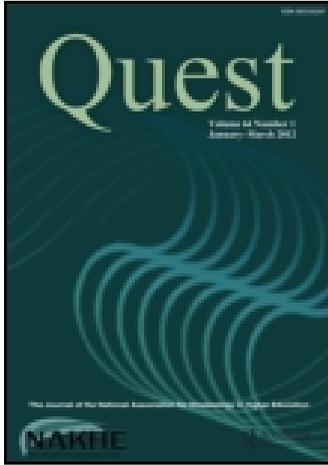


This article was downloaded by: [University of Western Ontario]

On: 16 December 2014, At: 14:22

Publisher: Routledge

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: Mortimer House, 37-41 Mortimer Street, London W1T 3JH, UK



Quest

Publication details, including instructions for authors and subscription information:

<http://www.tandfonline.com/loi/uqst20>

Does the Existence of Steroid Addiction Alter the View That Steroid Use in Sport is Cheating?

Ken Kirkwood^a

^a Health Sciences, University of Western Ontario, London, Ontario, Canada

Published online: 14 Oct 2014.



CrossMark

[Click for updates](#)

To cite this article: Ken Kirkwood (2014) Does the Existence of Steroid Addiction Alter the View That Steroid Use in Sport is Cheating?, *Quest*, 66:4, 485-494, DOI: [10.1080/00336297.2014.950758](https://doi.org/10.1080/00336297.2014.950758)

To link to this article: <http://dx.doi.org/10.1080/00336297.2014.950758>

PLEASE SCROLL DOWN FOR ARTICLE

Taylor & Francis makes every effort to ensure the accuracy of all the information (the "Content") contained in the publications on our platform. However, Taylor & Francis, our agents, and our licensors make no representations or warranties whatsoever as to the accuracy, completeness, or suitability for any purpose of the Content. Any opinions and views expressed in this publication are the opinions and views of the authors, and are not the views of or endorsed by Taylor & Francis. The accuracy of the Content should not be relied upon and should be independently verified with primary sources of information. Taylor and Francis shall not be liable for any losses, actions, claims, proceedings, demands, costs, expenses, damages, and other liabilities whatsoever or howsoever caused arising directly or indirectly in connection with, in relation to or arising out of the use of the Content.

This article may be used for research, teaching, and private study purposes. Any substantial or systematic reproduction, redistribution, reselling, loan, sub-licensing, systematic supply, or distribution in any form to anyone is expressly forbidden. Terms & Conditions of access and use can be found at <http://www.tandfonline.com/page/terms-and-conditions>

Does the Existence of Steroid Addiction Alter the View That Steroid Use in Sport is Cheating?

KEN KIRKWOOD

Health Sciences, University of Western Ontario, London, Ontario, Canada

It is widely accepted that doping in sports is, by definition, cheating. If we allow that cheating is advantage-seeking behavior utilized by one party in an agreement-defined activity that disallows that behavior, then taking drugs when others do not is cheating. The focus of this definition is on the intentions and purpose of the actor, which is primarily about advantage seeking. This article will argue that the effect of anabolic steroid addiction on the volition of the actor caeteris paribus invalidates the adequacy of cheating to describe this behavior.

Keywords Sport, sport philosophy

Introduction

In the wake of any major performance-enhancing drug-use scandal in sports, “cheating” is deployed as a pejorative, capturing the public’s allegedly shared sense of moral disapprobation. Even in colloquial usage, cheating generally means that one obtained an ill-gotten advantage over another. In formal usage, cheating necessarily concludes that the actor purposefully sought an advantage over another in a cooperative undertaking (Green, 2004). Formal definitions of cheating place a strong demand on the actor’s intentions, suggesting that he/she has the self-regarding goal of gaining an advantage above any other intention.

Relating this primacy of motivation to the confounding nature of drug addiction can problematize defining behavior as cheating when it matches that construction in all other aspects. In the case of this discussion, the existence of addiction to anabolic-androgenic steroids (AAS) will be discussed, as it is the most common drug utilized in cases of doping (World Anti-Doping Agency [WADA], 2012).¹ When considering the possibility of AAS addiction, we find that the volition of the actor is sufficiently distracted or compromised to strongly suggest that addicted AAS users in sport are not cheaters in the formal sense of the term, as their intentions are not focused on cheating, but are instead focused on use of the drug for non-advantage-seeking reasons.

Formal Elements of Cheating

Cheating involves specific instances of prescriptive rule-breaking. Not all rule-breaking is cheating, but in all conceivable instances of cheating, rules are broken. From the literature (Green, 2004; Kirkwood, 2012; Leaman, 1981; Loland, 2002, 2005; Morgan, 2006;

Address correspondence to Ken Kirkwood, Health Sciences, University of Western Ontario, Room #211 Labatt Health Sciences Building, London, Ontario, N6A 5B9, Canada. E-mail: kkirkwo2@uwo.ca

Upton, 2011; Wertz, 1981), four conditions can be synthesized for rule-breaking behavior to determine if the cheating some other moral offense has occurred:

1. Rule-breaking must take place in a cooperative, rule-governed activity.
2. The rule must be fair and not justifiably excepted.
3. Rule-breakers must intend to break the rules.
4. Rule-breakers must have intended to gain from rule-breaking.

It is uncontroversial to state that the proper context for cheating to occur is within cooperative, rule-governed activities. In these ventures, typically, participants voluntarily limit their liberties to facilitate the collective activity. Often, it involves selecting a less-efficient means to ends, to which the participants agree, in spite of their capacities to simply choose the efficient means. This construct is codified through rules (Suits, 1967). Some are constitutive in that they comprise the very definition of the communal activity. Others are regulatory in their role to manage the nature of the participation to focus the actors' efforts toward the purposes of the undertaking. A third level of rules could be described as "auxiliary," those attending to issues of uniform regulation, competitive eligibility, and other tertiary administrative concerns that often accompany communal activities at a high level of participation and subsequent bureaucratization (Meier, 1985).

When Green (2004) noted that a rule must be fair and not justifiably exempted, he addressed the substantive feature of a rule that must have exceptions recognized within it based on warrant. In questions of doping, athletes are entitled to take banned substances, so long as the requisite therapeutic use exemptions are declared and medically verified (WADA, 2014). Therefore, the notion of a fair rule can be characterized as one that recognizes appropriate exceptions to itself in both construction and in enforcement.

The two final elements of cheating can be considered together as they both focus on the intentions of the actor at the times prior to and at the moment of rule violation. To qualify as cheating, the actions in question must have been intentional or, in Loland's (2002) preferable wording, "purposeful" and focused on the goal of achieving an advantage. Typical of scholarship on the conceptual matters of cheating, the deliberate, advantage-seeking actions of the cheater are essential (Green, 2004; Leaman, 1981; Loland, 2002). Within a sporting context, a case study of rule violation is counterfactually examined. In one famous example, Canadian 100-meter hurdler Perdita Felicien fell during a race in the 2004 Olympics and knocked herself and competitor Irina Shevchenko out of the race (Christie, 2012). The existing interpretation of that event was that it was an unfortunate accident, not premeditated or advantage-seeking. In the real-life event, there is no basis to refer to it as an act of cheating or to Felicien as a cheater.

What if on a hypothetical further review, it is determined that Felicien fell into Shevchenko on purpose? Obviously such an action constitutes an assault, and many terms of moral outrage against it can be applied, but is it cheating? There are numerous examples from sport of athletes intentionally fouling other players, sometimes motivated by personal rather than tactical reasoning. One might lash out during a game because of frustration or due to provocation, and while done intentionally and with purpose, it is not motivated by the desire to get an advantage. The question in the current case is the advantage-seeking aspect. In the Felicien and Shevchenko case, both were disqualified by virtue of their respective falls caused as they were by Felicien. In an analysis of the immediate benefits and costs, there seems to be no advantage gained by disqualifying yourself intentionally. But such a determination would require examining Felicien's extrinsic self-interests over the longer term. For example, one athlete could be poised to overtake the other in the overall rankings of the sport, or in a better position to garner lucrative endorsement deals, or for positioning

oneself in the free agent market at the end of a contract. Any of these could serve as reasons to intentionally harm one's own chances at victory so as to harm another athlete's as well.

What if Felicien accidentally fell into Shevchenko but it only disadvantaged Shevchenko? Most of the existing constructions of the concept of cheating demand *mens rea*. A cheater must have had the intention to break the rules, and he/she must have wanted to do so for personal gain. In the case of accidental gain, it must be concluded that such actions could be described in negative ways but not as cheating. Intent is essential to cheating.

What about a third possibility; that being an athlete who lashes out against another athlete, breaking the rules but not for tactical reasons. In the process of doing so, he/she injures the opposing player who was the target of his attack and, in doing so, causes the opposing team to lose a valuable performer and compromises his/her chance at victory to some degree. In this way, the advantage gained may have been foreseeable or simply incidental but was not the intention behind the act. This still does not constitute cheating.

The threshold for cheating demands an intentional act, almost exclusively driven by the desire for advantage over others in a rule-governed cooperative activity. It is entirely common within sports that doping violations fit well into this definition. Athletes take drugs to put themselves in the best position to win, thus giving themselves preferential access to the extrinsic rewards of victory (Goodman, 2010; Schneider & Butcher, 2000) at the expense of those athletes who complied with the well-known prohibitions against such drug use. While challenges can be made to the idea that doping is cheating, those can and should be taken up in another article; for the purposes of this discussion, doping will be considered typically consistent with cheating.

Steroid Use and Dependence

Drug dependence² is an omnipresent social phenomenon that is a primary cause of morbidity in the world (WHO, 2012). In Canada, for one example, use of drugs leads to just over 20% of all deaths in people under 70 years of age (Patra, Taylor, Rehm, Baliunas, & Popova, 2007). In the 1990s, 25% of all Americans over the age of 15 were addicted to at least one substance (McGinnis & Foege, 1999).³

Drug dependence is a compulsive, chronic, and relapsing behavior focused on drug seeking, and use persists despite negative consequences (Camí & Farré, 2003). This behavior is constituted by certain elements that typify the experiences of addicts (Maté, 2009):

1. compulsive engagement with the behavior, a preoccupation with it;
2. impaired control over the behavior;
3. persistence or relapse, despite evidence of harm and;
4. dissatisfaction, irritability, or intense craving when the object—whether a drug, activity, or other goal—is not immediately available.

AAS dependence has been observed in the scientific literature since the later 1980s (Kashkin & Kleber, 1989; Tennent, Black, & Voy, 1988). While AAS themselves have not been studied to the same degree as other drugs of abuse (Rastegar & Fingergood, 2005), there is sufficient research to suggest that AAS dependence is an authentic addiction embodying many of the requisite empirical elements.

Compulsive Engagement with the Behavior, A Preoccupation with It

Brower, Blow, Young and Hill (1991) observed a pattern of AAS use that is also typical of addiction formations with other drugs. AAS users initiate usage and, over periods of continuous use, exhibit incremental traits of addiction. Progression to dependence could be driven by intense dissatisfaction with bodily appearance. Indeed, unhealthy bodily self-perceptions frequently motivate the initial use of AAS among young males (Andersen & DiDomenico, 1992; Drownowski, Kurth, & Krahn, 1995; Field, Camargo & Taylor, 2001; Pope, Phillips, & Olivardia, 2000; Rosenblum & Lewis, 1999). At the most acute end of the spectrum is the condition of “muscle dysmorphia,” which acts as anorexia nervosa “in reverse,” in which the afflicted see themselves as undersized in spite of external, more objective measures to the contrary in the same way as anorexics perceive themselves as obese in spite of the opposite being obvious (Cafri et al., 2005; Chung, 2003; Cole, Smith, Halford, & Wagstaff, 2003; Pope et al., 2005; Schwerin et al., 1996).

AAS are compelling drugs for abuse. While typical consumption patterns are thought to be cyclical, whereby users suspend intake for considerable periods of time as part of a scheduled consumption, there is a very common pattern of continual and unceasing use (Kanayama & Pope, 2013). Through the period starting in the 1990s and into 2005, researchers in several English-speaking countries confirmed the authenticity of an AAS dependency diagnosis using then current definitions found in the *Diagnostic and Statistical Manual(s) of Mental Disorders* (DSM III and DSM-IV; Kanayama, Brower, Wood, Hudson, & Pope, 2009). One primary limitation to the consideration of AAS as a drug of dependence is the issue of its “non-euphoric” nature. As such, AAS fails to compel researchers to widely examine or consider AAS as a drug with dependency features comparable to more common drugs of study, such as opiates. Kanayama et al. (2009) noted that across the studies conducted in the time period 1990–2005, nearly 30% of users developed AAS dependence according to diagnostic criteria.

Impaired Control over the Behavior

Looking to sociological features of drug use, there are a host of economic and social reasons why usage would be desirable without reference to the authentic personal preferences of the user. First, for many athletes, the potential economic benefits are profoundly disparate from the economic profile of their home. Furthermore, many athletes may feel an obligation to achieve financial security for themselves as well as family and friends from more impoverished communities. Jose Canseco (2005) noted this when he considered the example of a baseball player from any Caribbean nation. That young man’s success or failure is not merely athletic and personal but is total and shared by the larger community of family and possibly neighbors.

Second, AAS users may be self-medicating severe feelings of inadequacy or inefficacy. While much has been said, and justifiably so, about the social-structural progenitors of body-image complications in women (MacSween, 1993), there has been some research in this same area for males. Media characterizations of masculinity have become increasingly muscular and lean, creating an ideal that is difficult or impossible to achieve without the aid of AAS or related compounds (Olivardia, 2001). It comes as no surprise that these body-image diagnoses are found in AAS users to an unusually high degree (Kanayama, Barry, Hudson, & Pope, 2006).

Third, AAS appears to function on a neurological level as does any other drug of addiction. A developing field of literature suggests that the same neurological mechanism of addiction—the mesolimbic dopamine system—also mediates testosterone use (Wood,

2004). With AAS dependence, impaired self-control becomes evident as the concern for punishments (e.g., positive drug tests and subsequent banishment from sport) decreases (Hermans et al., 2007; van Honk et al., 2004). The intensity of the AAS users' craving for their drug has been estimated as equivalent to that experienced by addicts of nicotine and benzodiazepines (Wood, 2004).

One final issue associated with AAS dependence is the prevalence of polysubstance abuse in AAS users (Fudala, Weinreb, & Calarco, 2003; Skarberg, Nyberg, & Engstrom, 2009). Polysubstance use and dependence occurs as athletes seek to moderate the unpleasant side-effects of an AAS regimen and, for those who are athletes, further enhance the androgenic and anabolic properties of their AAS use. In the most detailed study of this kind, Skarberg and colleagues (2009) determined that AAS addicts would often use alcohol, cannabinoids, and benzodiazepines to induce sleep; drugs like Clomid to alleviate gynaecomastia and testicular atrophy; analgesics, such as morphine, codeine, and dextropropoxyphene, to alleviate the pains of training; and other training aids, such as HGH and IGF-1, for additional performance enhancement. This issue of polypharmacy creates greater problems for the volition of the addict, as combinations of drug addictions may compound the difficulties in abstinence (Dutra et al., 2008).

Persistence or Relapse, Despite Evidence of Harm

Typically, an addicted drug user will express deep and genuine desires to quit a drug long before he/she does—if that ever happens. Addicts distinguish themselves by their unique relationship to their drugs of addiction. Robinson and Berridge (2001) eloquently described an addict's "craving" of and compulsion for drugs longitudinally: "that, as drugs come to be wanted more and more, they often come to be liked less and less" (p. 110). Much of this inefficacy at quitting a destructive habit comes from oppositional forces of positive and negative reinforcements against quitting. Midgely, Heather, and Davies (1999) pointed to this framework, indicating the positive reinforcers of AAS maintenance combined with the negative reinforcers of AAS cessation:

- a. primary positive reinforcement due to brain reward,
- b. primary negative reinforcement due to avoidance of withdrawal symptoms,
- c. secondary positive reinforcement due to rewards associated with increased body size or better body image, and
- d. secondary negative reinforcement due to avoidance of loss of size or positive body image.

While mainstream studies of drug addiction have not taken up AAS addiction as quickly or broadly as other addictions, one of the stated reasons is that, unlike opioids, AAS is not associated with intense and instantaneous euphoria. Without this kind of instantaneous euphoria, AAS fits less perfectly into the existing biological model of addiction as a brain disease. On the other hand, the literature on AAS addiction, as well as the relatively limited ethnographic works on AAS use, speaks to a very distinct sense of euphoria reported by users (Goldstein, 1990; Hall & Hall, 2005). Brower et al. (1991) found that 43% of AAS users reported feeling "high" and other descriptions of extreme pleasure from longer term AAS use. In this sense, while not instant, the feelings are very real and a positive reinforcement of continued use.

There is an identified withdrawal effect upon cessation of AAS use (Boyadjiev, Georgieva, Massaldjieva, & Gueorguiev, 2000; Brower, 1997; Malone & Dimeff, 1992). Users in cessation experience a characteristic withdrawal syndrome with affective and

hypogonadal symptoms that create cravings to resume use, and this precipitates the tendency to relapse, which is so common among addicts. Withdrawal from AAS can create severe depression (Allnutt & Chaimowitz, 1994; Brower, 2009), self-perceptions of physical weakness, and loss of muscle mass and increase in body fat, which serve as negative reinforcements of cessation (Brower, 2002).

Dissatisfaction, Irritability, or Intense Craving When the Drug, Activity, or Other Goal is Not Immediately Available

In the issue of AAS use, the evidence is clear: AAS use can commandeer a user's physical development by virtue of offering him/her bodily improvements that would be otherwise unachievable. The usage patterns develop into addictive behavior over time, when recesses from drug use are neglected in favor of constant use and constant gains and, finally, dissatisfaction at the gradual erosion of a user's physical development and the possible reemergence of the body image issues that likely precipitated AAS use initially (Forbes, Porta, & Herr, 1992; Hartgens, Van Marken Lichtenbelt, & Ebbing, 2004).

The usage pattern of the continual AAS user creates the need for greater and more frequent exposures to assuage the user's desires for the drug. With the discovery of the effect that AAS has on the mesolimbic dopamine system (a typical neurological pathway for addiction), the same pattern of dependence exists. Addiction requires repeated exposure for development (Volkow & Li, 2004), and consistency of use is necessary for the re-patterning of the mesolimbic dopamine system that is the hallmark of addiction (Spanagel & Heilig, 2005; Tomkins & Sellers, 2001).

Questions of an Addict's Volition and the Cheater's Intentions

This article has thus far discussed the role that intentions play in cheating, the similitude between doping and cheating, and the effect of AAS addiction on a user's intentions. Now the implications of impaired volition that AAS addiction has on some dopers is examined in relation to their status as cheaters. As stated earlier, the concept of cheating demands a nearly exclusive focus on advantage seeking as requisite for cheating to occur. Such a focus is impossible in the cases wherein doping athletes are also addicted to AAS.

Much has been said about the volition of addicts; debates rage about how free the decision making of addicts is regarding their substance use (Charland, 2002; Elster, 1999; Hyman, 2007; Morse, 2006; Veins, 2007), but little has been decided. One indisputable observation is that addicts express a preoccupation with their drug of addiction that defies comprehension. AAS use is interesting because it has utility beyond the limbic system in that it enhances physiological outputs of strength, power, and muscular hypertrophy. An AAS addict could start out with a purely pragmatic interest in physiological enhancement, only to have usage transform over time into an addiction with a profound affective component. Cases of AAS-using athletes who have been detected wherein addiction was a factor are largely unknown, but they surely exist. What can be said about their intentions?

Through examination of the existing literature and further analysis herein, it has been established that for cheating to occur, the actor must have a purposeful intention to break a rule to his/her advantage. When distractions are introduced to that intent, such as unintentional acts that lack motivation or acts from ulterior motives (e.g. selfishness, desire for revenge, anger) that lack an advantage-seeking element, terming such behavior as cheating is mischaracterized. Typically, doping cases are precisely cases of cheating, in that athletes take outlawed substances or use illegal methods solely to obtain a performance advantage

over those who follow the prohibitions against such techniques.⁴ The intentions of athletes who dope and are accurately considered cheaters fall into line with the notion that they will do what it takes to overtake their opponents in terms of performance.

When addicted AAS use is introduced into the motivations of the doper, there is now a significant confounding factor in the singularity of the actor's motives. As the research has clearly stated, drug addiction directly affects the addict's freedoms in relation to drugs. The linguistic continuum ranges from the strong terminology of "compulsive use" (Charland, 2002, p. 40) to the milder "strong appetite" (Foddy & Savulescu, 2006, p. 9), but the overwhelming weight of evidence points to an atypically dependent relationship between addict and substance of addiction (Camí & Farré, 2003; Hyman, 2007). This atypical relationship is demonstrated, in part, by the persistent desire to quit taking the drug, a desire that actually enables continued addiction (Baumeister, Muraven & Tice, 2000; Lewis, 2011). When considering this kind of "need" to consume a drug as the motivation to take it, it crowds out the ability for the addicted doper to intend to take the drug for performance advantage.⁵ As advantage-seeking intentions are one of the essential elements of cheating, it can be concluded that the motives of an addicted AAS user are not synonymous with the motivations of a cheat and, as such, cannot be so labeled.

Conclusion

Green (2004) noted that in explicating how various disdainful actions are not *qua definition* cheating, they can still be morally objectionable acts and described as such. To refer to addicted AAS use as "not-cheating" is non-synonymous with suggesting that it is morally unproblematic. Given the apparent scope of the AAS addiction problem, it would seem that significant unfairness is occurring when addicts are considered cheats, when their intentions are dominated by something other than cheating.

Notes

1. In fact, WADA's records for 2012 indicate that anabolic agents constituted 2,279 adverse analytical findings versus 1,159 adverse findings for all other PEDs combined (WADA, 2012, p. 16).
2. While not without valid controversy (see Hyman & Malenka, 2001), in keeping with common scholarly practice on the matter, the terms addiction and dependence are used synonymously.
3. The author sees nothing that would reduce that percentage significantly over the intervening 14 years.
4. In keeping with the notion that a rule can be fairly excepted, WADA does allow for appeals based on the idea that an athlete had accidentally ingested the substance, and upon successful appeal, the athlete is addressed accordingly. WADA refers to it as the "specified substance" clause; see WADA (2013).
5. It could be said, as it could with all drugs, that initial use was voluntary, but in a state of addicted use, the user is not choosing to use and is certainly not in the same relationship with the drug as when he/she started using.

References

- Allnutt, S., & Chaimowitz, G. (1994). Anabolic steroid withdrawal depression: A case report. *The Canadian Journal of Psychiatry*, 39, 317–318.

- Andersen, A. E., & DiDomenico, L. (1992). Diet vs. shape content of popular male and female magazines: A dose-response relationship to the incidence of eating disorders? *International Journal of Eating Disorders*, *11*, 283–287.
- Baumeister, R. F., Muraven, M., & Tice, D. M. (2000). Ego depletion: A resource model of volition, self-regulation and controlled processing. *Social Cognition*, *18*(2), 130–150.
- Boyadjiev, N. P., Georgieva, K. N., Massaldjieva, R. I., & Gueorguiev, S. I. (2000). Reversible hypogonadism and azoospermia as a result of anabolic-androgenic steroid use in a bodybuilder with personality disorder. A case report. *Journal of Sports Medicine and Physical Fitness*, *40*, 271–274.
- Brower, K. J. (1997). Withdrawal from anabolic steroids. *Current Theory in Endocrinological Metabolism*, *6*, 338–343.
- Brower, K. J. (2002). Anabolic steroid abuse and dependence. *Current Psychiatry Reports*, *4*, 377–387.
- Brower, K. J. (2009). Anabolic steroid abuse and dependence in clinical practice. *The Physician and Sports Medicine*, *37*, 1–11.
- Brower, K. J., Blow, F. C., Young, J. P., & Hill, E. M. (1991). Symptoms and correlates of anabolic-androgenic steroid dependence. *British Journal of Addiction*, *86*, 759–768.
- Cafri, G., Thompson, J. K., Ricciardelli, L., McCabe, M., Smolak, L., & Yesalis, C. (2005). Pursuit of the muscular ideal: Physical and psychological consequences and putative risk factors. *Clinical Psychology Review*, *25*, 215–239.
- Camí, J., & Farré, M. (2003). Drug addiction. *New England Journal of Medicine*, *349*, 975–986.
- Canseco, J. (2005). *Juiced: Wild times, rampant 'roids, smash hits and how baseball got big*. New York, NY: Harper Collins.
- Charland, L. (2002). Cynthia's dilemma: Consenting to heroin prescription. *American Journal of Bioethics*, *2*(2), 37–47.
- Christie, J. (2012, April 12). Felicien aims for a new legacy. *The Globe and Mail*. Retrieved from <http://www.theglobeandmail.com/sports/olympics/felicien-aims-for-a-new-legacy/article4100467/?page=all>
- Chung, B. (2003). Muscle dysmorphia in weightlifters. *British Journal of Sports Medicine*, *37*, 280–281.
- Cole, J. C., Smith, R., Halford, J. C., & Wagstaff, G. F. (2003). A preliminary investigation into the relationship between anabolic-androgenic steroid use and the symptoms of reverse anorexia in both current and ex-users. *Psychopharmacology*, *166*, 424–429.
- Drewnowski, A., Kurth, C. L., & Krahn, D. D. (1995). Effects of body image on dieting, exercise, and anabolic steroid use in adolescent males. *International Journal of Eating Disorders*, *17*, 381–386.
- Dutra, L., Stathopoulou, G., Basden, S. L., Leyro, T. M., Powers, M. B., & Otto, M. W. (2008). A meta-analytic review of psychosocial interventions for substance use disorders. *American Journal of Psychiatry*, *165*, 179–187.
- Elster, J. (1999). *Strong feelings*. Boston, MA: MIT Press.
- Field, A. E., Camargo, C. A., & Taylor, C. B. (2001). Peer, parent, and media influences on the development of weight concerns and frequent dieting among preadolescent and adolescent girls and boys. *Pediatrics*, *107*, 54–60.
- Foddy, B., & Savulescu, J. (2006). Addiction and autonomy: Can addicted people consent to the prescription of their drug of addiction? *Bioethics*, *20*(1), 1–15.
- Forbes, G. B., Porta, C. R., & Herr, B. E. (1992). Sequence of changes in body composition induced by testosterone and reversal of changes after drug is stopped. *Journal of the American Medical Association*, *267*, 397–399.
- Fudala, P. J., Weinreb, R. M., & Calarco, J. S. (2003). An evaluation of anabolic-androgenic steroid users over a period of 1 year: Seven case studies. *Annals of Clinical Psychiatry*, *15*, 121–130.
- Goldstein, P. J. (1990). Anabolic steroids: An ethnographic approach. In G. Lin & L. Erinoff (Eds.), *Anabolic steroid use* (Research Monograph 102). Rockville, MD: U.S. Department of H.H.S. National Institute on Drug Abuse.
- Goodman, R. (2010). Cognitive enhancement, cheating, and accomplishment. *Kennedy Institute of Ethics Journal*, *20*(2), 145–160.

- Green, S. (2004). Cheating. *Law & Philosophy*, 23(2), 137–185.
- Hall, R. C. W., & Hall, R. C. W. (2005). Abuse of supraphysiologic doses of anabolic steroids. *Southern Medical Journal*, 98, 550–555.
- Hartgens, F., Van Marken Lichtenbelt, W., & Ebbing, S. (2004). Body composition and anthropometry in bodybuilders: Regional changes due to nandrolone decanoate administration. *International Journal of Medicine, Science, Sports and Exercise*, 38, 484–489.
- Hermans E. J., Putman, P., Baas, J. M., Gecks, N. M., Kenemans, J. L., & van Honk, J. (2007). Exogenous testosterone attenuates the integrated central stress response in healthy young women. *Psychoneuroendocrinology*, 32, 1052–1061.
- Hyman, S. (2007). The neurobiology of addiction: Implications for voluntary control of behaviour. *American Journal of Bioethics*, 7(1), 8–11.
- Hyman, S., & Malenka, R. (2001). Addiction and the brain: The neuroscience of compulsion and its persistence. *Neuroscience*, 2, 695–703.
- Kanayama, G., Barry, S., Hudson, J. I., & Pope Jr., H.G. (2006). Body image and attitudes toward male roles in anabolic–androgenic steroid users. *American Journal of Psychiatry*, 163, 697–703.
- Kanayama, G., Brower, K. J., Wood, R. I., Hudson, J. I., & Pope Jr., H. G. (2009). Anabolic-androgenic steroid dependence: An emerging disorder. *Addiction*, 104, 1966–1978.
- Kanayama, G., & Pope, H. G. (2013). Anabolic-androgenic steroid use and dependence. In P. M. Miller (Ed.), *Principles of addiction: Comprehensive addictive behaviours and disorders* (Vol. 1, pp. 743–753). London, England: Elsevier Academic.
- Kashkin, K. B., & Kleber, H. D. (1989). Hooked on hormones? An anabolic steroid addiction hypothesis. *Journal of the American Medical Association*, 262, 3166–3170.
- Kirkwood, K. W. (2012). Defensive doping: Is there a moral justification for “if you can’t beat ‘em—join ‘em?” *Journal of Sport and Social Issues*, 36, 223–228
- Leaman, O. (1981). Cheating and fair play in sport. In W. Morgan (Ed.), *Sport and the humanities: A collection of original essays* (pp. 25–30). Knoxville: University of Tennessee Bureau of Education and Research and Service.
- Lewis, M. (2011). *Memoirs of an addicted brain: A neuroscientist examines his former life on drugs*. Toronto, ON: Doubleday.
- Loland, S. (2002). *Fair play in sport: A moral norm system*. London, England: Routledge.
- Loland, S. (2005). The varieties of cheating—comments on ethical analyses in sport. *Sport in Society*, 8(1), 11–26.
- MacSween, M. (1993). *Anorexic bodies: A feminist and sociological perspective on anorexia nervosa*. London, England: Routledge.
- Malone Jr., D. A., & Dimeff, R. J. (1992). The use of fluoxetine in depression associated with anabolic steroid withdrawal: A case series. *Journal of Clinical Psychiatry*, 53, 130–132.
- Maté, G. (2009). *In the realm of hungry ghosts: Close encounters with addiction*. Toronto: Vintage.
- McGinnis, M., & Foege, W. H. (1999). Mortality and morbidity attributable to use of addictive substances in the United States. *Proceedings of the Association of American Physicians*, 111(2), 109–118.
- Meier, K. V. (1985). Restless sport. *Journal of the Philosophy of Sport*, XII, 64–77.
- Midgley, S. J., Heather, N., & Davies, J. B. (1999). Dependence-producing potential of anabolic-androgenic steroids. *Addiction Research*, 7, 539–550.
- Morgan, W. J. (2006). Fair is fair, or is it? *Sport and Society*, 9, 177–198.
- Morse, S. J. (2006). Addiction, genetics, and criminal responsibility. *Law & Contemporary Problems*, 69(1), 167–209.
- Olivardia, R. (2001). Mirror, mirror on the wall, who’s the largest of them all? The features and phenomenology of muscle dysmorphia. *Harvard Review of Psychiatry*, 9, 254–259.
- Patra J., Taylor, B., Rehm, J., Baliunas, D., & Popova, L. (2007). Substance attributable morbidity and mortality changes to Canada’s epidemiological profile: Measurable differences over a ten-year period. *Canadian Journal of Public Health*, 98, 228–234.

- Pope, C. G., Pope Jr., H. G., Menard, W., Fay, C., Olivardia, R., & Phillips, K. A. (2005). Clinical features of muscle dysmorphia among males with body dysmorphic disorder. *Body Image, 2*, 395–400.
- Pope, H., Phillips, K. A., & Olivardia, R. (2000). *The Adonis complex: The secret crisis of male body obsession*. New York, NY: Free.
- Rastegar, D. A., & Fingerhood, M. I. (2005). *Addiction medicine: An evidence-based handbook*. New York, NY: Lippincott Williams & Wilkins.
- Robinson, T., & Berridge, K. (2001). Incentive-sensitization and addiction. *Addiction, 96*, 103–114.
- Rosenblum, G. D., & Lewis, M. (1999). The relations among body image, physical attractiveness, and body mass in adolescence. *Child Development, 70*, 50–64.
- Schneider, A. J., & Butcher, R. B. (2000). A philosophical overview of the arguments on banning doping in sport. In T. Tännsjö & C. Tamburrini (Eds.), *Values in sport: Elitism, nationalism, gender equity and the scientific manufacture of winners* (pp. 185–199). New York, NY: E&F Spon.
- Schwerin, M. J., Corcoran, K. J., Fisher, L., Patterson, D., Askew, W., Olrich, T., & Shanks, S. (1996). Social physique anxiety, body esteem, and social anxiety in bodybuilders and self-reported anabolic steroid users. *Addictive Behaviours, 21*, 1–8.
- Skarberg, K., Nyberg, F., & Engstrom, I. (2009). Multisubstance use as a feature of addiction to anabolic-androgenic steroids. *European Addiction Research, 15*, 99–106.
- Spanagel, R., & Heilig, M. (2005). Addiction and its brain science. *Addiction, 100*, 1813–1822.
- Suits, B. (1967). What is a game? *Philosophy of Science, 34*(2), 148–156.
- Tennant, F., Black, D. L., & Voy, R. O. (1988). Anabolic steroid dependence with opioid-type features. *New England Journal of Medicine, 319*, 578.
- Tomkins, D., & Sellers, E. (2001). Addiction and the brain: The role of neurotransmitters in the cause and treatment of drug dependence. *Canadian Medical Association Journal, 164*, 817–821.
- Upton, H. (2011). Can there be a moral duty to cheat in sport? *Sport, Ethics and Philosophy, 5*(2), 161–174.
- van Honk, J., Schutter, D. J., Hermans, E. J., Putman, P., Tuiten, A., & Koppeschaar, H. (2004). Testosterone shifts the balance between sensitivity for punishment and reward in healthy young women. *Psychoneuroendocrinology, 29*, 937–943.
- Viens, A. M. (2007). Addiction, responsibility and moral psychology. *American Journal of Bioethics, 7*(1), 17–19.
- Volkow, N., & Li, T.-K. (2004). Drug addiction: The neurobiology of behaviour gone awry. *Neuroscience, 5*, 963–970.
- Wertz, S. K. (1981). The varieties of cheating. *Journal of the Philosophy of Sport, VIII*, 19–40.
- Wood, R. I. (2004). Reinforcing aspects of androgens. *Physiology & Behavior, 83*, 279–289.
- World Anti-Doping Agency (WADA). (2012). *2012 anti-doping testing figures report*. Montreal, QC: Author.
- World Anti-Doping Agency (WADA). (2013). *Questions and answers on the 2013 prohibited list*. Retrieved from <http://www.wada-ama.org/en/World-Anti-Doping-Program/Sports-and-Anti-Doping-Organizations/International-Standards/Prohibited-List/QA-on-2013-Prohibited-List/>
- World Anti-Doping Agency (WADA). (2014). *International standard for therapeutic use exemptions*. Montreal, QC: Author.
- World Health Organization. (2012). *World drug report 2012*. New York, NY: Author.