either 'not training', or , 'not feeling the same when they did' and were not using AAS (participant 10).

The sudden inability to work out rewardingly in the absence of AAS is best summarised by participant 2's reference to 'not getting a pump when training', 'loosing strength' and 'taking longer to recover' all of which led to a 50 % reduction in training frequency. In a similar manner to which the habitus must take time to "*respond to abrupt, sometimes catastrophic changes*" (Grenfell, 2012: 127) in field conditions, so too, a period is required for a *body sculptors'* natural hormone production to return to a degree of normal functioning (if at all) post AAS discontinuation, resulting in a disjuncture between its operation and bodybuilding's temporal rhythms. The "*misfiring*" (Bourdieu, 2009 [1977]: 20) habitus of body sculptors create a lag in time between embodied ways of cognising and physically operating when using AAS, and those brought about by the abrupt decline in testosterone and its wellbeing inducing properties upon AAS cessation. This situation leaves men in what participant 14 suggested is 'a depleted state' with a sense of "*being out of touch*" (Hardy, 2012: 127) with the temporal rhythms of bodybuilding practices required to appropriate muscle

capital such as being strong, energised, training intensely, regularly and recovering from workouts in good time.

“It was the reversal of the body so fast that was the issue, I was on my way out, it looked bad. When you’re on [using AAS] its cool, the downside is bad, I’m never having that again, I’m not even running the risk of having that again” (P.14).

Sudden shifts in an ability to feel motivated and function purposefully in the absence of the wellbeing and growth-promoting properties of AAS have been well recognised previously (Osta, et al, 2016; Neishlag and Vorona, 2015), and are reflected in participant 10’s description of ‘not having as much get up and go’ which also affected the motivation to train of other men when they ceased using AAS which they found problematic,

“mentally you can lose motivation [to workout out in the absence of AAS] that is something I struggled with” (P.1)

For some study participants, the repeated experience of hysteresis every time they came off cycle resulted in disillusionment and frustration at the cycling process,

“the ups and downs of gaining and losing after you come off is a head fuck, and just gets you pissed off. You gain, get strong, come off, catch a cold and it’s like you’re back at square one” (P.2)

Low levels of testosterone are also associated with cognitive impairment (Kritzer et al, 2007), likely to modify the ability to think and cope productively in challenging environments (Wallin and Wood, 2015: 9) which may make coping with a *misfiring* habitus and resulting state of *hysteresis* even more challenging for gym users to navigate.

4.14 Bodybuilding’s ‘*illusio*’ and the quest for muscle capital

Except for participants 8 and 13, all interview participants reported some degree of health harms from their use of bodybuilding ethnopharmacology, yet the rewards from appropriating *muscle capital* acted to conceal these harms (Grenfell, 2012). Early acquisition of *muscle capital* and positive feedback from other body sculptors on the progress they were making led study participants to

gradually became sucked in by the gravity of bodybuilding's *illusio*. This led the quest for muscle capital to become an all-encompassing one, which was a centrally important aspect of study participants' lives. Once field participants develop this 'stake in the game', they experience the forces of *illusio*, as, "every participant who wants to succeed within the field must be prepared to engage or invest in the game in some way; and believe in its significance, that is, believe in that the benefits promised by the field are desirable" (Lundberg & Heidegren, 2010: 12).

The concept of *illusio* aligns closely to that of *doxa*, which represents what Bourdieu terms the taken-for-granted aspects of field regularities that provide agents with "a repertoire of devices or techniques, in short the whole art of performance, in which the habitus inevitably appears" (Bourdieu, 1990: 20). The *illusio* of bodybuilding sub-culture conceals the reality that success in the field through accumulation of significant *muscle capital* requires the adoption of ethnopharmacology if body sculptors are to be on a level playing field with others in the gymnasium chasing the same collective goal.

"the goal is impossible without AAS and continuous use to hold perfection" (P.1)

The trade-off between increasing consumption of AAS and the inevitability of associated health harms described by participants in this study related to ASIH appeared to effectively become concealed by the 'cloaking effects of doxa' and field traditions. The natural attitude of study participants under the influence of the *illusio* of the bodybuilding cosmos led them to follow the example of other gym members in scheduling their modes of AAS practices to include 'stacking' (using multiple oral and injectable AAS products at once).

"each time I went on cycle I would increase the amount I used, or try longer cycles, or try cruising" (P.10)

In reference to how cycle length changed significantly since they started bodybuilding participant 4 offered the following reflection,

“it used to be much shorter times on courses, doing a five-six week course then taking a five-six week break off, but god has that changed: now we’re a long, long way off from that” (P.4)

The inter-field competition between body sculptors in the gym meant that *muscle capital* maintained its inter-subjective value as a ‘*phallic modality of being*’ (Ghassan, 2009) within the spatial boundary of the gymnasium, with doxa reproducing the *muscle capital’s ‘illusio’* even at the expense of health injury. Once body sculptors became pulled into the competition of capital accrual by the magnetism of bodybuilding’s *illusio* and the rewards of fulfilling their body work goals, they no longer questioned the validity of their actions and where “*no one questions whether the battles in question are meaningful, the considerable investments in the game guarantee its continued existence, Illusio is thus never questioned*” (Heidegren and Lundberg, 2010: 12). It became apparent that whilst study participants did make choices about their AAS use these choices are often pre-reflexive. Wacquant notes that although people “*make choices they do not choose the principles of these choices*” (Wacquant, 1989: 45), as their mental structures are “*embodied from experience of the social world*” (Bourdieu 1989: 18) and these are systematically ordered through the habitus, capital, field relationship and the guiding influences of doxa.

4.15 Others, concealing harm and re-commencing AAS use

Despite the decision of participant 9 to use AAS to transform his body was ‘a really a personal thing’, the desire to acquire capital (in this case *muscle capital*) in a relational field reflects the collective agreement amongst field inhabitants of the distinction and appeal of that capital (Bourdieu, 1986). Bourdieu states that agents within fields are “*endlessly occupied in the negation of their own identity*” (Bourdieu, 1989:18) which is often formulated via their ability to generate symbolic capital. Appropriating *muscle capital* held symbolic value amongst members of the gym, reflecting the

relational nature of the gymnasium. Any loss of muscle capital may also carry with it a loss of symbolic capital and consequences for field inhabitants.

“you go from being top end physical, to worse than when you started, that incredible shrink. Everyone noticed and was like. ‘oh, are you okay?’” (P.14)

Falling under the look and objectification of other body sculptors brought to the forefront of participant 14's attention his loss of *muscle capital* and the potential reclassification of his field position in “*the game*” (Bourdieu, 2009 [1977], p. 12) of body sculpting by others objectification. Sartre suggests *the look* of others in a social space suddenly reveals who we are to ourselves, empowering others to, “*establish me in a new type of being*” (Satre, 2003: 246). The experience of P14 “*being seen by another*” (Satre, 2003 p.281) with severe weight loss in an hysterical “*outside form*” (Satre, 2003, p.283) following AAS discontinuation reveals the power of an orthodox group of body sculptors to shape how gym members are perceived and categorised by others.

In an observation session at the gymnasium [FN 09/03/17/P15] participant 15 (a gym member whom I would later interview over the coming weeks) recounted a conversation with another gym member who had denied experiencing any adverse effects once he discontinued AAS use which had left participant 15 feeling isolated and wondering if it was only him who was experiencing negative health issues once AAS use ended. The ‘other gym member’ in this recounted discussion was in fact participant 10 who I interviewed during the research project four weeks earlier and who had disclosed to me in the interview his own problematic experiences on cessation of AAS use. Despite both men experiencing distressing symptoms associated with ASIH on AAS discontinuation, there appeared, on the part of participant 10 at least, to be a reluctance to talk about the health harms associated with AAS use. I propose that by “*regularizing his situation*” (Bourdieu 2009 [1977]: 22) and denying health harms from his AAS practices, participant 10 was simply “*abiding by the rules*” and “*falling into line with good form*” (Bourdieu, 2009 [1977]: 22) in the context of the doxic

traditions of bodybuilding cosmos which are essential for the *illusio* of *muscle capital* acquisition is to be maintained and the questions of the harms these practices cause remaining unquestioned.

In a separate evening in the case study gymnasium some months earlier [FN 12/01/17/P3] participant 3 described an *“instant of hesitation”* (Bourdieu, 2000: 162) where at once bodybuilding *illusio* was revealed before him, as he became acutely aware of the harms caused to his health by AAS use. On my arrival for a workout in the gym participant 3 rushed over to greet me in a distressed state following the failure of a single injection of 5,000iu HCG and four weeks of Tamoxifen and Clomid to restore his testosterone levels, leading him to lose muscle and feel mentally low. To resolve these issues participant 3 disclosed immediately returning to AAS use to gain a sense of normality and return to his training in a meaningful manner. Whilst Initially employed as a harm reduction measure, or *“safeguard”* (P.14)- against the effects of ASIH, PCT may become less effective over time as a body sculptor’s hypogonadism becomes more severe (Boregowda et al, 2011). Failure to restore functioning of natural testosterone using PCT drugs was also expressed by another gym members resulting in apathy with the whole process of cycling on and off AAS , *“It is like an addiction, not really, but like you just don’t feel good without it, you know what I mean”* (P.2).

4.16 Hysteresis avoidance: Resilient habits of AAS practices

Several justifications were provided by study participants for returning to AAS use earlier than planned. These justifications included developing positive ‘self- talk’ strategies where they convinced themselves they had been away for AAS use for longer periods than they had. An example of this process is described in the following field note record of a conversation I had with participant 1 after our workout in the gymnasium,

“you work out when your last shot was, how long it would have lasted in your system, your time off should start from say three weeks after that and be off for seven or eight weeks. Problem is that’s how you work it out before you come off, but once you are off you think well it [AAS] might not have

lasted that long, so I will say it only lasted a week after I put it in, cause you never know it might have been metabolised fast, or a weaker dose than on the bottle. So even though I have only been off for five weeks, suddenly if you change how you look at that last shot, then it's okay to start again and get back on it" [FN 06/03/17 P1].

Participant 2 described adopting self-talk strategies to put himself at ease in returning to AAS use sooner than planned. I felt this reflected an attempt to disguise the reliance he placed upon AAS to engage in body work in a manner which was meaningful and rewarding:

"I used to rush back on to cycles way before I needed to, I'd even lie to myself and say yes it's been 8 weeks when I knew it was 6, but I kind of justified it" (P.2)

There appeared to be an acceptance amongst other participants that returning to AAS sooner than planned was a well-established practice in the gym:

" Even the lads who do come off they lie to themselves and me and say yes I've been off for six weeks and I'm like you had your last shot 10 days ago" (P.7)

Not only did participants construct internal narratives to put them at ease with their increasing desire to fall under the positive effects of AAS use once again, participant 12 outlined how some also shared false narratives with other gym members in a manner of narrative re-enforcement:

"there's guys who say they're off cycle, but they're not actually off, they're just not using as much, and they are using the test just to function normally because they can't function without it" (P.12)

Another man described these behaviours as being related to a psychological (rather than physical) addiction to the effects of AAS use:

"a guy who comes in here will tell me I'm off for three months now and within a month he's planning his next thing, six weeks would be the longest he ever takes off, and he is I would say psychologically addicted to steroids" (P.1)

The subsequent expedited return to AAS use represents participants attempts at “*making good their misfiring’s*” (Bourdieu, 2009, p.20) of their habitus, and in doing so, signal their return to field operation and maintenance of the fields doxa and “*symbolic order*” (Bourdieu, 2009 [1977], p.21) from which their habitus drew upon its regulatory effects. In contrast to participants 1 and 7 who felt the best approach to ending AAS use was to abruptly end the cycle and remove AAS from the system as quickly as possible, the intention of participant 12 was to cycle down AAS over a longer period to avoid a sudden ‘*misfiring*’ of his habitus due to the abrupt loss of artificial testosterone.

The plan is to stay on for longer next time and just taper off, get rid of the tren completely and just taper off on the testosterone, so hopefully it won’t be such a shock to the system” (P.12)

This ‘plan’ to avoid *hysteresis* by tapering and using AAS for longer, rather than just stopping AAS use completely, highlights further how a fields doxa can “*conceal from itself its own truth, inscribing in objectivity its representation of what it is*” (Bourdieu,2009 [1977]: 22), to those who are under the ‘*illusio*’ of body sculpting and the effects of its doxa. I propose participants’ motivation to return to AAS use is primarily driven by a desire to return to the rewards of working out whilst using AAS and progressing their highly rewarding body project. However, a further factor may be that the fields doxa maintains a symbolic order which wields what Bourdieu terms soft, or “*symbolic violence*” leading to “*socially distributed suffering*” (Bourdieu, 1993: 60). Symbolic violence is no less damaging than physical violence (Grenfell, 2012: 180), and may be more easily maintained and concealed within a field of practice as all that is required of the dominant is to “*go about their normal daily lives, adhering to the rules of the system that provides them with their position of privilege*” (Grenfell, 2012: 180). The fear of reclassification “*for their poor performance*” (Grenfell, 2012: 185) in the *muscle capital* game, is a form of symbolic violence, and in part It is through this violence, unseen and unspoken, that the symbolic order of the field’s practice (you need to use AAS to be successful) is maintained and reproduced within the field’s doxic order (Bourdieu, 2009 [1977]: 21).

4.16.i Wider ethnopharmacology in the off cycle to avoid regression of muscle capital

In addition to the prescription compounds which typically formed part of study participants' post cycle therapy (PCT) regimes (Clomid, Nolvadex and HCG), reference was made to increasing patterns of ethnopharmacology in a bid to restore favourable hormone profiles and minimise muscle loss and fat gain. Products used in addition to PCT included a range of 'natural testosterone boosters' including the amino acid 'D-aspartic acid', the herb 'fenugreek extract', and the plant extract 'Tribulus Terrestris'. Several men had commenced use of human growth hormone (HGH) whilst on cycle:

"I started banging that in and after a few weeks I noticed it just shifted things up another level, I take 4iu a day, 2 in morning, 2 in evening" (P.12)

This pattern of growth hormone use was described by participant 5 as helping to retain muscle mass and combat muscle capital regression:

"I don't tend to lose muscle so much because I use growth hormone in the off cycle, 3iu a day, first thing in the morning at least half an hour before my first meal" (P.5)

Participant 9 referenced his use of GH as being continuous through both the on and the off-cycle period, only breaking for religious reasons.

"right now I'm using a pen with 100ius in it, but it only lasts 30 days, it varies 170-180.. it's definitely growth. I don't cycle I just stay on, the only time I come off is when I'm fasting for 3 months" (P.9)

Experimentation with other PIEDs also led to wider use of compounds to improve wellbeing and the quality of sleep, which trainers felt would aid recovery from workouts and enhance subsequent muscle growth:

"Well, growth hormone is the ultimate of anything and peptides can increase that natural growth hormone. Things like GHB like gama aminobutyric acid (GABA) and it would help you sleep which could lead on to diazepam and tamazepam" (P.4)

In addition to products likely to improve growth hormone release and aid sleep (including sedative drugs such as benzodiazepines), there was a reported rise in the use of peptides (such as Ostarine) and selective androgen receptor modulators (SARMs) during 'off cycle' periods away from AAS use:

"It just takes one person to say, oh you look like you've lost weight, or, you look like you haven't trained in ages, and SARMs and peptides prevent that loss of weight when they're not using gear. No one leaves the ego at the door" (P.7)

One participant suggested that these products were increasingly being used in the place of PCT compounds by others in the gym due to a belief that they offer a better way to bridge the period in between cycles of AAS:

"they use other stuff now like ostarine and SARMs, other bits in the off cycle. So they say, there's no gear involved, I'm just doing some ostarine and a bit of GH or a bit of RB2: so you're not having an off cycle then really are you, it's not an off-cycle" (P.7)

Participant 7 also raised wider concerns regarding the risk profiles of the AAS used on cycle:

"there's some really shocking things, what people are taking, they show you a vial and there's little black things floating around in it and you're like, are you actually taking that and they're like, yes why?" (P.7)

4.17 Experiences of seeking help for AAS related issues (including ASIH)

As previously discussed in **section 4.12**, study participants experienced both physical health problems (including joint pain, severe weight loss, tiredness, lethargy and low libido, erectile dysfunction), and mental health problems (low mood, depression, and suicidal ideation), along with a sense of no longer feeling 'normal' when training and 'not aiming towards anything' following their discontinuation of AAS use and their inability to workout rewardingly. These experiences prompted several participants to seek professional help, though only following prolonged periods of poor health and wellbeing for which they had used several ethnopharmacological strategies including PCT

compounds, Viagra, selective estrogenic receptor modulators (SERMS), and Aromatase Inhibitors (AI), in attempts to self-treat these issues.

Delays in participants seeking professional help were common, and often informed by previous negative experiences of primary health care services and the belief that general practitioners would lack knowledge in relation to AAS and their effects on discontinuation. When asked who study participants would turn to for AAS related health issues, I gained the following responses:

“not the doctors, they don’t know about this stuff and would just blame your problems as your own fault cause you’re stupid and used gear” (P.2)

-and that more specialised help was required to resolve the issues they experienced associated with their AAS use.

“I feel an endocrinologist would, but not a GP: it’s not a general problem, something self-induced is not something they are trained to deal with” (P.1)

Participant 1 held fears that health care professionals would stigmatise him for his AAS use,

“my experience is as its on record I’ve used steroids, I feel even if I went with a fuckin cold it would be, oh that’s the gear; if I had a broken leg, oh that’s the gear. That may be unfair, and just certain GPs, but I can only talk about my own experience” (P.1)

These fears meant he was reluctant to seek help for a range of health issues, and not just those related to their use ethnopharmacology.

“a couple of years ago I lost a stone in a month, could have been a GI issue or cancer maybe, and I was at the point of seeking help, but it passed” (P.1)

Other participants described their experience of stigma when help seeking,

“I woke up in the middle of the night and rolled over and trapped a tendon, so I went to the hospital and she looked at my body and obviously asked me if I used steroids, and I thought how do I answer this? And I think, tell them the truth because it might help, so I said yes I do bits but I’m not on now, and they are very

negative when you mention that word (steroids), they are really narrow minded”
(P.15)

This led to frustration at the attitudes of health care practitioners:

“I’ve gone into hospital having an asthma attack, take my top off, they take one look at you and ‘it’s steroids’, it annoys you” (P.3)

Disclosure of AAS use was discussed as a potential barrier to receiving treatment in health care settings for wider health issues:

“the thing is, it’s out of their comfort zone, with all due respect. The last time I went with a chest infection, I said, right this is what I’m taking, and there was a sharp intake of breath and I said, right, stop that now. I’m being up front, I’m telling you what I’m taking, I’ve been doing this for 20 years, I know all of the protocols of what to do, don’t tell me not to. She didn’t look in a book to see if there were any drug interactions or anything, just said no!” (P.11)

Following a recent attempt to discontinue AAS use permanently for health reasons participant 3 discussed his belief that he had severely impaired his natural ability to produce testosterone through years of exposure to AAS. After some deliberation, he decided to visit his GP to discuss his situation and reported a positive initial experience with empathy from the GP for his predicament. Blood tests were commenced, and subsequent readings of low testosterone values resulted in a referral from the GP to a specialist clinician. A first appointment at the clinician’s endocrinology clinic also was supportive on the initial visit with a junior doctor, however a follow up consultant appointment did not go as well:

“that doctor she just walked in, never looked at anything off the computer screen, just looked at me and accused me of steroids, there was nothing else said. I had joint pain, was depressed, but like I said before, if I was a drug addict I would be spoken to differently., It would be oh, we can get you some therapy for this, some counselling; nothing, no help whatsoever. That puts people off going to the doctors to talk about what is going on, it took me a month and a half to go and ask him for a testosterone check to see what was going on. I went back to my GP and said don’t send me to that endocrine specialist again, she just belittled me in front of other people, she shooed me off and said your testosterone levels are coming back up there, everything will be fine. But maybe they will not, there could be a problem forever, she shunned me away and belittled me, there was no care, no responsibility, or that I was a human being and that I had feelings” (P3)

Participant 3 felt there was a greater degree of stigma associated with AAS use than other forms of injecting drug use or wider health risk behaviours (such as tobacco and alcohol use) which were more mainstream and widely accepted risk behaviours:

“The government will help an alcoholic, help a drug addict, but turn their nose up at a steroid user. Why shouldn’t I have a bit of help, I would If I was stopping smoking and had lung cancer, they’d still help” (P.3)

Finally, comparisons were drawn between the level of support and treatment available for hormonal issues and how these varied between genders:

“If I was a woman and I went to my GP with hormone issues there’s a good chance that without too many tests he would most likely prescribe HRT, which I know that they have done without waiting month after month, test after test saying, wondering whether it gonna come back, she would’ve got help” (P.3)

In another account, Participant 10 outlined that he had little knowledge of AAS effects on his own testosterone levels at the outset of his body sculpting journey meaning he did not use PCT regimes to help restore testicular volume and functioning following AAS discontinuation until much later in his AAS career.

“I’d put some HCG in 4 or 5 days before my test levels dropped all the way out, kept that going for 3-4 weeks then put in some Clomid and some anti-oestrogens as well, something to rebound, something to get myself back to normal as possible as quickly as possible” (P.10)

As he had moved from competition to competition, the time participant 10 spent off cycle (with abstinence from AAS use) gradually became shorter, and AAS cycles became longer (typically 20 weeks plus), with an eventual transition to continuous AAS use due to a perceived failure of his body to recover its pre-drug use level of hormone production following AAS discontinuation.

“over the last few years, say 3-4 years, I’d been on cycle and off-cycle for many years and I felt like once my body was coming back down, I never felt like my test was coming back to a decent level to feel normal” (P.10)

He went on to discuss his wellbeing already experiencing some strain from wider social factors which combined with the dysphoric effects of ASIH (loss of libido and low mood), was in effect “a double whammy” (P.10). Following a prolonged period of AAS discontinuation and a desire to stop taking illicitly produced AAS permanently, a subsequent GP consultation led to the following encounter,

“I’d already been clean for four to five months and I’d cracked up over Christmas in my own head if you understand what I’m saying; I’d been to the doctors’ and they tested me for certain things and when my bloods came back they said yes you’re alright, and I said oh yes, and it was me who brought up my test levels and he said I haven’t checked your test levels, so he did and when they come back they were low, really low” (P.10)

During the following weeks, the participant described researching medical hormonal treatments for low testosterone, identifying a prescription drug ‘testosterone undecanoate’ marketed under the brand name Nebido². Referral to a consultant endocrinologist provided an opportunity for the man to request a prescription for hormone replacement treatment via the prescription drug Nebido.

“my levels [of testosterone] were up and down so much when I went to the doctors, not because I was using, but they kept going low and he wanted me to go back in three months and then another three months and it was twenty weeks. I think it come back at 3.5 and that’s low, the average is like 5 up to 30 I think, and that’s why I wanted to try and get myself back to normal. Then I messed it up a bit really cause I started talking about sticking in some HCG like to bring myself up. It’s alright him saying take another 3 months, take another 3 months but it wasn’t him who was feeling the way I felt, so I said I’ve been off for 3 months, my levels haven’t come up they’re not gonna come up now. I wanted something [Nebido], and the way he was talking he wasn’t gonna give it me, so I decided to deal with it myself [by going back to using AAS], which I know was the wrong thing to do but that’s what I did” (P.10)

Reflecting on the wider implications of the journey to seek a medical solution to the damage caused to his own testosterone production through AAS use, participant 10 highlighted the reliance he now

² <https://www.optimale.co.uk/nebido-testosterone-injection/>

has on testosterone injections to operate day to day in a manner that meets his expectations of normality:

“my aim was to come away from steroids and go on to a long acting steroid (prescription Nebido) and just introduce SARMS and natural test boosters things like that, but because I didn’t get the answers I wanted at the hospital I just got frustrated anyway. The way I feel now I’ll literally just be putting a shot of something in me for the rest of my life unless I can go back in a few years. It’s been a right struggle, even with my relationship and that cause obviously that’s suffered a little bit as well” (P.10)

Next, Participant 14 described how similar challenges of discontinuing AAS were magnified by health complications associated with an injection site infection:

“it was quite bad, really bad actually. I had trouble getting my testosterone to kick back in, I had low testosterone for quite a while, and it affected me negatively both physically and mentally. From a mental point of view my testosterone levels were so low, that affected me for a bit, but to be frank, you are watching yourself die, it’s awful, like I am dying, It really did affect me , I started to get a bit of hypochondria, I was thinking if my muscles are wasting away what about my heart. I lost two stone in three weeks; it was a rough deal. You’re a pain deflecting pillar of masculinity and then you’re an undernourished cry baby” (P.14)

Initial reservations about disclosing his return to AAS use to his GP (based on a belief that the GP would not possess the level of knowledge surrounding AAS use to be able to make informed decisions in relation his concerns about damage he may have done to his own testosterone production) were realised. The expected direction to immediately cease AAS use led participant 14 to dismiss the attempt to seek help as futile, based on personal experience of the negative impact immediate cessation of AAS would have:

“I approached my doctor which was not a good idea by the way. To be frank, I know this sounds very arrogant, but I knew far more about steroids than my doctor. My doctor said what are you doing, look at your cholesterol level, this is really bad. Their advice was you need to stop now, and I was like I can’t, I’d have to do a PCT, and he’s like what’s a PCT? I’m like okay, maybe you don’t know the acronym, post cycle therapy and they’re like what’s that? So, I said when you come off you need to go on these drugs which do this and he’s like what? I don’t

get it, how are you even getting these medicines, some of these are for cancer treatments. So I'm like, you have to, otherwise you don't kick back into gear, and he's like no, you should just stop. So, I'm like, I have to stop listening to you. If I would have followed that advice I would have been in a world of hurt, I can only dread what would happen if someone said I'm gonna do this right and check with my doctor cause I want to do this as safe as possible and the doctor scares them (cause there are downsides to steroids) and they go, okay I will stop right now, no PCT...bad. As a whole, I do not recommend steroids. I think the risks are massively overplayed in the short term; not in the long term, they are real" (P.14)

When I asked participant 12 if he would seek help from his GP in the future for the problems, he had described experiencing on AAS discontinuation, he gave the following response,

"absolutely not: if you ever needed health insurance, they would increase your premium cause of what you've used. I've got friends who have been to health professionals and all they say is you can't use that stuff" (P.12)

Participant 7 echoed accounts of participant 3 of the similarities between male and female experiences of hormonal decline, with a suggestion that testosterone and estrogen were perceived very differently within society,

"well women's hormones decline as they get older so they have HRT but men's do as well, but I think 30-40 years ago testosterone suddenly became a bad thing, its almost like to be male is a bad thing, its almost like being a manly man suddenly became a bad thing and I don't know why" (P.7)

Comparisons were drawn by participant 9 between the psychological stress experienced by women during the menopause and the deleterious effects of ASIH on men's physical and mental health (which also negatively influence their social lives and relationships). Available primary care health services in the UK were contextualised as having widely available diagnostic and treatment services to support women experiencing distress, and that the same level of support was lacking for males:

"If it's the NHS, dealing with oestrogen levels or progesterone levels in women they [NHS]'are on to it straight away aren't they, because it affects them mentally, so why doesn't it do the same thing with men. Men now are feeling low self-esteem and everything is down with them, and they can't perform in bed,

etc., surely that's part of your own make up, but they won't give that [Testosterone Replacement Therapy]" (P.9)

Participant 9 went on to outline his intentions to seek support once again from his GP to remedy his testosterone production problems related to ASIH, but if this was unsuccessful, he may consider reverting to accessing testosterone injections via his existing source of illicit AAS:

"I've thought I could go to the doctor one day and look at TRT, I don't know, I think it's something that should be considered by the NHS. If they don't, people will go underground" (P.9)

4.17 Continuing AAS use despite harms: Cruising

Several men perceived discontinuation of AAS and the subsequent experience of ASIH as unnecessarily impeding their ability to progress towards their *muscle capital* goals (following reversal of size and strength gains made whilst on their AAS cycle). In a mode of *hysteresis avoidance* some participants reported transitioning towards continuous patterns of AAS use (colloquially known as cruising). Cruising was described as tapering down AAS levels for similar periods of time as those observed in the off cycle (between six to ten weeks). During these periods' testosterone was used at a low dose between 250mg every 7days rather than being ceased all together, all the way up to 250mg every 21 days. This cruise period was followed by a blast phase where the men returned to higher dosage of AAS along with wider ethnopharmacology for their on-cycle phase. In this manner, participants had no break from AAS, meaning they avoided much of the dysphoria of ASIH:

"doing the whole do a course, wait a month, get back on thing and getting fuck all from it prevented me from wanting to use PEDs again, but now I cruise at 1ml every 14-21 days which is not far off TRT " (P.1)

Transitioning to cruising patterns of AAS use in a bid to maintain a sense of wellbeing and continuing training in the gym productively were reflected by other body sculptors:

"I never felt like my test was coming back to a decent level to feel normal so the cruising just helps me to feel normal, say 125mgs of test a week, or every 10 days just makes you feel normal and then you can blast again" (P.10)

Attempting to avoid the struggles faced during the off cycle, such as feeling weaker and less motivated than when using AAS, were however condemned by participant 4 a sign of poor discipline and lack of commitment to the necessary process of body work refinement and possibly more of a psychological addiction:

“I tried cruising once and very quickly decided it was absolutely useless, there was no point, and it was more harmful than good for you, I think cruising is more of a psychological addiction if you like, it’s guys who come off a course and they don’t want to do anything for a few months and decide to put a small amount of testosterone in their bodies a week, usually the long acting esters- 200-250 mg per week” (P.4)

Others agreed that cruising was not a beneficial strategy,

“I’m against cruising, it’s a very bad idea, you should go on and off, no one wants to look shit so they just buy another bottle and then when they look bigger they cut it down again, unless they’re under good guidance, then they’ll go on and come off, get off and clear up” (P.13)

4.18 Reflections on the rewards (and challenges) of body sculpting

When asked to summarise their journey in relation to body sculpting, there was an overwhelming consensus amongst study participants of the sense of meaning and reward that development of their body projects had provided within their lives. The appropriation of *muscle capital* had led several participants to gain employment including roles as fashion models, male strippers, or as security staff in local bars and nightclubs. References were made in relation to how immersion within the bodybuilding cosmos had become an intrinsic part of men’s lives, providing day-to-day structure, social networks, lifelong friendships, self-esteem, self-efficacy, and a sense of coherence. The gymnasium was seen to provide men with an escape from the banality of everyday life, providing refuge during challenging life circumstances as well as acting as a form of mental health support through the social contacts with which men could talk through their life problems or take out their frustrations through physical activity. The challenges that had been navigated during study

participants' body work projects provided an ability to transfer these skills to managing issues outside of the bodybuilding cosmos.

"it's mad but it was the first time I felt like I'd found somewhere I was happy [in the gym], didn't really like drinking and always felt out of place in the pub; the gym has always been a home from home for me, through all the ups and downs its been the one thing that's constant, training, me, who I am, what I control, good real friends. There is something about we've all got something in common, even though we're different. I have joked and said I would be dead if it wasn't for this place, but that is actually true. I've had massive lows when life's been bad and if it wasn't for here I reckon I wouldn't be here anymore, honestly it's like mental health support, you can come in shut up and train, or you can chat, that helps sometimes and that's it, you leave and you feel better, its somewhere to run away to" (P.2)

One man had transformed the direction of his life by starting a business selling body sculpting supplements, clothing, and training aids to others from the bodybuilding community:

"I think it's fair to say it's very much shaped my life for the positive, if you look at when I started I was sleeping on the floor of a house, I had £300 in my pocket, I had no qualifications and was a forklift truck driver. I was 24-25 stone...and now I'd like to think I'm well respected within the industry, I'm a sponsored athlete, I now own a hugely successful business turning over half a million a year" (P.1)

For others, bodybuilding had provided a means of setting goals, working productively to achieve them, learning to overcome setbacks and failures, providing a means by which they could understand themselves psychologically and physically.

"I wouldn't change anything, I would say my experience has been pretty good. Like anything else I would like to have had the knowledge of now, but somebody else can't give you that. It's about understanding your own body, no one else can tell me how heavy I'm willing to go, how far I'm willing to go and how many reps I'm able to do" (P.5)

"it's like life, you have ups and downs, good days, bad days, one day you go to the gym and break a personal best, the other you don't" (P.6)

The body sculpting life was generally seen as one which had provided a high degree of life satisfaction:

“I have loved every fuckin second of it and I’m very happy with where I’m at and who I am”
(P.3)

Importantly however, it was recognised that the use of ethnopharmacology through which many body sculpting rewards had been developed was unsustainable in the long term:

“but you can’t do it hard for ever and a lot of it for me now is being grateful for what I’ve done and moving in a less extreme direction but like I say will always be training, gear or no gear” (P.2)

One man expressed only positive experiences from his AAS use which had been confined to infrequent courses (2 per year) of a mix of testosterone, boldenone or Deca-Durabolin (Nandrolone) no longer than six weeks with robust PCT strategies after each cycle and lengthy periods of non-steroid use:

“Well I’ve never had any bad effects so, my journey with steroids has only brought me positive results, it’s had a positive impact on my life and I’ve not experienced any ill health so I can only say good things, used in a safe manner with guidance and good morals. I have had no problems” (P.8)

Others were more cautious with their summary of their journey into developing their body projects and the use of ethnopharmacology within the bodybuilding cosmos:

“I suppose it would depend on what mood I was in at the time, 9 times out of 10 worthwhile and good outweighs the bad” (P.7)

Despite multiple references to positive experiences, several participants also expressed a degree of regret at not having a greater awareness of the long-term effects associated with their drug use, and the subsequent implications for their physical and mental health in the long-term:

“I wish I’d known more when younger and I probably would not have taken so many risks with my health, I put my life in Dan Duchene’s hands, for fuck’s sake”
(P.2)

Participant 4 discussed his belief that his development of diabetes following use of AAS may have occurred regardless due to familial risk factors.

“rollercoaster really, it’s had its highs and its lows, as in physical damage, you could say I would’ve developed diabetes anyway from hereditary” (P.4)

Some said they would have taken several harm reductions steps in relation to their AAS use if they had greater AAS knowledge at the outset of their body sculpting journey:

“It would be ridiculous to say I wish I’d never have used them, but I wish I was more educated to help my health, I’d have cycled better you know, length of cycle shorter and more rest, using less heavy testosterones, but overall it’s been good”
(P.7)

Practical suggestions for changes they would make in their patterns of AAS use were discussed:

“I probably would have always stuck to six-week cycles, just short cycles because the longer you use something for the longer it takes to come back from it, my advice to anybody who asks now is don’t do it. If you do not never go to that side, you never have to know that side. There’s plenty of stuff on the market now to get there naturally that can give you that help; my advice to anyone who asks now is don’t do it” (P.10)

A recurring theme included several body sculptors seeking out private testosterone testing clinics, or on-line services, to determine the level of impairment they had incurred to their natural testosterone production from ASIH. These services were discussed as being relatively inexpensive, and essential for anyone considering using AAS for the first time (to enable them to assess their baseline hormone profiles prior to drug use). A degree of disillusion was expressed that these testosterone testing services were not available at the outset of trainers’ body sculpting careers:

“I wish I would have tested my test levels earlier on in my normal life to see if I was already at the lower end or the higher end, so you can see what damage you do over a period of time” (P.10)

This testing was something recommended before AAS were used so as to provide a baseline for assessing future ASIH related health harms:

“I’d advise anybody to get bloods done before going on steroids to test all their levels. I’ve got this one guy who’s been using d’bol and he’s had some problems and been on the internet and he wants blood test now and I’m like you should have had them before, how do you know now it’s the gear, you could have had low test anyway” (P.15)

Despite a recognition of both physical and mental harms from using AAS, it seemed impossible to escape the associated narrative of the rewards body sculptors had gleaned from these practices, meaning these harms were partly justified:

“If I’m totally honest it’s something I’ve got into and loved doing, further down the line when you come across problems and you know what’s caused it you’ve got to grin and bear it to be honest. The more you have used anything the more it’s going to come back to bite you and you’ve got to get your head round that you know? What I mean, it’s a psychological thing as well, so if I had my time again I probably would change the way I’ve gone about it , it’s being informed enough to know these things” (P.10)

These reflections were also shared by participant 14.

“Well, if I had the same time again, would I do the same thing, not exactly. Obviously, I would do my damndest not to get cellulitis. But if it was don’t do it at all, or yes do it, I would do it, because for me I achieved a lifetime goal, I have stood where gods have stood, I’ve done what Arnie has done” (P.14)

Despite the positive associations recounted between the use of AAS and the rewards of body sculpting, some men now found themselves in a position where retirement from their AAS using careers became challenging due to the impacts of prolonged ASIH.

4.19 Ending AAS use permanently: The challenges of exiting AAS practices

For several men AAS use was only ever initiated to support competitive bodybuilding ambitions. These men expressed that once they retired from bodybuilding competition there would be little justification for using AAS from a moral perspective, and hence they would move to permanent AAS discontinuation:

“Yes, when I stop competing, I would never have taken anything if I weren’t competing. When I stop competing, I stop using” (P.11)

A similar position was confirmed by a second body sculptor:

“Erm I’m probably near that point now if I’m honest in that I’m not going to compete again but I’m undecided whether or not I would totally give up steroids

then or not. I doubt it very much I'd still do a few weeks on and a few weeks off, but I might decide I've had enough" (P.5)

Others stated experiencing further health issues may act as motivation for them to cease AAS use,

"Yes, I can, a health issue that is directly attributable to it then yes, no question. You can do damage that is irreparable, the young ones are doing it, but it tends to be the 40 plus guys who say I have had my kids, I am not really bothered. I'm very pragmatic with it now, I'd be disappointed, but it wouldn't be the end of the world" (P.1)

Fears regarding the effects of AAS on the health of peers also appeared to provide motivation to discontinue AAS use:

"If I were ill, or something changed I would stop straight away; you don't know what you've done inside do you? One of the lads died recently, haven't seen him in years so don't know if he was still using but he died whilst training which is so sad, but if you're doing what you love I suppose that's what life's about, but for me it's about being sensible now" (P.2)

Participant 2 went on to say that he was now exploring ways to positively manipulate his endogenous testosterone levels, using alternatives to AAS:

"that is all I am about now, making my own test the best it can be, you forget when you're young it's got to last you a lifetime. I have looked into some things. Arimidex is good for dropping oestrogen and keeping test up and there is the SARMs which aren't gear but could be good. If I had the money, I'd probably think about growth, couple of iu a day, just to feel good and healthy." (P.2)

Three men (Participants 3,7 and 10) expressed the need to continue to use illicit AAS, or access testosterone replacement therapy (TRT)³ for the remainder of their lives due to a perceived self-induced impairment of their natural testosterone production and a reliance on AAS now to be 'normal':

"If I ever do stop competing, but I enjoy performing in front of people, maybe, my long-term plan is competing till I'm in my box, but as for testosterone therapy I don't see myself stopping as a therapy; not without the help of knowing hormonally I would be safe and sound" (P.3)

³ <http://www.cmaj.ca/content/cmaj/early/2015/10/26/cmaj.150033.full.pdf>

Whilst participant 7 would no longer be competing, he referenced a desire to maintain the benefits of testosterone use for its wellbeing properties, saying they would consider ending illicit AAS use under the supervision of a GP who would make hormone replacement therapy available:

“Yes, but I’d like to, but under advice of a GP that could help, but over the last 40 years all the ones I’ve seen they haven’t got a clue about steroids. The lads at harm reduction they do, and I know they will say don’t cruise it doesn’t work, but this isn’t about size it’s about having the test of a 30-year-old again and feeling like that. If they said using gear you can only live 10 more years but feeling good, or 20 years with no test, then its sounds stupid but I probably would do it. I think I would like to go on TRT for ever, if after three months of not using I started looking like an old man then, I’d do TRT” (P.7)

Participant 10 was clear that his life could not continue with any degree of quality in the absence of testosterone replacement therapy (TRT) following the damage caused by prolonged ASIH.

“I’m going to need test therapy without a doubt because my natural levels are not going to come even close to the lower spectrum of it, so I know I’m always going to feel crap. It might be in my head or whatever, but if my levels are low, it’s going to lead to bouts of depression; it’s more a matter of how I feel in the gym, or how I feel about myself” (P.10)

Participant 7 also discussed considering entering into continuous AAS as a form of self-medicated testosterone replacement therapy (TRT):

“because I’m 50 my natural test now is so low it just doesn’t do anything, so you don’t recover, I don’t want any more kids and stuff so I might eventually plan to just do what would be classed as a cruise where I do a low dose of test every week and just never come off and stay on forever” (P.7)

Given these accounts, it is unsurprising that men perceived their knowledge of AAS as being superior to GP’s.

“very few people will seek advice from a doctor or chemist, I mean chemists are not too bad; I’m not a GP but I am the closest thing you are going to get” (P.4)

One suggested way to ensure men get AAS harm reduction advice and promote help seeking was via the provision of education sessions in the gymnasium.

“It has to come from someone in the gym, they won’t talk to anyone else, they talk to people they know, you can say have a seminar in the gym and sometimes it would be hammered [full] , others no one would be interested” (P.6)

The data presented in this chapter is summarised and discussed in **chapter 5.0** which is structured using research aim headings contained in **section 1.2** of this thesis. These include, the rewards and meanings body sculptors assign to their muscle capital goals, the role of the gymnasium in men’s adoption of bodybuilding’s ethnopharmacology, experiences of AAS discontinuation, strategies to navigate the deleterious effects of the phenomenon of ASIH, accounts of seeking help for ASIH related health problems, and the contribution of these factors to adoption of continuous and problematic patterns of AAS use.

Chapter Five: Discussion of Findings

5.0 Chapter Introduction: Re-visiting the rationale for this research

There has been a growing desire to demonize AAS substances and pathologize AAS users over the last 30 years (Monaghan, 2002; Keane, 2005). Largely, these approaches are seen to emanate from a political desire to develop legislation and policy to control non-prescription use of AAS compounds, and develop pharmacological treatments (Keane, 2005) for the 30% of users hypothesized to develop an AAS dependence syndrome (Kanayama et al, 2009a), described as a looming public health concern (Pope et al, 2016). Despite these efforts there is continuing ambiguity surrounding AAS dependence forming qualities (Scally and Tan, 2009)

Conceptual frameworks of *illicit drug use* and *body image disorder* pervade the literature, eroding the varied aims, meanings, and rewards of dedicated muscle enthusiasts (Monaghan, 2002) and what have been described as their highly rewarding self-improvement body projects (Keane, 2005). Whilst the 'illicit drug user' model perceives AAS as psychoactive compounds to which out of control, aggressive males become highly addicted, men's use of AAS use is also hypothesized to result from their disordered psychology and a state of body image disorder (Pope et al, 2016) arising from a crisis in masculinity due to social pressures to conform to male bodily ideals in a post-feminist era. These medical models of understanding AAS use have been criticized for the limitations of their methods of inquiry (Goldstein, 1990), and their pathologizing nature reflecting only the harms (and not rewards) of bodybuilding's sub-cultural practices (Keane, 2005).

Various diagnostic approaches have been developed to identify and treat the psychologically disordered (Pope et al, 2016) and addicted male AAS users' (Brower et al, 1992; Kashin and Kleber, 1997; Kanayama et al, 2009a). Many of the claims surrounding AAS psychoactive properties and their potential to influence brain reward pathways in a manner similar to opiates (Kanayama et al, 2003) leading to addiction, are based on isolated case reports (Kanayama, 2009a), or findings from

extensive animal studies (Peters and Wood, 2005) which have been long disputed (Fingerhood et al , 1997; Goldstein 1990).

Keane (2005) notes that few studies have looked to understand the motivations and rewards of dedicated muscle enthusiasts use of AAS outside of the ethnographies of Welsh body sculptors (Monaghan,1999a;1999b; 2001a,2001b; 2002) over 20 years ago. In part this is due to the continuing desire to portray AAS substances as morally suspect with the malevolent ability to corrupt users (Keane, 2002). An alternative theory for men's continuing use of AAS is contained within the conceptual framework which contextualises AAS users as *body sculptors*. Here an AAS use-workout link has been hypothesized (Goldstein 1990; Maycock, 2000; Keane, 2005) to describe how men learn to enjoy as pleasurable the struggles encountered when working out in the gym under the strength promoting properties of AAS (Monaghan, 2001b), also described as the 'erotic's of the gym (Mansfield and McGinn, 1993). The bodybuilding work out has been hypothesized as the primary addictive behaviour, with AAS playing only a secondary and supportive role (Keane, 2005).

AAS users are known to be a goal orientated group of substance users who identify themselves as perfectionists, that view life as a competition, with a spatially contingent idea for how they wish to look (Cohen et al, 2007a), reflective of their sub-culturally situated appreciation of excessive muscularity (Monaghan, 2001b). Body sculptors are claimed to use AAS to support their pursuit of self-improvement, happiness, and healthiness (Monaghan, 2001b) which does not arise out of clinical psychological disorder or substance addiction (Cohen et al, 2007a). Male AAS users' body projects have been seen to provide significant rewards and play a central role in their day to day lives (Maycock, 2000; Skarlberg, 2008) with AAS use re-enforced by social networks of body sculpting peers who often facilitate access to AAS (Goldstein 1990; Maycock, 2000). Immersion within bodybuilding's subculture is often overseen by more senior gym members who inculcate new members into ways of speaking, eating, training and their modes of dress, as well as providing access to AAS and capital resources such as employment opportunities in the security industry (Maycock and Howatt, 2007).

Experience of hypogonadism on AAS cessation has long been recognised to reduce the rewards and pleasures men are able to gain from working out in the gym, acting as a potential motivator to return to AAS use (Goldstein, 1990) to avoid dysphoria and both physical, and mental health problems associated with hypogonadism (Tan and Scally, 2008). Whilst in the *illicit drug user* framework hypogonadism is cited to cause a vicious cycle of dependence (Pope et al, 2016), it is only one of several features contained in modified diagnostic criteria for AAS dependence (Kanayama et al, 2009a) experienced by men with a distorted psychopathology manifesting in a body image disorder. Within these models, AAS dependent users are recognised to be particularly vulnerable to the dysphoric effects of AAS on their HPTA axis and hypothesized to experience changes in opioidergic brain reward pathways, leading to addiction and withdrawal because of AAS psychoactive effects. Users' of AAS are also hypothesized to exhibit cognitive deficits seen more commonly in men with conduct disorder which infer a propensity for risk taking and violence within AAS users (Kanayama et al, 2009a). Pharmacotherapy suggested as likely to be beneficial for treating AAS dependence includes the use of PCT compounds to restore HPTA axis, which were also commonly described as being used off prescription by men in this study and are featured in (**appendix Eleven: Records of PCT use by Interview Participant**). Treatment protocols extend to the use of withdrawal medications (naltrexone, clonidine) used to treat alcohol and opiate addiction, along with antidepressants, tranquilisers, and supportive therapy from physicians to offset the heightened risk of suicide during withdrawal from AAS (Brower, 1997; Pope et al, 2016).

Despite the development of these multi-modal AAS dependence frameworks, other physicians (Scally and Tan, 2009) claim the dysphoria experienced on AAS cessation results from the phenomenon of anabolic steroid induced hypogonadism (ASIH) which remains an under recognised variable in the diagnosis of AAS dependence. The symptoms of hypogonadism that all AAS users will experience to varying degrees (Scally, 2008) once AAS use ends due to testosterone's negative feedback mechanisms are claimed as identical to those described within AAS dependence criteria (Scally and Tan, 2009). Other studies have shown that if hypogonadism is treated centrally with

prescription of luteinizing hormones (one of several PCT compounds) it may help eliminate peripheral symptoms of hypogonadism which men experience following AAS discontinuation (Van Breda et al., 2003). Outside of a single Australian study (Griffiths et al., 2017) which focuses on bodybuilders' use of post cycle therapy (PCT) compounds following AAS discontinuation to help restore their own testosterone use and maintain muscle and support mental wellbeing, little attention has been given to investigation of how body sculptors plan for and navigate AAS cessation and the phenomenon of ASIH.

AAS users describe perceptions of stigma (Griffiths et al., 2016; Harvey et al., 2019; Griffiths et al., 2016) and belief that they hold greater knowledge than GPs regarding AAS (Pope et al., 2004; Dawson, 2001; Blue and Lombardo, 1999) as reasons for low levels of help seeking for AAS related health problems (Chandler and McVeigh, 2013; Hope et al., 2015). These perceptions are often realised in GPs direction to users to abruptly cease AAS use (Pope et al., 2016) which is likely to magnify symptoms of hypogonadism in AAS users. Holding sophisticated knowledge of AAS means users often seek help from peer trainers in the gym for health issues (Fraser et al., 2019; Richardson and Antonopolus, 2019), leading to calls for GPs to develop a credible identity (Grogan et al., 2006) to help break the 'code of silence' amongst AAS users (Richardson and Antonopolus, 2019). Existing barriers to men seeking help for hypogonadism and the underground sub-cultural context of bodybuilding and AAS use may help explain why to date little is understood about bodybuilders' experiences of navigating ASIH on AAS cessation.

In conclusion, it has been noted that 'we still have much to learn' about mens motives for AAS use outside of the pathologizing discourse of disorder and addiction (Moore et al., 2019), with further investigation needed of men's efforts to attain rewards associated with both physical and social capital using bodybuilding activities and AAS (Richardson et al., 2019). As a result, the goal of this study was to provide a sociological investigation into the meanings and rewards of AAS using practices amongst a group of UK bodybuilders to counteract/critique the narrow and pathologizing

discourse on AAS which currently dominates the literature around AAS use. Findings from this study highlight how experience of ASIH on AAS cessation impacts on the highly rewarding construction of men's body projects which have become central to their lives once they exit AAS use. Insight as to how these periods are navigated, and how experiences of ASIH may contribute towards adoption of continuous and problematic use of AAS in a UK context are provided in the following section of this chapter.

5.1 What has been learned by this study

This study has incorporated a unique and original approach to understanding AAS use and discontinuation via the use of active participant observation located within a bodybuilding gymnasium in the West Midlands of England. The case study method of observation was complemented by including semi structured interviews with 15 current and former users of AAS. The use of AAS was contextualised as a health practice (Cohn, 2014; Blue et al., 2016) conceived and orchestrated in a social and relational field of the bodybuilding gymnasium. The research project provides an epistemological shift (Cohn, 2014) in moving away from the dominant discourses of addiction and disorder which pervade the literature regarding AAS use, highlighting participant narratives of reward and meaning which arise from their concurrent workout and AAS using practices. Bourdieu's concepts of field, habitus and capital have illuminated the paradox of body building as an ultra-individual sport which is quintessentially a collective pursuit (Wacquant, 2004). The men in this study described several routes via which they ended up training in a bodybuilding gymnasium, including having a friend or family member who already weight trained, training in a gym to recover from an injury in another sporting discipline, along with ambitions to achieve a physique which mirrored that of action movie hero's such as Bruce Lee and Arnold Schwarzenegger in a bid to survive growing up on tough housing estates where violence was common place. For these participants, their habitus (both cognitive and corporal) reflected the embodiment of a range of life histories from pursuits such as Asian stone lifting, or powerlifting, and previous navigation of

competitive fields of practice (kayaking, boxing, armed forces service, golf or karate), providing them with a 'structuring structure' which was easily aligned to the silent logic of the bodybuilding's doxic traditions. This match between participants' habitus and the various temporalities and timings of practices within the gymnasium enabled men to know how to dress, what to say, and when to say it, and who too, orchestrating opportunities to deploy existing social and cultural capital in a bid to access know-how knowledge of bodybuilding practices. Men with high capital quickly understood and adopted the tempo, and timings, of various practices (taxonomizing the body to adopt highly specified work-out regimes, pre- and post-training supplement use, and new high protein nutritional regimes), propelling their early progress in gaining strength and muscle and so enabling them to develop a trajectory towards the gravity of bodybuilding's illusio and the rewards which come with appropriation of muscle capital.

5.2 How the bodybuilding cosmos contributed to immersion in ethnopharmacological practices

Initial exposure to highly muscularised bodies on show in the gymnasium, along with witness to the rapid progression of these gains amongst other gym members, motivated men to define their own body goals and perceive these as achievable via the use of AAS. Narratives of reaching their genetic limitations, and the plateauing of progress in constructing their body projects sat at the forefront of narratives to justify an eventual transition to AAS within various timescales amongst the sample in this study. Despite accounts of the individual nature of men's body projects and some clearly defining these as purely personal endeavours, the competitive nature of bodybuilding's sub-culture was revealed in accounts from participants of 'falling behind' compared to other gym members, with men asking, 'what are they doing different to me', and wanting to 'up their game' to make greater progress with their body projects. Despite staunchly held beliefs by some men they would never transition to using AAS, eventually others in positions of seniority in the gym made it clear that progress to a competitive level was unrealistic without them.

Developing further social and cultural capital due to other's recognition of their adherence to the monastic work required of body sculptor's helped participants access know how knowledge of AAS practices (which AAS to use and when), as well as providing access to practice materials (a wide range of high-quality AAS and ancillary compounds to reduce side effects and improve outcomes). In the only comparison that could be made within such a small sample of gym members in the case study site, two men with lower social and cultural capital described challenges in accessing AAS from trusted sources, with poor transformational outcomes, and the return to training naturally without AAS after only a short exposure to AAS practices.

5.2 The rewards of bodybuilding

For those men who developed a growing interest in bodybuilding's rewards and a stake in 'the game' of accruing *muscle capital*, more time was spent in the gymnasium working out and socializing, expanding social networks further with men who 'only talked about building muscle', leading the bodybuilding cosmos to become a centrally important aspect of their day to day lives. The meanings participants assigned to development of their body projects extended across several themes. Functionally AAS use led to increases in appetite, gains in strength and muscle, and an ability to train more intensely for a greater duration and frequency, with muscles often feeling 'recovered' the following day. This study provides insight into men's conceptualization of their bodies as a 'machine' whose function had been 're-computed' following the introduction of a range of AAS compounds. Seeing their body transformations in 'real time' enabled study participants to believe in their ability to set new aspirational body goals, towards which they could 'throw themselves', as well as competing against others within the gymnasium and in local and regional bodybuilding shows with other who shared their "*ethnological appreciation of excessive muscularity*" (Monaghan, 2001: 74).

AAS were repeatedly referred to as a 'tool' of practice, an essential ingredient, but one that did not replace the need for hard work in the gym and a highly disciplined and monastic devotion to a range of sub-cultural rituals of practice including training, diet, nutrition and rest. The notion that their bodies were now in a state of 'optimal functioning' and 'able to go to places they could not previously' re-enforced the positivity of engaging in AAS practices. In line with previous studies (Monaghan, 2001b), participants made explicit reference to 'feeling good' when using AAS resulting from the enjoyment of working out productively, and 'looking good' along with the symbolic value of gains in muscle and strength (re-enforced by peer compliments in and out the gym), rather than AAS holding the potential to exert any psychoactive effects. Dissociation with the drug user label, and denial of injury to others (compared to psychoactive drug users) show that bodybuilders' motives for AAS use have changed little in the last 20 years (Monaghan, 2002), re-emphasizing the relevance of appreciating the rewards as well as harms of AAS use when looking to progress policy development to reduce harm in an effective and non-pathologizing manner (Moore et al, 2019).

Despite all but two interview participants discussing experiencing some health harms from their AAS use, the majority said given their time again they would still have entered the bodybuilding cosmos and adopted its ethnopharmacological practices, emphasizing the rewards of self-development and the gravity of the *illusio* associated with accruing *muscle capital*. Bodybuilding was something participants had 'built a life around', indeed for one man it had been life transforming, with him moving from sleeping on a friend's couch, to becoming a world class bodybuilder and now owning a flourishing bodybuilding supplement business. The bodybuilding cosmos was described as 'a different world' that had shaped participants' identities that they felt fortunate to have participated in. Engaging in 'body work' provided a temporality and time structure for study participants' lives across both a 'macro' and 'micro' level. At a 'macro level' the year's competitive calendar of bodybuilding shows often dictated longer 'on cycle' periods of AAS use, diets became strict with calories reduced, workouts became more intense and frequent, (often training twice a day with cardio on the morning and weight lifting in the evening), fast acting as opposed to long acting AAS

compounds were used which required greater injection frequency, and fat burners and diuretics were used to achieve fat and water loss to present a polished physique on stage. At a micro level, participants reported strict adherence to the preparation and timing of meals, protein shakes and supplements, early nights on week days and weekends ready for the next day's early morning workout. Ultimately bodybuilding provided participants with a sense of identity, time structure, individual and collective purpose, along with a sense of coherence in future *muscle capital* aspirations and a sense of being (or meaningful reality) for which they were grateful. Despite these rewards, some men reflected that the use of bodybuilding's ethnopharmacology could not be entertained indefinitely due to the deleterious effects AAS had inflicted on their health.

When participants AAS cycle ended, muscle capital regressed with men reporting a diminished ability to workout productively, leading to a reduction in both training frequency and volume due to a shift in the tempo with which their bodies were able to lift heavy weights and recover from workouts and build muscle. Accounts of men rushing back to AAS use much earlier than planned once their cycle ended highlighted the process by which both internal and external narratives were developed by study participants to justify this return to AAS use. An account of a study participant concealing his experience of harms once AAS use ended from a peer trainer highlighted the reluctance of body sculptors to question the validity of the game of acquiring *muscle capital* contained in the field's *illusio*, extending previous studies findings that highlight a 'code of silence' by AAS users towards non-users such as health professionals (Richardson and Antonopolous, 2019).

Study participants desire to adhere to the "*established order*" (Bourdieu, 2001: 1) of field logic within the gym by not questioning whether the risks of using AAS to appropriate muscle capital are worthwhile highlighted what Bourdieu describes as the "*paradox of doxa*" (Bourdieu, 2001, p. 1) in structuring field practices (with the exception of a bodybuilder who became ill from extensive substance use) and remained unquestioned and unchallenged by the group as a whole, maintaining the *illusio* of practices within the bodybuilding cosmos. I propose the examples of concealing AAS

harms and development of narratives to support an expedited return to AAS represent what Bourdieu describes as a “*symbolic violence*” (Bourdieu, 1977, p. 21), which although “*gentler*” (Grenfell, 2012, p.180) than physical violence, still “*leads to socially distributed suffering*” (Bourdieu, 1993, p.60) amongst field participants via their AAS using practices in a desire to appropriate the intersubjectively valued, and spatially contingent commodity of *muscle capital*. The symbolic violence of bodybuilding being that to compete meaningfully for appropriation of the highly rewarding concept of *muscle capital* required amongst most men in this study an ever-increasing immersion in ethnopharmacological practices in a quasi-scientific mode which resulted in disruption to their HPTA functioning and both physical and mental health problems which became magnified once AAS use ended.

5.4 Physical and mental health issues experienced on AAS discontinuation

On AAS discontinuation participants reported experiences of joint pain, significant weight loss, tiredness, lethargy, low mood, historical suicidal ideation, poor wellbeing, low libido, erectile dysfunction, along with reductions in strength and muscle size, and poor motivation to work out, resulting in loss of *muscle capital*. Many of these issues are well established symptoms associated with the phenomenon of anabolic steroid induced hypogonadism (ASIH), magnified following AAS-discontinuation. Men in this study readily blamed the experience of these symptoms on the impairment of their own testosterone via the phenomenon of ASIH. These findings add weight to claims that ASIH is a potential variable in the diagnosis of an AAS dependence syndrome (Scully and Tan, 2009) and re-emphasise findings from studies thirty years ago that bodybuilders re-introduce AAS into their ethnopharmacological regime to avoid dysphoria of hypogonadism, and to return to working out productively (Goldstein, 1990). Currently these narratives are overshadowed within the corpus of AAS literature around the reasons why men continue to use AAS despite harm by studies outlining AAS potential to mediate brain reward pathways and their users’ disordered psychology.

Disruption to the cognitive and corporal habitus of men experiencing ASIH associated dysphoria caused a misalignment between the tempo of their training practices and those temporal rhythms embedded within the gymnasiums doxa which are essential to attain *muscle capital*. This mis-match is uniquely contextualised within this study as a re-interpreted form of *hysteresis*, which despite reflections in early studies into men's experiences of AAS cessation (Goldstein, 1990; Maycock 2000) have remained cloaked within pathologizing accounts of addiction, withdrawal and psychopathology (Kanayama et al, 2015). This study revisits and progresses a unique non-pathologizing account of AAS users as *body sculptors* (Monaghan, 2002) from nearly twenty years ago, with the functional loss of trajectory to attain an intersubjectively valued form of bodily capital (Wacquant, 1995) , defined within this study as *muscle capital*, occurring due to the dysphoric effects of ASIH (Tan and scally, 2008), which have the potential to drive men back to AAS use sooner than planned (Scully and Tan, 2009).

5.5 How body sculptor's plan for and navigate the negative impact of ASIH

Several studies evidence the use of post cycle therapy (PCT) compounds by men in the UK (Lenehan, 1996; Monaghan,1999b; Bolding et al, 2002; Hope et al, 2013; Bates and McVeigh, 2016) to restore testosterone production and combat high levels of estrogen following AAS discontinuation.

However, only one study (Griffiths et al, 2017) has focused in any detail on men's experiences of AAS cessation and the compounds used by bodybuilders to maintain muscle and promote wellbeing during this phase of their body project construction. This study provides in-depth accounts from participants on the rationales behind their use of a range of PCT compounds, as well as the strategies, dosages and duration of use which is not currently available in the literature. PCT compounds were described by several participants as becoming less effective as body sculptors moved through their AAS using career and both dosage and duration of AAS use increased. This study also provides insight into the ethnopharmacology used in addition to PCT compounds to

prevent regression of muscle capital and promote a sense of normality during the off-cycle period when AAS are not being used including growth hormone, SARM's and Viagra. Failure of PCT compounds to return men to a perceived sense of normality, enabling them to work out productively in the absence of AAS has been shown to lead to the adoption of continuous 'blast and cruise' patterns of AAS use in a mode of *hysteresis* avoidance.

5.6 Experiences of seeking help for ASIH associated health problems.

Study participants reports of holding greater knowledge of AAS and ancillary compounds compared to health care practitioners are already well established (Pope et al, 2004; Kutscher et al, 2002; Dawson, 2001; Blue and Lombardo, 1999; Monaghan 1999b). Whilst a lack of confidence in health care practitioner's ability to treat AAS related problems is known to be a reason why bodybuilders seek advice from their peers (Fraser et al, 2019; Richardson and Antonopolous, 2019) this study uniquely highlights how these factors lead to delays in men seeking help for physical and mental health problems associated with the phenomenon of ASIH.

Reluctance to disclose AAS use to health care practitioners due to fears of stigma (Harvey et al, 2019; Griffiths et al, 2016) is not uncommon. In this study, reports of treatments for a none AAS related issue being withheld by GPs due to concerns of interactions with the ethnopharmacology being used by a participant is a unique contribution to knowledge which supports well established beliefs that GPs are simply not equipped with the training or knowledge to treat AAS users effectively (Dunn et al, 2016, Pope, et al, 2016). Several participants felt they were treated unfairly compared to others who sought treatment for more socially acceptable risk behaviour such as smoking, or alcohol use, and as recognised previously (Harvey et al, 2019) disassociate themselves from the drug addict label.

The most significant contribution to knowledge within this study outside of the catastrophic role of ASIH induced *hysteresis* has on men's rewarding trajectory to attain *muscle capital* and the unique

accounts of complex post cycle ethnopharmacology used to self-treat their hypogonadism, is situated in accounts of perceptions of gender inequalities from participants when seeking help for what they believed to be prolonged impairment of their hormonal functioning which became magnified following AAS discontinuation. Participants reported being instructed by GP's, or endocrinologists to cease their AAS use immediately which have been previously recognised (Pope et al, 2016), which participants describing these requests as harmful to their wellbeing due to the belief that their own hormone production had already been permanently damaged and that the testosterone provided by AAS was the only thing keeping them functioning healthily. Comparisons were drawn by several men between the well-established protocols for assessment and treatment of the menopause in females, and prescription of hormone replacement therapy (HRT) to treat low levels of estrogen, and what appeared to be a reluctance to afford the same degree of care or support to the plight of men experiencing health problems associated with hypogonadism. For one participant who did manage to secure referral to an endocrinologist from his GP due to low levels of testosterone, experiences included prolonged episodes of diagnosis of hypogonadism during which dysphoria increased and wellbeing declined, as well as further stigma and an eventual failure to secure a pharmacological resolution to his health problems.

Despite a desire by several men to permanently end AAS use, the dysphoric symptoms associated with ASIH driven *hysteresis* of low mood, low libido, and loss of muscle size and strength (Tan and Scally, 2008; Scally, 2008; Scally and Tan 2009), resulted in men returning to illicitly produced AAS, which pose a significant risk to users' health (Van Hout, 2014), with future intention to continue to self-treat their hypogonadism with AAS in a form of self-administered testosterone replacement therapy (TRT). In total, four men in this study (participants 1, 3, 7 and 10) had already transitioned to continuous 'blast and cruise' patterns of AAS use in an effort to avoid the dysphoria associated with the phenomenon of ASIH, with another (participant 9) signalling his intention to enter into continuous modes of illicit AAS use should his future intentions to seek TRT prescriptions from his GP be unsuccessful.

Prescribing rates of TRT vary significantly between the US and UK and reflect a cultural divide in the acceptance of testosterone deficiency as a valid medical condition requiring treatment (Morgentaler et al, 2016), along with fears around the dangers of prescribing testosterone therapy to hypogonadal males which have been shown to be largely unsubstantiated (Hackett et al, 2016; Morgentaler et al, 2016). This study's findings support previous calls for medical professionals to demonstrate non-judgmental attitudes towards AAS users (Zanhow et al, 2017) and establish themselves as "*reliable, and credible sources of information*" (Grogan et al, 2006, p. 855) to avoid a continuing 'code of silence' by AAS users (Richardson and Antonopoulos, 2019) which in this study meant participants went through several self-treatment strategies using their own ethnopharmacological knowledge before seeking medical help.

5.7. Reflections and limitations of this study's findings

The purpose of this thesis is not to undermine the existing corpus of literature which sees AAS as addictive and psychoactive compounds and AAS users as psychologically disordered. I have neither the means, nor qualifications to diagnose addiction, dependence, or psychological disorders amongst the men in this research project and continue to have a keen interest in the knowledge studies in these paradigms produce. In offering this non-pathologizing view of the motives and rewards behind several men's continuous and problematic patterns of AAS use in this study, I simply wish to illuminate the reality that little appears to have changed in the thirty years since Goldstein's (1990) recognition of the challenges some men face due hypogonadism when exiting AAS use.

Whether it is the sudden inability to enjoy the 'erotic's' of working out in the gymnasium (Mansfield and McGinn, 1993; Monaghan, 2001b) as part of a purported AAS use- training link (Goldstein, 1990; Maycock, 2000; Keane, 2005), or the sudden interruption in the ability to progress their meaningful, and highly rewarding body project Monaghan (2001b) once AAS use ends, the absence of AAS's strength and growth inducing properties were 'greatly missed' (Goldstein, 1990) by study

participants, uniquely contextualised in this study as a re-interpreted form of Bourdieu's concept *hysteresis*.

Most importantly this study has presented a unique detailed overview of the complex ethnopharmacological strategies study participants described during interviews to self-treat their hypogonadism and prevent regression of *muscle capital* during the AAS 'off-cycle'. Accounts of PCT compounds failure to return men's endogenous testosterone to perceived levels of 'normality' once the scale and duration of AAS use increased, led in several cases to participants reporting adoption of continuous 'blast and cruise' patterns of AAS use in a mode of *hysteresis* avoidance. Worryingly, perceptions of stigma and perceived gender inequalities reported by several men when seeking help for hypogonadism led some to a return to illicitly produced AAS as part of a self-administered testosterone replacement therapy (TRT) regime. My concerns as a public health practitioner sit alongside the risks prolonged hypogonadism can play in the formation of a range of long-term health conditions such as diabetes, metabolic syndrome, decreased bone mineral density (Morgentaler et al. 2016), and the need to eradicate any inequality in access to the care required to treat hormone deficiencies, regardless of them being influenced by health risk behaviour.

I recognise the limitations of this qualitative research project, from the small sample size, the purposive approach to participant recruitment, through to the lack of generalisability of study findings, and as with all qualitative research, my data contains "*a wide range of subjective, unanalysed experiences, and feelings*" (Wacquant, 1992, p. 33) within the accounts participants' provided in both interviews, and conversations during my time in the gymnasium. When cataloguing participants portfolio of capital as 'high' or 'low' and the match between their habitus and the bodybuilding field, I did so based on interview data and discussions with, and observations of, participants in the case study which will have been interpreted via my own cognitive habitus (which I address in the following reflections on epistemological vigilance). Given I had only a partial insight into the life histories of participants 16 and 17 (following their preference to not take part in

interviews) it may be construed that I had only a partial access to their life histories and may have wrongly interpreted the mismatch of their habitus with the gym field, and catalogued their portfolio of capital inaccurately. Though given my observations of their practices in the case study during their workouts I feel confident this is not the case.

I strongly believe the case study method utilised within this research has provided “*a wonderful window*” (Wacquant, 2011, p. 84) into the rich, intense lives of body sculptors and the “*categories of perception, appreciation and action*” (Wacquant, 2011, p. 85) which support their decision to enter continuous and problematic patterns of AAS use that are currently unparalleled within the corpus of literature. I was genuinely surprised by the findings of this study, in that paradoxically those with the highest portfolio of capital with access to ‘know-how knowledge’ of AAS practice and a wide range of ‘practice materials’, appeared to fare worse than those who lacked the social connections, or cultural competence to successfully appropriate *muscle capital* within the bodybuilding cosmos and quickly exited AAS practices. A challenge of Bourdieu’s theory is that whilst it does provide “*a mechanism for change*” and an outline of how agents can “*better oneself*” (Grenfell, 2012, p.232), this is only discussed in relation to their practical mastery of the fields in which they wish to excel by them developing expert knowledge of and alignment to its doxa to appropriate the rewards of that field. In this instance, practical mastery of bodybuilding’s ethnopharmacological practices seems to only add further to the distress of managing discontinuation of AAS and the resulting state of *hysteresis*.

5.8 Epistemological Vigilance

Bourdieu’s notion of epistemological vigilance dictates the need for reflection on firstly the very elaboration of this research object (or case under investigation), and secondly the methods by which this study was conducted (Grenfell, 2012). So firstly, why AAS use as the research object of interest? There was the obvious rationale provided in the introduction section of this thesis of the increase in

bodybuilders' using AAS who were presenting to my needle and syringe provision (NSP) services. As a Public Health Manager, I wanted to know more about this under-represented client group, particularly why they were happy to present for sterile injecting equipment, but not access wider harm reduction support services available for other injecting drug users, and how these men could be supported further. Like many of the men in this study I grew up watching movies of Bruce Lee, The Hulk and Arnold Schwarzenegger. I remember being astonished whilst watching *Pumping Iron* (1977) at Schwarzenegger's single-minded determination to be different from the rest of society, as well as his unparalleled desire to be the best amongst his peers who shared his love of muscle. The rewards bodybuilding appeared to provide to the likes of Arnold and those who inhabited this world of giants were reflected in his claim that he would, "eat a kilo of shit if it gained him a pound of muscle" (Hotten, 2005, p.6). The emergence of this group of substance users in the services I commissioned and the chance to explore the hypothesised addiction/ dependence-forming nature of AAS, and bodybuilding's wider sub-cultural practices was one that appealed greatly to me as both an academic researcher and a public health practitioner.

In considering the second point of research methods, my own position needs to be analysed by a process of epistemic reflexivity which looks to bring to the forefront the relationship between knowledge and knower by "objectifying objectification" (Bourdieu and Wacquant, 1992, pp.71-72). In choosing the case study method I actively utilised my own habitus as a "methodological device" (Wacquant, 2011, p.87) following years of navigating hyper-masculine combat environments around the world as an amateur boxer and Muay Thai boxer. My athletic physique, tattoos gained whilst Muay Thai fighting in Thailand, and knowledge of how to use common apparatus of gymnasiums from thousands of hours spent in boxing gyms, all provided me with a passport of cultural capital which I deployed to place myself "in the local vortex of action" (Wacquant, 2011, p.87) at the case study gym, observing at first hand the organized practices of inculcation in the bodybuilding cosmos as the site of this inquiry. However, In deploying myself as the data collection instrument, I occupied an objective field position within the case study gymnasium and as a result have "only a partial view

of the game" (Maton, 2003, p. 5) to appropriate *muscle capital* amongst the gym members I observed and spent time with. According to Bourdieu, theory is always constructed from a particular position within a field, which is itself reflective of the researcher's habitus and the position in the field they occupy, mean "*theorizing is therefore contingent, not a personal account, but a partial view of the social phenomenon shaped by the researcher's point of view*" (Grenfell, 2012, p.240). As an endurance athlete my perception of bodybuilding at the outset of this study was that it seemed almost ludicrous to risk one's health by using substances simply to improve appearance. However due to the unique approach of participant observation which enabled me to engage in bodybuilding workouts and gain a sense of how it feels to have the capacity to modify your physique in a prescribed and planned manner helped understand the gravity and pull of AAS using practices. My use of reflective practices, recording my reflections on field notes and repeated re-analysis of these helped me gain a sense of how field occupancy can deposit in one's habitus a set of experiences which enable you to perceive social phenomena in new ways a new ways. This process of learning and reflection enabled me to understand the way *body sculptors* see themselves and construct an impression of the world the way they see it (Ratner, 2008).

5.9 Fear of re-pathologizing AAS users through academic language

I continue to believe that Bourdieu's methodological framework helped reveal a view of bodybuilding and AAS use that few studies have explored, enabling me to challenge the dominant discourse of disorder and addiction which surrounds users of AAS. Despite this, I was concerned in my use of the term hysteresis to explain the dis-juncture which occurs between a bodybuilder's ability to workout rewardingly and their depleted state once AAS use is discontinued. The term *hysterical* is a pejorative term used to describe a person who is uncolorable, emotional and irrational, whilst the term *hysteria* is also applied in the field of psychiatry to someone who is mentally disordered. As a result, I spent a great deal of time exploring the term hysteresis and its application outside of Bourdieu's work. What I found is that the term is used in the field of

economics to describe a lag period between established financial practices and those which require an revised approach due to changes in the market. My confidence that I had understood Bourdieu's theoretical principles and that my re-interpretation of his concept of *hysteresis* to describe the mismatch between men's habitus and the field doxa of upon AAS cessation was theoretically credible came from the presentation of my early research findings at a conference organised by the 'BSA Bourdieu study group' *Building on Bourdieu in National and International Spaces* (2019) see **appendix 12: BSA Study Group Presentation**. At the request of regional colleagues from Public Health England (PHE) West Midlands I also presented my study findings the Director of Public Health in Birmingham City Council and wider substance misuse programme leads to help shape their approach to supporting AAS users within the City. For the duration of this research project I have maintained contact with peers in the field of AAS research, including continued membership of the Human Enhancement Drug Network [HEDN Members - Human Enhancement Drugs Network](#) and a UK based google forum for practitioners with an interest in performance and image enhancing drug use pied-forum@googlegroups.com. I have utilised these networks to gain peer insight from NHS colleagues into my thesis, particularly construction of the literature review, as well as discussing findings informally whilst attending several UK conferences on AAS use, the most recent of which was an [IPED Practitioner Workshop - 4 JUL 2019 \(evensi.uk\)](#) held at University of Birmingham (UoB).

6.0 Chapter Six: Conclusions and Recommendations

This doctoral thesis provides a new contribution to knowledge regarding the reasons behind continuous and problematic patterns of AAS use outside of the discursive and pathologizing lens of clinical psychiatry and addiction medicine. Study findings support the need for further research to understand the motives and rewards which justify body sculptors' use of ethnopharmacology, outside of the frameworks of *body image disorder* and *illicit drug use*, to enable robust AAS harm reduction policy to be developed. Most participants in this study felt their appreciation of excessive muscularity and engagement with the world of bodybuilding had been a positive and highly rewarding aspect of their lives, and certainly not one derived from any psychological disorder, crisis in masculinity, or addiction to euphoria inducing substances. Study participant accounts of the distressing dysphoria experienced on AAS discontinuation highlight the need for greater focus on developing Interventions to support UK men wishing to permanently exit AAS use sourced via the illicit market, including assessment and appropriate treatment of anabolic steroid induced hypogonadism (ASIH) as part of a holistic model of substance use discontinuation.

6.1 Relevance of this study's findings to the medical profession and public health

GP education sessions may help provide physicians with a greater understanding of the implications of AAS use and their effects in impairing men's endogenous testosterone production leading to catastrophic symptoms associated with anabolic steroid induced hypogonadism (ASIH). I have already delivered several of these sessions to GP Trainees on rotation within the Public Health department where I work at City of Wolverhampton Council (CWC) in the West Midlands. These sessions included reference to the range of distressing and dysphoric symptoms patients are likely to present to health care settings with when they exit AAS use which may be associated with the phenomenon of ASIH. GP trainees were made aware of the potential need to test for low levels of testosterone amongst this patient group, as well as reference in the orange book to the possible

benefits of treatment with a goal to restore the HPTA axis of former AAS users. Where patient's endogenous testosterone levels are determined to meet the threshold for TRT prescribing this should be discussed with patients on a case-by-case basis in line with clinical best practice. GP trainees were reminded to be cognisant that any direction to immediately discontinue AAS use may not be a desirable course of action for the patient without them having a clear understanding of the potential pathways through which health issues associated with prolonged hypogonadism may be assessed and treated moving forwards.

Staff in public health commissioned community substance misuse treatment services may benefit from access to comprehensive training regarding AAS ethnopharmacology to improve user confidence in accessing community treatment services. This may help ensure AAS users access programmes such as BBV testing, peer support groups (where available), and harm reduction 'safer injecting clinics' as well as needle and syringe (NSP) programmes. Community treatment services may wish to explore recruitment of bodybuilding peer champions who can facilitate engagement of harm reduction sessions in gymnasiums and may be a trusted source of information which encourages men to come forward and disclose their experiences of hypogonadism.

Further academic research is required with men who have successfully exited AAS use permanently following a prolonged history of using bodybuilding ethnopharmacology to understand the potential components of a holistic model of AAS recovery. Currently it is unclear from this study as to whether men fortunate enough to secure access to TRT (following a diagnosis of hypogonadism) are likely to adhere to the strict treatment protocols prescribed by their physician, or whether they revert to also 'using on top' of their prescription TRT by returning to illicitly sourced AAS due to a continuing desire to appropriate the rewards of muscle capital. Given references by participants in this study to the central role the bodybuilding cosmos played in their desire to advance their variable body projects it would be interesting to understand how these men avoid the gravity of the illusion within bodybuilding's sub-culture and whether alternative interests are required outside of bodybuilding in

a form of diversion. Public health efforts to dissuade men from using AAS may benefit from drawing on insight provided from this study which shows that AAS use is a social practice, conceived and enacted through engagement within a relational field of competition with oneself and others in a desire to accumulate the rewards associated with appropriating muscle capital.

6.2 Relevance of study findings to gymnasium owners

This research project highlighted a strong desire from the owner of the bodybuilding gymnasium to promote the health and wellbeing of the gymnasium members and understand more of the evidence base around risk reduction where AAS use is concerned. As gym owners are likely to be bodybuilders themselves (often with a competitive history) and vast experience of AAS use they will likely hold an orthodox position within the gymnasium hierarchy giving them capacity to influence the discourse taking place in the gym around AAS use. More mature body sculptors in this study expressed their attempts to dissuade new entrants into the bodybuilding cosmos from commencing AAS too quickly in an to prevent health harms such as ASIH. This study suggests this orthodox group of aging bodybuilders are the holders of the history and legacy of body sculpting and should be a target of public health professionals wishing to co-create new approaches to risk reduction where image and performance enhancing drug use is concerned. The approach used with gatekeepers to secure access to the bodybuilding gymnasium in this case study by engaging with gym staff, listening to their views on AAS use and risk, providing empirical evidence to support these discussions (whilst recognising AAS use is key feature of bodybuilding practice that is unlikely to end any time soon) helped develop a consensus on a way forward in harm reduction approaches.

6.3 Relevance of study findings to bodybuilder's using AAS

As a direct result of the data generated during this case study from interview and field note records several harm reduction recommendations are made for users of AAS based on study participants experiences of navigating symptoms associated with ASIH during their AAS using careers. The

following key messages should form part of public health harm reduction strategies to cascade basic information to AAS using bodybuilders utilising peer networks in gymnasiums:

Message one: not using AAS until novice trainers have completed several years of natural training and consider only using AAS if men have competitive bodybuilding aspirations.

Message Two: Use lower doses of AAS and shorten the duration of use to ensure longer periods of non-drug use throughout the competitive calendar. Periods of AAS use should be followed by similar, if not longer periods of non-drug use

Message Three: Avoid blast and cruise patterns of AAS practice early on in AAS using career as it reflects an inability to control AAS use and replicates patterns of drug use adopted by psychoactive drug users (whom they distanced themselves from).

Message Four: Test hormone levels prior to engaging in AAS practice to be able to accurately gauge the damage caused to own testosterone production over AAS using career because of ASIH.

Message Five: Do not return to AAS use until own testosterone production has returned to an 'acceptable' level. Still maintain scheduled time off cycle even if recovery of own hormone production is quick.

Message Six: Your testosterone must last you a lifetime, take good care of it.

End

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Appendix One: Literature Review Strategies

A) *mens experiences of AAS discontinuation including theories of Addiction/ dependence,*

This specific search strategy focused on the research question involving a six-stage process

Stage 1) clearly defined topic area of research:

Male bodybuilders experiences on withdrawal from / cessation of Anabolic Steroid Use

Stage 2) Alternative search terms for key words:

Withdrawal

Cessation

Anabolic Steroids

Anabolic Androgenic
Steroids (AAS)

Men

Male

Addiction

Dependence

Stage 3) Selected databases

A search was undertaken of NHS EVIDENCE via an NHS Athens account giving access to a range of online health Journals and the Cochrane Library. In addition the following 8 healthcare databases were searched AMED, BNI, EMBASE, HMIC, MEDLINE, PsycINFO, CINAHL and HEALTH BUSINESS ELITE as well as a less refined search using 'GOOGLE scholar' and the 'PBWORKS' Public Health grey literature database.

Stage 4) Combined search terms using Boolean Logic

"Anabolic Steroids" OR "Anabolic Androgenic Steroids" AND men OR male AND withdrawal OR Cessation OR Completion AND Dependence OR Risk (" Enabled search for term for words

Anabolic* OR Testosterone AND Bodybuild* AND Addiction OR Dependence

Stage 5) Specified Limits were set for search strategy

Initial limitations: UK Studies only over the last 10 years

Reviewed Limitations: All countries over the last 25 years

Stage 6) These results were then assessed for relevance to this study

B) motivations for AAS use

A broader search strategy involved a wider theme of men's motivations for, and experiences of using anabolic steroids. Again, this followed a six-stage process outlined below.

Stage 1) Broader focus on research topic area:

Motivations for / experiences of / men using Anabolic Steroid Use

Stage 2) Alternative search terms for key words:

Motivation	Anabolic Steroids	Men
Rationale	Anabolic Androgenic Steroids (AAS)	Male
Reasons	Testosterone	

Stage 3) Selected databases

A search was undertaken of NHS EVIDENCE via an NHS Athens account giving access to a range of online health Journals and the Cochrane Library. In addition, the following 8 healthcare databases were searched AMED, BNI, EMBASE, HMIC, MEDLINE, PsycINFO, CINAHL and HEALTH BUSINESS ELITE as well as a less refined search using 'GOOGLE scholar' and the 'PBWORKS' Public Health grey literature database.

Stage 4) Combined search terms using Boolean Logic

"Anabolic Steroids" OR "Anabolic Androgenic Steroids" OR "Image and performance enhancing drugs" OR IPEDs AND men OR male OR bodybuilders AND motivation OR Rational OR Reasons (" Enabled search for term for words together)

"Anabolic Steroids" OR "Anabolic Androgenic Steroids" OR "Image and performance enhancing drugs" OR IPEDs AND men OR male OR bodybuilders AND experiences OR outcomes

Stage 5) Specified Limits were set for search strategy

Initial limitations: UK Studies only over the last 10 years

Reviewed Limitations: All countries over the last 25 years

Stage 6) These results were then assessed for relevance to this study

C) *Psychopathology of men with a hypothesised body image disorder*

A broader search strategy involved a wider theme of men's motivations for, and experiences of using anabolic steroids. Again, this followed a six-stage process outlined below.

Stage 1) Broader focus on research topic area:

Body Image Disorder / Violence and Aggression / men using Anabolic Steroid Use

Stage 2) Alternative search terms for key words:

-Violence, 'Roid Rage'

'Drug Abuse'

-Body image, dysmorphia,

Anabolic Steroids

Anabolic Androgenic Steroids (AAS)

Testosterone

Men

Male

Stage 3) Selected databases

A search was undertaken of NHS EVIDENCE via an NHS Athens account giving access to a range of online health Journals and the Cochrane Library. In addition, the following 8 healthcare databases were searched AMED, BNI, EMBASE, HMIC, MEDLINE, PsycINFO, CINAHL and HEALTH BUSINESS ELITE as well as a less refined search using 'GOOGLE scholar' and the 'PBWORKS' Public Health grey literature database

Stage 4) Combined search terms using Boolean Logic

"Anabolic Steroids" OR "Anabolic Androgenic Steroids" OR "Image and performance enhancing drugs" OR IPEDs AND men OR male OR bodybuilders AND violence OR "Roid Rage"

S "Anabolic Steroids" OR "Anabolic Androgenic Steroids" OR "Image and performance enhancing drugs" OR IPEDs AND men OR male OR bodybuilders AND "body image" OR dysmorphia OR "reverse anorexia" OR bigorexia

Initial limitations: UK Studies only over the last 10 years

Reviewed Limitations: All countries over the last 25 years

Stage 6) These results were then assessed for relevance to this study

Appendix Two: Participant Information Sheet



Version: 2

Dated: 17/08/16

Participant Information Sheet

Part 1

Study title: Off cycle experiences amongst male steroid users; Implications for Public Health practice

You are being invited to take part in a study. Before you decide it is important for you to understand why the research is being done and what it will involve. Please take time to read the following information carefully. Talk to others about the study if you wish.

Part 1 tells you the purpose of the study and what will happen to you if you take part.

Part 2 gives you more detailed information about the conduct of the study.

Ask if there is anything not clear or if you would like more information. Take time to decide whether or not you wish to take part.

What is the purpose of the study?

This project aims to understand what happens during the 'off cycle' period once men cease using Anabolic Androgenic Steroids. The study findings will be used to inform recommendations to public health practice.

Why have I been chosen?

You will have been invited to take part in this study if you are male, aged over 18 and have experience at anytime of using Anabolic Androgenic Steroids.

Do I have to take part?

No. It is up to you whether or not you take part. If you do, you will be given this information sheet to keep and be asked to sign a consent form. You are still free to withdraw at any time and without giving a reason.

What will happen to me if I take part?

If you choose to take part in this research you will be required to attend one informal interview, which will last approximately 30 minutes to one hour. The interview will be tape recorded and later transcribed. All transcribed interview material will remain completely anonymous and will be separated from participant's personal details. There may be a request to complete a follow up interview discussion within a year's time. (This will be completely voluntary and separate to this study).

Expenses and payments:

Your travel expenses to attend the interview will be reimbursed. Refreshments such as a sandwich/ protein bar and drink / protein drink etc will be provided free of charge during the interview.

What do I have to do?

Discuss with the interviewer topics related to your experiences 'off cycle'. This should take around 30 minutes to one hour.

What are the possible benefits of taking part?

I cannot promise the study will help you as an individual in any way

What if there is a problem?

Any complaint about the way you have been dealt with during the study can be discussed initially with myself the researcher or directed to Professor Lucy Land as chair of the Faculty Sponsorship Committee.

Will my taking part in the study be kept confidential?

Yes we will follow ethical and legal practice and all information about you will be handled in confidence. The details are included in part 2.

Contact details: Jamie.Annakin@mail.bcu.ac.uk

This completes Part 1 of the Information Sheet.

If the information in Part 1 has interested you and you are considering participation, please continue to read the additional information in Part 2 before making a decision.



Part 2

What will happen if I don't want to carry on with the study?

You will be free to withdraw at any time and your input will not be included

Complaints:

If you wish to complain this can be directed to Lucy Land as chair of the Faculty Sponsorship Committee on tel: 0121 331 6127

Will my taking part be kept confidential?

Participants will be protected as confidentiality will be maintained throughout the research process. Recorded interviews will be transcribed in a manner so that the participants will remain anonymous. The identity and interests of participants will also be protected by altering all aspects that may serve to identify people such as personal names.

All information collected will be stored in compliance with data protection legislation, securely and safely from observation by others. Computer memory sticks, audiotapes and written transcripts will

be locked in a secure draw at times when not in use by the researcher. This information will be stored separately from all personal details that may serve to identify participants.

Data will be kept for five years in accordance with faculty policy after which it will be destroyed. Any data regarding legal concerns will be shared with the responsible authorities.

What will happen to the results of the research study?

The researcher will produce a final report in respect of the findings of this study; In accordance with the issue of confidentiality participants will remain anonymous.

An executive summary of this report will be made available upon request.

This report may also lead to a journal publication.

Who is organising and funding the research?

The main researcher is Jamie Annakin, sponsor of this study is Dudley Metropolitan Borough Council

Who has reviewed the study?

The Faculty Research Ethics Committee at BCU

You will be given a copy of the information sheet and signed consent to keep

Thank you for taking time or part to read this sheet.

Appendix Three: Participant Consent Form



Dated: 07/07/16

Version number: 01

Consent Form

Researcher: Jamie Annakin

Title of project: **Off cycle experiences amongst male steroid users; Implications for Public Health practice**

PLEASE INITIAL THE BOXES

1. I have had the opportunity to consider all the information provided, ask any questions about the project and have had these answered satisfactorily.

2. I understand that my participation is voluntary and that I am free to withdraw from this study at any time, without providing any reason why.

3. I understand that my participation will involve taking part in an interview which will be recorded on an audio device. I understand that this audio device may be transcribed into written form and used to inform the study findings.

4. I agree to take part in the above study.

Name of Participant Signature..... Date

Researcher Signature..... Date.....

Appendix Four: Gymnasium Consent Form



Dated: 01/08/16
Version number: 01

Access Form

Researcher: *Jamie Annakin*

Title of project: **Off cycle experiences amongst male steroid users; Implications for Public Health practice**

I confirm that I am aware of the research project being undertaken by *Jamie Annakin* and am happy for him to have access to this gymnasium to discuss his research with interested parties.

Name of Gym

Name/ Signature

Date



Appendix Five: Interview Schedule

WHY DO YOU DO IT?

1) Can you tell me a little about how you got into lifting weights and Bodybuilding generally?

Prompts:

- *What were the initial aims or goals you had (links to other sport or other reasons)*
- *Were there any people who were particularly influential or supportive at the outset?*

2) How did things progress from you starting out training to thinking about using steroids?

Prompts:

- *How long did you train before you started to consider using*
- *Who or what were the motivations for using*

WHAT DO YOU GET FROM IT?

3) How has being involved in Bodybuilding and using steroids changed things for you?

Prompts:

- *Is it about changing/ improving the way you look, or is it more about how you feel about yourself?*
- *do you have any specific goals, if so what?*

4) How about the gym you use and the people who train there, is that important?

Prompts:

- *What kind of things are good about where you train*
- *Do you have people you train with, do they have similar goals? Does that help? How*

WHAT DO YOU THINK IS GOING TO HAPPEN WHEN YOU STOP?

5) Can you tell me a little about a typical cycle for you? (Length, substances, and ancillaries)?

Prompts:

- *What informed this choice of cycle?*
- *Has this changed much from when you first started using? Or does it change throughout the year depending on your goals?*

6) Can you describe for me what you typically expect to happen once your steroid cycle ends?

Prompts:

- what or who informed this understanding?
- What are the priorities for you approaching / during this time, if any?

WHAT DID HAPPEN WHEN YOU STOPPED AND HOW DID IT AFFECT YOU?

7) Can you tell me some of the experiences you've had 'post cycle' /after coming off steroids?

Prompts:

- What kind of things changed, and how did you feel?
- Does your training and what you get from working out or being at the gym change post cycle? If it is different, why?

8) What kind of 'Post Cycle' plan or strategy do you normally follow

- Have you always used PCT and has this changed, if at all over time?
- What have been the most tricky issues for you to manage once your steroid cycle comes to an end?
- Have you ever talked to others about your experiences during the off cycle?

DID THESE THINGS MAKE YOU WANT TO USE AAS AGAIN/ STOP USING/ OR CHANGE YOUR FUTURE PATTERNS OF USE?

9) How soon do you think about using steroids again?

- What type of things are you thinking about when deciding what or if to use again?
- Have the type of steroids you use, or the amount, duration changed as a result of your experiences off cycle?

10) Can you see a point when you would naturally stop using steroids?

- What might life look like then?
- What kind of support/ advice might be helpful for this?

11) How would you sum up the journey of steroid use for you?

Appendix Six: Poster Advert for Study



Experiences of Male Bodybuilders Following Withdrawal from Anabolic Steroid Use; Implications for Public Health Practice

Birmingham City University is exploring bodybuilder's experiences on withdrawal from anabolic steroids use. Withdrawal can be the point where 'you have finished a cycle of gear and are having a break before starting again', or, 'complete cessation of steroid use for a prolonged period'.

We would be really interested in talking to you if you have had any experiences of 'using gear' that you would be happy to share, particularly experiences on withdrawal from use (whether good or bad), and what has or hasn't worked well for you.

The findings from the research project will contribute towards public health recommendations for the design of harm reduction services for bodybuilders in the future. All research is conducted in a strictly confidential manner to ensure complete anonymity, in line with university ethics committee guidelines.

If you have any thoughts or comments on the research topic, please feel free to have a chat with lead researcher (Jamie) in the gym, or contact on details below:

Jamie.annakin@mail.bcu.ac.uk

Appendix Seven: Ethics Approval A



Ref: MH/579/2016

Address for Correspondence

Faculty of Health, Education and Life Science Research Office

Faculty of Health, Education and Life Sciences

Birmingham City University

Westbourne Road

Birmingham B15 3TN

Tel: 0121 331 6172

Email: HELS_Ethics@bcu.ac.uk

23rd August 2016

Jamie Annakin

Faculty of Health, Education and Life Sciences

Birmingham City University

Dear Jamie

Re: Off cycle experiences amongst male steroid users; Implications for Public Health practice – application 579

Thank you for your amended application and participant documentation regarding the above study. I am happy to take Chair's action and approve the study which means you may begin your research.

The Committee's opinion is based on the information supplied in your application. If you wish to make any substantial changes to the research please contact the Committee and provide details of what you propose to alter. A substantial change is one that is likely to affect the:

- safety and well-being of the participants;
- scientific value of the study;
- conduct or management of the study.

The Committee should also be notified of any serious adverse effects arising as a result of this research. The Committee is required to keep a favourable opinion under review in the light of progress reports.

I wish you every success with your study.

Yours sincerely,

Appendix Eight: Revised Ethics Approval B (to Include Phone Interviews)



Faculty of Health, Education and Life Science Research Office
Faculty of Health, Education and Life Sciences
Birmingham City University
Westbourne Road
Birmingham
B15 3TN

HELS_Ethics@bcu.ac.uk

02/11/2016
Mr. jamie annakin

HARBOURNE RD
B62
United Kingdom

Dear Mr. jamie annakin

Re: Off cycle experiences amongst male steroid users; Implications for Public Health practice - annakin /Aug /2016 /RLRA /0579

Thank you for your application and documentation regarding the above study. I am happy to take Chair's Action and approve the study which means you may begin your research.

The Committee's opinion is based on the information supplied in your application. If you wish to make any substantial changes to the research please contact the Committee and provide details of what you propose to alter. A substantial change is one that is likely to affect the

- safety and well-being of the participants;
- scientific value of the study;
- conduct or management of the study.

The Committee should also be notified of any serious adverse effects arising as a result of this research. The Committee is required to keep a favourable opinion under review in the light of progress reports.

I wish you every success with your study.

Yours sincerely,

Dr. Meryll Harvey

On behalf of the Faculty Academic Ethics Committee

Appendix Nine: Psychological support for participants

Dudley Counselling Centre
24-36 Salop Street
Dudley, West Midlands
DY1 3AT

01384 239222 / 07722 538844
www.DudleyCounsellingCentre.org
info@DudleyCounsellingCentre.org



04/07/16

To whom it may concern

This letter is to confirm the availability of access to psychological counselling for participants taking part in research interviews undertaken by Jamie Annakin for his PhD study into 'Off cycle experiences amongst male steroid users; Implications for Public Health practice'.

In addition we will be happy to provide similar support for the researcher should it be required.



|
Best wishes

Amy Matthews
Centre Manager
Dudley Counselling Centre

Appendix Ten: Accounts of Participants' Habitus and Capital

Participant Code	Interviewed	Background	Trajectory (life and professional)	Field Positioning	Level of illusio	Additional
P1	✓	Amateur Kayaker, History of strongman regional competition, competitive bodybuilder with regional success for ten years. Knew of bodybuilders from strongman training.	Middle class upbringing well educated. Own business developed using knowledge of bodybuilding nutrition and supplements. Commercial value as specialist consultant to competitive bodybuilders (male and female) Wife is competitive body builder.	High within field, but also within adjoining fields including business.	High, but alternative life trajectories are possible and have been actively considered	High level of pharmacological knowledge. Long- term user of AAS and wide range of ancillary drugs Access to complex series of social networks able to access extensive polypharmacy (including via international sources) Relationships with NHS professionals
P2	✓	Some martial art/boxing background whilst in army (including competitive at amateur level) History as qualified fitness coach when younger. Knew competitive bodybuilders and gym owners from fitness work	Working class, low level academic education. Health related job role, increasing physiological knowledge and practice (though not related to AAS use).	High/ Moderate in bodybuilding field, higher in adjoining fields of health occupation due to anatomical and physiological knowledge	moderate level of illusio, of illusio now as negative impact of long term AAS use has led to cessation and training to be AAS free with concentration on manipulating own T levels still using ancillary Ais and SERMS in effort to combat prolonged ASIH	Some limited success in developing own physique (with minimal strategy or goal orientation). Good knowledge of AAS but mostly based on own use and peers at gym. History of psychoactive drug use, alcohol, ecstasy, cocaine. Wide social networks in gym.
P3	✓	Successful international competitive bodybuilder for over twenty-five years, History of boxing when younger, brother was a competitive bodybuilder	Working class, described hard upbringing on council estate low level academic education. Well established business training male and female amateur and competitive bodybuilders following own success. Promoter for a series of successful bodybuilding shows. Internationally competitive athlete.	High within bodybuilding field only.	High, bodybuilding comprises main sense of identity	Wide range of established networks in bodybuilding industry. Long term access to AAS and associated drugs. Knowledge highly related to own extensive practice, but also experience of advising other athletes, a guru figure.
P10	✓	Long-term amateur bodybuilder followed by shorter period as competitive bodybuilder with regional success. Mates were bodybuilders before joining gym.	Complex, often chaotic life, some recreational drug use (mainly cannabis). Week to week economy of survival, lived not far from gym in notorious area of crime and deprivation.	High within bodybuilding field only. Limited outside of gym	High, bodybuilding comprises main sense of identity	High level of pharmacological knowledge. Long term user both recreationally and as competitive bodybuilder. High level of access to AAS networks and knowledge of complex polypharmacy

P11	✓	Semi- professional golfer, cusp of turning professional but chose bodybuilding as a competitive career following weight training to recover from an injury in golf. Also owned his own gym for several years	Hard upbringing, working class Internationally competitive bodybuilder for over thirty years (now mid 50's). International experience as bodybuilding judge and role in promoting own bodybuilding shows.	High, authoritative figure within the gym. Field position within gym transfers to wider bodybuilding industry and inter-related fields	High, but not beyond scope for there to be alternative life trajectories on the sports peripheries	High levels of field specific knowledge, social and cultural capital deployed with strategic competence, resulting in high level of symbolic capital. Significant position of authority and power.
P12	✓	Exposure to bodybuilding only through personal training sessions being delivered by a PT in a bodybuilding gym (rather than mainstream fitness gym)	Middle class, well-educated. High level professional occupation, high level of economic resources. Short time training before AAS use. Use of high level (and costly) polypharmacy despite non-competitive status appears to have limited trajectory within field (lacks distinction, illegitimate use very early in body sculpting career)	Moderate	High, despite non-competitive nature of training, displays high level of commitment to maintaining experience of social rewards from AAS use and bodybuilding	Lack of investment into time spent training naturally within the field has limited ability to develop cultural capital. Lack of social capital has restricted opportunity to access knowledge and sources to procure AAS. However, financial capital has afforded access to high range and extensive polypharmacy via one contact. Lacks appropriate knowledge re mode of consumption.
P14	✓	Only limited time spent within gym field as recreational trainer prior to AAS use (mainly sporadic engagement in lifting weights from college, through to eventual entry into gym.	Working class, well-educated Professional, technical occupation. Fulfilled ambitions to compete in bodybuilding (using AAS). Comprehensive knowledge of AAS and related harms. Trajectory level med- low as only competed once and extensive period of drug use led to illness, time out of gym and body image reversal. Good level of genetics and commitment to natural training	Moderate/ high, has competed successfully in bodybuilding, also a likeable and very knowledgeable guy.	Previously very high level of illuso, leading to inappropriate use of AAS for excessive time periods. Experience of significant health problems when discontinuing AAS led to him reverting to natural training. Over time levels of illuso reframed. Bodybuilding is still meaningful.	Despite having a relatively good level of AAS knowledge, good social networks and specific goal orientated focus, this man engaged in an eight-month course of AAS at inception of use leading to significant harm. Any symbolic capital to be gained from his competitive success became undermined by his lack of practical efficiency. Despite this, his natural genetics and determination to train without using AAS still affords him a moderate/ high level of status within the field.
P15	✓	Amateur motocross rider prior to bodybuilding. Significant time Invested within field as a natural bodybuilder over several years prior to embarking on use of AAS to develop a competitive bodybuilding career in what he termed 'real bodybuilding'.	Made career out of bodybuilding through wider adult entertainment industry. Expansion into other fields (including modelling) with good degree of professional success. Own business in motocross sales Good level of social capital, though poor level of AAS knowledge (despite use of wide-ranging polypharmacy). Wide ranging alcohol and psychoactive drug use polypharmacy. Works in reality TV industry	Medium- High	Very high level of illuso, significant time and effort invested into bodybuilding gains, though limited genetic potential and tendency to make judgments on drug use based on peer advice and experience, l as opposed to listening to advice from social network`	Despite being a likable guy, with a good physique and some bodybuilding success, lacks the ability to deploy potential capitals in a well strategized manner. As a result, despite wide reaching social networks, and access to wide poly pharmacy he has already experienced significant health harms. Status in other fields very dependent on maintaining a good physique.

P16		Foundry worker, and part time taxi driver who visited gym to get fit for five a side football following a series of losses and to combat middle age weight gain. No previous exposure to a gym environment.	No connections with any gym members prior to entry to the field. Routine and manual occupation, mode of dress usually jeans and jumper. Never observed this guy training legs. Regular topic of discussion was troubled relationship with ex-wife. But that said, a nice likable guy.	Low	Did utilise protein after workouts on occasion. Did engage in cycle of AAS (orals only) though outcomes were not to the degree originally envisaged. Sub-group trainer belonged to were recorded in my field notes as 'outsiders' by mode of dress and poor social connectivity to orthodox members within the gym	Observation of others progress as motivation for engaging in AAS use following 6-9 months of training. Knowledge of AAS derived mainly via online forums and websites. No engagement with PCT based on purveyors' recommendations. Transformational outcomes were low, and unsurprisingly discontinuation was relatively less problematic based on the hypothesis that minimal (if any) HPTA disruption would have occurred as he questioned whether tablets were even real AAS.
P17		Technical engineer motivated to join gym in attempt to lose weight prior to holidaying with girlfriend later in the year. Played five a side football with P16.	Hobbyist skateboarder, mainly as a solo endeavour. Into alternative rock music. No other exposure to gym environment previously other than similar attempts to lose weight with partner at commercial gyms which always ended in dissolution and return to typically sedentary lifestyle (other than skateboarding).	Low	Limited social connections (outside of those specific to sub-group). Grunge type identity which was out of place compared to traditional bodybuilding identities.	Observation of others progress as motivation for engaging in AAS use and not wanting to get left behind. Access to AAS problematic, considered online supply (put off by fears of packages coming to house and wife or children seeing), eventually followed same route as P16. Did engage in injecting use of AAS. Initial outcomes promising but took a long while to manifest, access issues meant repeated use of injecting paraphernalia, injection sight soreness. No PCT used. Gynecomastia on second course, ended abruptly as no ancillary compounds available.

Appendix Eleven: Records of PCT use by Interview Participants

PN	Summary	Time from AAS to start of PCT	HCG	NOLVADEX	CLOMID	ANCILLARY	REST	CRUSING NOW or PLANNING TO
P1			✓	✓	✗	✓		✓
	Used Various PCT strategies previously. No time frame given for when PCT was first used. Also tried tomaphrine (all in one PCT).	3 weeks from last shot. Stops use abruptly rather than cycling down	10,000iu twice a week for 2 weeks (Total 40,000iu)	40mg for 5 days dropping down to 20mg (2- 6 weeks from PCT start)	No longer use due to side effects -Blurred vision -Low mood -Tearful	-Anastrozole 1mg -Test Boosters	Initially 3-4 months, then as low as 4 weeks. Return of sexual drive as marker of recovery. Now switched to cruising to avoid dysphoria on AAS cessation	Cruising strategy is 1ml (250mg Test) every 14-21 days. Enanthate or Sustanon 250.
P2			✓	✓	✗	✗		✗
	Used PCT mid-way through AAS using career. Shifted from Testosterone injections to short oral cycles of Oxandrolone twice a year due to gynecomastia	2/3 weeks depending if oral or Injection	1,500iu x3 for 2 weeks maximum (10,000iu comprised of x2-5,000iu vials) (Total 10,000iu)	20mg 4 weeks from date PCT started	50mg 4 weeks from PCT start	None, but considering Arimidex now to reduce estrogen and elevate testosterone	Initially same as cycle length (8-12 weeks). Lowest 7-8 weeks	No
P3			✓	✓	✓			✗
	Adverse effects from not using PCT in past -depression -muscle/ joint aches and pains. Now feels PCT less effective.	3 weeks	Initially: 1,500iu x 3 for 1 week only Now: (5,000iu) in one shot (Total 5000iu)	20mg 4 wks	50 mg 4 wks	-Vit B injections useful to combat depressive effects off cycle	4 weeks off usually, variable, based on PCT outcomes. Perceives excessive use of letrozole pre competition has contributed to loss of sexual function which only recovers partly post cycle	PCT less effective over time. Quick return to AAS use after last cycle as he perceived PCT no longer effective for him. Does not believe he can cease AAS use without access to TRT
P4			✓	✓	✓			✗
	Did not use PCT initially, learned about it from competing gym members. Has used all in one PCT with -clomid -tamoxifen -Proviron -Sildenafil (Viagra)	2-3 weeks	5,000iu one shot per week x2 weeks (Total 10,000iu)	2 wks	2wks	-Letrozole whilst on course, then when off cycle -Proviron -Arimidex 1mg -Viagra -Sleeping aids (Benzodiazepines)	Variable (usually 6 weeks)	Shortage of PCT so tried cruising once, described it as "absolutely useless and no point".

P5			✓	✓	✓			✗
	Used PCT from outset of AAS using career, can only recall once when not used	2 weeks	1500iu X3 per week for 3-4 weeks (Total 18,000iu)	Nolvadex and Clomid all in one tablet. (Dosage unknown)	Outlined benefits of using proviron for sex drive once AAS use permanently discontinued.	-GH (3iu q.d.)	Cycles up to 30 weeks, Variable time off, (usually 6 weeks) Recovery signified by return of sexual drive/ erections	Firmly against cruising (due to fears of permanent shut down)
P6			✓	✓	✓			✗
	Always maximum 5 Weeks on/ 5 weeks off (2-3 courses per year max). Unclear when PCT use commenced.	2-3 weeks (varies with test used, if oral uses with 3 days of last shot)	5000iu of HCG over 10 days (2.5iu x2) (Total 5000iu)	40mg for first 10 days 20mg for up to 5 weeks	Clomid 10mg tabs. 1 per day for up to 5 weeks	-Aromasin -Anastrozole 1mg -Proviron 25mg (to improve sex drive)		Firmly against cruising too much like dependence. Already had one break of 7 months with no problem.
P7			✓	✓	✓			✓
	Always used HCG, clomid and tamoxifen when comes off. heavy testosterone use 1200mg per week.	2-3 weeks	5000iu HCG in one shot (Total 5000iu)	Only use if have gynecomastia when coming off	Clomid dosage not stated		Cycling apathy: Cruising is not just about maintaining muscle size it's about having the test of a 30-year-old again and feeling like that. If can't get from GP will continue to buy illicitly produced.	Chastised men who cruise unnecessarily when they are young. However, now intends to cruise on test low dose as being 50 he feels his testosterone is very low, does not want to have any more children so not worried about infertility
P8			✗	✓	✓	✗		✗
	Was given advice to use PCT from first cycle and always used. AAS use is low dose testosterone/ nandrolone (one cycle per year, 6-8 weeks in length)	Start PCT on day of last injection of testosterone	No HCG	All in one PCT (tamoxifen and clomiphene citrate) 4 weeks	All in one PCT			Never thought of cruising
P9			✗	✗	✗	✓		✓
	Always used PCT from outset of AAS use. Typically uses a 10-week courses of Oxandrolone OR Winstrol only) no injectables.	On day of cessation as only oral AAS	No HCG: <i>Did try HCG once but hated IM injecting. Didn't use again.</i>	No	No	GH 3iu p.q.d. (continuous use on and off cycle) Sub Q injection	28 - weeks off	Plans to end AAS use but wants to go to GP to seek TRT. GPs should prescribe. If not available will drive men to get from underground. Testosterone declining/ body composition changing.

P10			✓	✓	✓	✓		✓
	Did not use PCT initially but did later on. Cycling apathy: Felt like own test won't recover anymore, unable to regain sense of normality	Use HCG 4-5 days before AAS leave system.	2,500 iu every 5 days for 3-4 weeks*(Total approx. 15,000iu over 4 weeks)	Used 3-4 weeks at start of using career – but eventually replaced with anastrozole as more effective*	Used at 3-4 weeks at start of using career. Eventually ceased when moved to B&C*	-SARMS (Osterine And MK677) -Natural Test booster (Terris Tribuilis)*	Initially up to 18 weeks, reduced as PCT became less effective	Transitioned to Blast and Cruise 5 years ago: Cruising 125mg of Test every 10 days for 4-6 weeks before returning to blast phase. Been to GP but he declined to prescribe nibido (a TRT product). So he reverted back to illicitly produced AAS.
P11			✗		✓	✓		✗
	Did use HCG at initiation but stopped as found it to be of little use. Never been a big AAS user. Believes long rest periods, limited PCT and natural test boosters more effective than HCG so does not use. 6 months on cycle when competing but 2 months off cycle.	Starts PCT usually day after a show (tapers down to pre-comp with fast acting compounds)	No HCG: Tried <i>many years ago at outset of using career.</i> <i>Found HCG to be ineffective so stopped using.</i>	No- only on cycle	No	-Proviron -SARMS (CJC1295, TB500) similar to 3iu's of GH -Test Booster (Terris Tribuilis)	Uses tamoxifen on cycle, Long rest periods in between competitive cycle (20 weeks off). Claims to have been using SARMS for 9 years and GH	Against Cruising, reflects lack of discipline. Everything in moderation. "Key thing longevity, how long can I keep doing what I love doing"
P 12			✓	✓	✓	✓		✗
	Only done three cycles. Used Arimidex all way through cycles and 4 weeks post discontinuation of AAS. -Used PCT on AAS discontinuation first time (recovered well) As AAS dose and duration increased off cycle became more problematic. PCT increased to cope with dysphoria	4 weeks, taper down at end of cycle which he hypothesised results in less system shock & better HPTA recovery	-Initial x3 1500iu for 1 week at end of first AAS cycle and recovered well. As AAS dose and duration increased, HCG use increased to 3 weeks 1500iu every three days (Total 15,000 iu vial)	-moved to use after initial PCT became less effective *starts only after 3 weeks HCG have finished. Uses for 2 weeks only after HCG has finished. Last time felt quite emotional on Clomid though this did subside.	Yes, transitioned to use after 2 nd cycle completed *starts only after 3 weeks HCG have finished. Uses for 2 weeks only	-Anastrozole 1mg q.d. (Used continuously during on and first 4 weeks of off cycle) -GH described as -Milk thistle	12 weeks off -4 wk taper -3 wk HCG -2 wk AI/SERM -3 wk Rest	Not considered as still in early stages of AAS using career. However, first cycle had period of 12 weeks before re-commencing AAS with use of only HCG for 1 week and Arimidex for 4 weeks. Now the 12 week period off cycle remains but includes 9 weeks of PCT compounds and continuous use of human growth hormone (GH).

P 13			✓	✓	✓	✗		✗
	Several years AAS use of 4 weeks on, 4 weeks off patterns. No time frame given for when PCT was first initiated.	Start HCG on last day of oral AAS use	HCG 1500 iu x3 over 1 week Max 3 weeks if available. (Total 4500iu)	Will use all in one PCT (nolvadex/ clomid) if no HCG available, as it is often difficult to get hold of. Maximum 3 weeks use.	Only as part of 'all in one' PCT 3 weeks maximum		4 weeks	Against cruising, it is a very bad idea. You should go on and off.
P 14			✓	✓	✓	✗		✗
	First cycle planned for 12 weeks, which progressed to a cycle 38 weeks due to competition. Used PCT after cycle	Tapered AAS use down prior to PCT initiation on both cycles. Initiate PCT on day of last shot of fast acting oral	HCG 2 weeks (5000iu pw in one shot per week) (Total 10,000iu)	Nolvadex 4 weeks 40mg first 5 days down to 20mg for remainder of 4 weeks total	Clomid 100mg first 5 days down to 50 mg for 4 weeks total		Initially:12 weeks on, 6 weeks PCT, 18 weeks break Second cycle much longer 38 weeks. No return to AAS use post second cycle as dysphoria so severe. Also has injection site infection which compounded weight loss and inability to train in gym.	No reason to consider as withdrawn permanently from AAS use. Now focuses on promoting own testosterone use as best as possible using diet and natural remedies. Gets test levels checked frequently. Still weight trains, but no more competitive ambitions as these were achieved during second cycle.
P 15			✓	✓	✓	✓		✗
	Previously natural bodybuilder. Used PCT on initiation. Now on cycle typically six months around competitive calendar. Feels use of glutamine and creatine helps to keep muscle gains.	Initially used PCT abruptly on last shot of course. Now tapers down AAS use over last 4 weeks of cycle	Started HCG 2 weeks after cycle finished. Dose 1500iu every 3 days for 10 shots (30 days use) (Total 15,000iu)	2 weeks (after 3 weeks of HCG use) Increased to 4 weeks on subsequent cycles	2 weeks (after 3 weeks of HCG use) Increased to 4 weeks on subsequent cycles	Use of letrozole and Cabergoline during off cycles to combat gynecomastia from cycles. Effect of ED for which Viagra is also used to combat.	First cycle 6-month break before returning to AAS. Quickly moved to less structured almost continuous use, switching from one cycle to another with different compounds.	Not considered

Note: Two men in the case study gym who did not take part in interviews did not use PCT. P16 reported only engaging in once cycle of AAS use before returning to training without them due to poor transformational outcomes. P17 reported engaging in a second cycle of AAS which was abruptly ended due to gynecomastia for which no aromatase inhibitors were available from his AAS contact. He subsequently returned to training without AAS.

Appendix Twelve: BSA Study Group Presentation



Building on Bourdieu in National and International Spaces

Sheffield Hallam University, 27th September 2019

Programme

Building - Owen Room- 221

9am-9.30am Registration and Coffee

9.30am-9.45am Welcome and conference opening: Professor Nicola Ingram (Sheffield Hallam University)

9.45am-10.45am Keynote Speaker: Dr. Amy Stich (University of Georgia, USA) - *The Global Reach of Capital's Long Shadow: Reproducing Inequality across Contexts*

10.45am-11.45am Keynote Speaker: Dr. Bob Jeffery (Sheffield Hallam University) *From Bourdieu to Rancière: capitals to classificatory struggles*

11.45am-12pm Coffee Break

12.00pm-1pm Book Launch: *The Bourdieu paradigm. the origins and evolution of an intellectual social project*, 2019, Manchester, Manchester University Press by Professor Derek Robbins (University of East London). Discussant: Professor Nicola Ingram

1pm- 2pm Lunch

2.00pm-3.30pm Parallel Sessions

Session A (Owen 221):

Sean Creaney (Edge Hill University and Liverpool John Moores University) "Are we all playing an elaborate game?" A Bourdieusian analysis of children's participation in decision making in youth justice

Lyndsey Kramer (University of York) *Habitus and social recreation*

Jamie Annakin (Birmingham City University) *The Role of Capital and 'Illusio' in Anabolic-Androgenic Steroids (AAS) Dependence*

Session B (Owen 222):

Mags Liddy (University College Dublin) *Interpreting Bourdieu as a theory of learning*

Mamuna Iqbal (Cardiff University) *Bourdieu beyond the Geographical Constraints: Building a Theoretical Framework for Architectural Education Research in Pakistan*

Andrew Passey (Leeds Beckett University) *Educating non-specialists: reshaping the field to reproduce professional hierarchies*

Session C (Owen 223):

Sarah Boodt (Sheffield Hallam University) *How trainee further education teachers use the workplace as a site for learning*

Carlos Palma Amestoy (University of Bristol) *Facing an unequal future: subjectivities and aspirations in the transition from school to higher education. Lessons from Chile*

Tamsin Bowers-Brown (Derby University) and Shelby Cottam Cultural Capital, the new aspiration? The continued application of deficit models in education policy or the misapplication of Bourdieu.

3.30pm-3.45pm Coffee Break

3.45pm-4.45pm Keynote Speaker: Dr. Aina Tarabini (Autonomous University, Barcelona) *Educational guidance and social inequality: a Bourdieusian perspective*

4.45pm-6.15pm Wine Reception and Monologue/Poetry Performance by Steph Lacey (University of Sheffield)

Appendix Thirteen: The Big Reveal

Extract from field notes 17/03/17

This evening I chatted in a relaxed fashion to the owner of the gymnasium at the reception counter where banter is typically exchanged between gym members before and after workouts. It was around ten minutes since I had consumed my pre-workout, a common practice amongst other gym members of consuming supplements high in caffeine, bitter orange peel and amino acids purported to increase strength, motivation, and concentration during workouts. On this occasion I had chosen 'Grenade' a supplement available over the counter in high street health stores with a caffeine content like double espresso in many big brand coffee outlets. Previous use of other brands of pre-workout available from the gym's reception with the substance beta-alanine (a vasodilator which improves blood flow and vascularity) had a horrible effect of making me feel itchy all over for 10-15 minutes following use, a side effect many felt was worth the benefit, but I found less able to tolerate.

As we discussed my upcoming training session for the day which happened to be legs, I outlined my plan to use a pre-exhaust routine I had picked up from a previous training session with P.11. Pre-exhaustion is a training method used for isolating the smaller muscles of the legs in the thigh and training them to failure with an isolating exercise such as leg extensions before moving to a compound movement (involving the use of multiple muscles at one time) which forced those smaller muscles of the thigh to work beyond their normal threshold whilst being supported by the hamstrings and gluteal. These technical approaches to achieving new muscle gains or breaking through plateaus were years in the making, handed down from one gym member to another as they share workouts together, or reflected on their progress with one another during everyday bodybuilding discourse. One such approach to training technicalities I witnessed amongst gym members was that of moving from the lifting of heavy weights in compound movements for six to ten repetitions in the off season where muscle growth is a priority, to a protocol of lifting much lighter weights with high volume (anywhere between 15-50 repetitions) as a gym member approached a competitive bodybuilding show where the desire moved to refining and flushing the muscles to expose their shape and form. The competitive bodybuilding season typically ends toward September / October, kicking off again early in April where those who had been busy bulking over winter had their first opportunity to begin to sculpt away any layers of fat revealing the rewards of all their hard work through winter.

My chat with the gym owner had become more energised as the effects of the high caffeinated pre-workout kicked in and I felt motivated and excited for the workout ahead. Suddenly a gym member appeared at the side of the reception counter and called to the gym owner to accompany him to the changing rooms. At first, I was a little concerned that something maybe wrong, maybe someone had got hurt whilst training, or worse had collapsed from something more serious and needed help. The gym owner's response however was relaxed, and he called me to accompany him as he wandered from behind the reception desk to the changing rooms.

As we entered the changing room, I could see immediately why we were there, the man who had called us into the gym stood critically observing the physique of his training partner who was topless, his gym bottoms pushed down towards the floor wearing only his underwear. For the last few weeks, I had noticed the partially clothed man in front of me was in the gym more frequently, usually on the static bike or treadmill clothed in multiple layers of gym sweat pants and tops. The man always carried a 2-litre bottle of water close at hand as he moved from one exercise to another

during his workout's where he sweat profusely despite the chill still in the gym with clouds of sweat emanating from his body as he trained. I later learned this excessive intake of water is a method used by bodybuilders close to competition date to coax the body into storing less water under the pretext that it is available to the body in abundance- prior to its elimination 24-48 hours before stepping on stage to reveal a polished and lean physique.

Unphased by my appearance, the man continued to flow through a set of mandatory poses bodybuilders were required to perform by judges whilst observing himself in the changing room mirror. At first, I was shocked to see his hugely muscular thighs with striations in the muscle belly clearly visible through his tissue thin skin. His legs, as well as his torso were covered in rippling thick veins which resembled a road map across his body, moving with a life of their own as he shifted from one mandatory pose to another in a hypnotic performance. His waist resembled that of Michelangelo's David, or a diagram from an anatomical text book for medical students revealing not only abdominals but the full package of serratus and intercostals which ended only where the latissimus dorsi began in the man's thickly muscled back which erupted into a wide V shape towards his shoulders. Whilst I stood silent in awe, the gym owner and the man's training partner continued to direct him through various positions from which they wanted to observe and assess progress towards the body that would soon be on stage for wider critique from the judges and the bodybuilding audience. After a review of a front double bicep pose to check for shape and symmetry, the man reached around and lifted his briefs to reveal a gluteal muscle which frankly looked nothing like any gluteal I had ever seen before. There was simply no fatty tissue visible above the fingers of muscle which crossed at an angle from one side of his bottom cheek to the other. The sight was so extreme that it was almost unfathomable as to the monastic devotion to exercise and adherence to a low-calorie diet that this man must have had to adhere to have achieved this look.

It was at this point I became aware that all three of the men were focusing on me and suddenly eager to understand my observations and constructive criticisms on the physique in front of me. After getting over the initial shock of my opinion being something other were interested in from a bodybuilding context I proceeded to comment on how well balanced and symmetrical the man's physique appeared to be and how close to bodily perfection the man was for someone who was two weeks out from a show. My comments were met with a collective nod of agreement from the others and with that myself and the gym owner were ushered out of the room by the training partner of the man whilst he remained with the competing bodybuilder to run through rehearsals of the performance the man would complete during his bodybuilding contest. As a parting request, I asked the man if I could take a photo of his physique, to which he agreed so long as I did not share with any other gym members prior to his upcoming show.

Now Infused with the effects of the pre-workout I had taken previously and motivated by the vision I had witnessed in the changing rooms, I proceeded to my own workout with a practical sense of what was possible for my own body should I choose to apply myself with the same degree of dedication as the man who was soon to be competing on stage with other bodybuilders. There was little doubt in my mind at that point also that whilst AAS and other PIED's have their function in bodybuilding, there is likely to be little return on investment for users without also being able to commit to adopting a total way of life which leaves little room for haphazard planning, laziness, or lack of dedication and will power.