

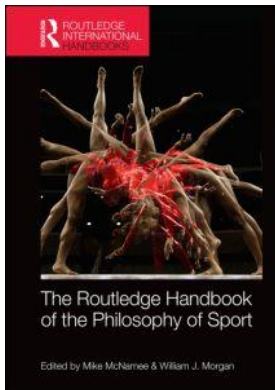
This article was downloaded by: 10.2.97.136

On: 07 Jun 2023

Access details: *subscription number*

Publisher: *Routledge*

Informa Ltd Registered in England and Wales Registered Number: 1072954 Registered office: 5 Howick Place, London SW1P 1WG, UK



Routledge Handbook of the Philosophy of Sport

Mike McNamee, William J. Morgan

Doping and Anti-Doping

Publication details

<https://test.routledgehandbooks.com/doi/10.4324/9780203466261.ch21>

Thomas H. Murray

Published online on: 27 Mar 2015

How to cite :- Thomas H. Murray. 27 Mar 2015, *Doping and Anti-Doping from:* Routledge Handbook of the Philosophy of Sport Routledge

Accessed on: 07 Jun 2023

<https://test.routledgehandbooks.com/doi/10.4324/9780203466261.ch21>

PLEASE SCROLL DOWN FOR DOCUMENT

Full terms and conditions of use: <https://test.routledgehandbooks.com/legal-notices/terms>

This Document PDF may be used for research, teaching and private study purposes. Any substantial or systematic reproductions, re-distribution, re-selling, loan or sub-licensing, systematic supply or distribution in any form to anyone is expressly forbidden.

The publisher does not give any warranty express or implied or make any representation that the contents will be complete or accurate or up to date. The publisher shall not be liable for an loss, actions, claims, proceedings, demand or costs or damages whatsoever or howsoever caused arising directly or indirectly in connection with or arising out of the use of this material.

DOPING AND ANTI-DOPING

An inquiry into the meaning of sport

Thomas H. Murray

In the *New York Times* of 7 April 1901 appeared an article under the title “‘Dope’ An American Term.” The article noted that the word “is used most frequently as a term which implies impropriety, or at least the use of methods that do not come strictly within the provision of the rules.” The rules referred to are those of horse racing; the practice of doping horses with the intent of boosting performance was said to be at least a decade old by then. English racing fans – and bettors – worried that American “touts” were controlling the outcomes of races with “dope” – “a mysterious something that made slow horses fast and cowardly horses brave.”

A character known as “Doc” Ring, who frequented the New Jersey winter tracks, offered injections reportedly composed of nitroglycerin, cocaine, carbolic acid, and rose water. The “Doc” refused direct payment but had the owner place a bet on the horse in his name. When the horse won, he profited. When horses began showing permanent damage in the form of decayed bone and fractures, strychnine, capsicum, ginger, and other items, were substituted for the nitroglycerin. By the time the article was published, leading American racetracks were dispatching officials to watch over horses to deter doping. Whatever impact doping had on the horses, gamblers and bookmakers did not want to give up an advantage to someone who might have the “inside dope.”

Human athletes, as far back as the Greek Olympics, are said to have employed potions in the belief that their performance would be improved. By 1904, the era of the *Times* article, an Olympic competitor had won the marathon using raw eggs, brandy and strychnine injections. According to the World Anti-Doping Agency’s (WADA; 2014) brief history of doping, concern over stimulant use by athletes led the International Association of Athletics Federations (IAAF) – the international federation governing track and field events – to ban them in 1928. Synthetic hormones were making an impact on sport by the 1950s. In 1968, the International Olympic Committee (IOC) followed the lead of some international federations and instituted testing at both the Winter and Summer Games (World Anti-Doping Agency 2014).

Doping scandals since then are too numerous to list. Noteworthy incidents include the state-sponsored, scientifically administered programs of the German Democratic Republic, together with many allegations of positive tests covered up in multiple sports and nations. Among the most dramatic recent events were the repeated vehement denials by cyclist Lance Armstrong that he had ever engaged in doping, his denunciations of his critics, followed by the US Anti-Doping Agency’s “Reasoned Decision,” which laid out in detail Armstrong’s

deceptions and the intense pressures placed on his fellow cyclists to go along with the doping program he had organized (United States Anti-Doping Agency 2012). He eventually confessed, but many of his supporters felt betrayed and added their voices to those who had long been suspicious of him. Critics decried his ruthless treatment of those who had earlier threatened to expose him.

Not everyone agrees that Armstrong's use of erythropoietin (EPO), human growth hormone and other drugs, together with blood transfusions, was wrong. The author Malcolm Gladwell (2013), long a skeptic of anti-doping, wrote sympathetically of Armstrong, describing a "vision of sports in which the object of competition is to use science, intelligence, and sheer will to conquer natural difference." If doping is merely another application of science meant to maximize human performance, why should it be prohibited and its practitioners publicly shamed? Should athletes who submit themselves to transfusions, injections and hormonal manipulations be admired for their discipline and their willingness to accept the risks that follow?

The aim of this chapter is to illuminate the ethics of doping in sport by examining the principal arguments on either side of the doping debate. Anti-doping critics accuse it of a multitude of sins from conceptual confusion in its very foundations to morally unjustifiable paternalism to tactical missteps. The list of complaints is long and varied enough that critics do not always agree with one another or, on occasion, with themselves. Careful reading reveals a range of attitudes among anti-doping critics toward biomedical technologies in sport ranging from wary acceptance (typically, of those presumed not to endanger health) to warm embrace (of the sort exemplified by transhumanism).

On the other side, the primary arguments against doping in sport, and in favor of anti-doping strategies, fall into three main categories: to promote fairness, to protect health (or, alternatively, to prevent harm), and to preserve meaning.

Dictionary definitions of doping vary, but this chapter follows the lead of doping critics who often target the WADA, the organization charged by the IOC and other major sport organizations with updating the list of banned biomedical technologies. WADA's official definition of doping is in its Code, and is, not surprisingly, framed in language meant to be unambiguous and able to withstand the scrutiny of attorneys defending athletes accused of doping.

Article One of the Code provides the operational definition of doping: "Doping is defined as the occurrence of one or more of the anti-rule violations set forth in Article 2.1 through Article 2.10 of the Code" (World Anti-Doping Agency 2015). The violations listed include finding evidence of a prohibited substance in an athlete's sample, use or attempted use of a prohibited substance or method, refusing or evading sample collection, and avoiding out-of-competition tests by, for example, not letting the testing agency know where you will be. Other violations include tampering with samples, possessing, trafficking in, administering, or covering up evidence of prohibited substances or methods. Added to the list of violations in the revised Code for 2015 are complicity and prohibited association.

On what grounds is doping morally suspect? The current version of the revised Code includes an expanded account:

Anti-doping programs seek to preserve what is intrinsically valuable about sport. This intrinsic value is often referred to as "the spirit of sport." It is the essence of Olympism, the pursuit of human excellence through the dedicated perfection of each person's natural talents. It is how we play true. The spirit of sport is the celebration of the human spirit, body and mind, and is reflected in values we find in and through sport.

(World Anti-Doping Agency 2015)

Cynics may find this somewhat nebulous and excessively idealistic; and there is much to be cynical about the way elite sport is too often conducted. Individual athletes may be manipulated, exploited or exposed to excessive risks. People may use their association with athletes to enhance their reputation or their bank accounts. The expression “five-ring fever” has been used to describe the powerful desire for association with the Olympic movement. Cynicism, however, can become an excuse for not taking seriously whatever important values sports can serve. In any event, by this point it should be clear that any plausible definition of doping in sport: (1) will be implicated in some manner with technologies intended to enhance performance that sport has declared off limits; and (2) will require specification of *which* technologies to prohibit and *which* to permit. The definitional problem raises a complex issue in practical moral reasoning that must rely on two foundations. First, it must have a sophisticated appreciation of the practical realities that shape sport, including the pressures under which athletes function. Second, it should have a robust account of the values and meanings people find in and through sport sufficient to provide reasons to prohibit certain enhancement technologies but permit others. Let’s see what the critics have to say.

Pro-doping and anti-anti-doping

The rather odd title to this section captures an important distinction in the criticisms of anti-doping programs. Some criticisms assume or assert directly that doping is either potentially a good thing in itself or, at least, not morally objectionable. We may call these the “pro-doping” arguments. At times the argument may concede morally problematic features to doping but then claim that similar features are common and routinely tolerated in sports. Many such arguments can be translated into the form “Doping is no different from ...” followed by “Doping is therefore no worse than ...”

The “anti-anti-doping” arguments on the other hand either concede that doping is morally objectionable or remain agnostic on that point (McNamee 2008a). Instead, they typically focus on the problems encountered in designing and executing anti-doping programs. They may focus on the rights and privacy of athletes, on costs, on the difficulty of catching those who flaunt the rules against doping, and on possible injustices in detection, adjudication and sanctions. It is not uncommon to find several of these arguments cobbled together in a single broadside against sports’ efforts to curtail doping. Indeed, although one can find nearly pure examples of the pro-doping position, in many cases, the pro-doping and anti-anti-doping arguments are piled upon one another in the manner of throwing mud against the wall in the hope that something might stick.

A thought experiment clarifies the distinction between the pro-doping and the anti-anti-doping positions. Imagine a simple, cheap and foolproof method for determining whether an athlete had used a banned performance-enhancing technology. It detected all such uses without falsely implicating athletes who had not used them. And it did so without invading athletes’ privacy or bodily integrity or causing notable inconvenience. This is at present a fiction, of course. If it ever came to pass, though, the anti-anti-doping arguments would lose their force, as they are premised on the burdens and fallibility of current anti-doping systems. Such arguments often rely on claims that athletes’ rights are being infringed or that the consequences of anti-doping programs are negative on the whole. Pro-doping arguments, on the other hand, deny that there is anything wrong with doping; some celebrate it as a positive expression of individual liberty, of the human use of technology, or of a particular idea about the meaning of sport. They are not contingent on the alleged ethical or practical flaws with anti-doping programs, as are the anti-anti-doping arguments now to be considered.

Anti-anti doping

The practical difficulties and expense of organizing anti-doping programs have drawn abundant criticisms. The current system includes testing of athletes, laboratory analysis, adjudication, appeals, and sanctions. In recent years, a modest amount of funding has gone for research to, for example, improve laboratory techniques, anticipate new forms of biomedical enhancement, and understand athletes' experience of and attitudes toward doping. These activities require an administrative structure as well as a governance regime, both of which add further expense. Critics have suggested these resources could be used more productively in other ways, though the work of specifying in detail how such alternatives might function and what they would cost has not been done.

Critics of current anti-doping programs, the anti-doping lobby, face an important choice (McNamee 2008a). Either they do away with all efforts to prohibit all forms of doping, or they must draw a new line in a different place with different criteria. If all anti-doping programs are abandoned, then the expenses directly incurred by such programs will evaporate. Other kinds of expenses, however, may remain such as medical costs associated with the management and treatment of athletes using doping technologies. If, on the other hand, some forms of doping continue to be prohibited, many costs are likely to remain including administration, governance, research, adjudication and sanction enforcement. Whether testing remains will depend on the design of the particular program. Here again, we have few details.

The complaints are many and various; they cover the ground from the overall cost and effectiveness of doping control efforts, to concerns about athletes' privacy and a less than perfect system of adjudication, to proposals for reconceiving the goals of anti-doping as harm prevention and conceptual ambiguities that are said to make anti-doping incoherent.

Cost and effectiveness

Anti-doping tactics, particularly those requiring the collection and analysis of biological materials such as urine or blood from athletes, incur costs. Critics argue that the resources could be more usefully employed elsewhere (Kayser *et al.* 2005, 2007). Testing may be a deterrent but it is far from universally effective at detecting athletes who dope as the "Reasoned Decision" released by the United States Anti-Doping Agency (USADA; 2013) made abundantly clear. Lance Armstrong and his supporting riders used a variety of doping methods and successfully, for the most part, avoided testing positive. It is worth noting that many riders, including Armstrong himself in later interviews, regarded the system of ongoing monitoring known as the athlete biological passport to be a far more effective deterrent than testing for specific drugs or other doping technologies. Whether "gene doping," which can entail the modification of genes or of gene expression, would be detectable by current or future testing methods is at this time uncertain. In any case, anti-doping authorities now use a much wider set of strategies to deter doping. Armstrong himself was undone not by a positive test, but rather by overwhelming "non-analytical" evidence of his leadership of a sophisticated doping program.

The monetary cost of anti-doping programs should be seen in context. Professional, Olympic and other elite sports bring in huge amounts of money; anti-doping programs are small change in comparison. To the extent that anti-doping programs succeed at discouraging doping, there may also be savings in resources that would otherwise have to be used to deal with negative health effects caused by doping, though here some critics argue that the risks of doping are greatly exaggerated (López 2013). In any case, anti-doping does have an obligation to be attentive to its cost-effectiveness.

Privacy

Athletes asked to provide a urine sample to a doping control officer must endure “observed voiding” – that is, having someone watch as you urinate. Because many of the most potent drugs athletes use, such as anabolic steroids and EPO, are taken during training periods rather than immediately prior to competing, anti-doping programs have developed protocols for out-of-competition testing. The first challenge in testing athletes while they train is knowing where to find them. “Whereabouts” programs, which require athletes to inform anti-doping agencies where they will be for at least a part of each day, like observed voiding, are incursions on privacy. How serious an incursion, what athletes think about them, and whether the benefits justify the intrusion, are important matters.

Observed voiding does not appear to be the subject of widespread public complaints. Perhaps elite athletes become so accustomed to having other people measure, observe and manipulate their bodies that the doping control officer’s gaze seems a routine part of an athlete’s life. Perhaps also, athletes are familiar enough with the ingenious modes of evasion other athletes have employed including fake penises and purchased bags of “clean” urine that they acknowledge the need for such intimate observations.

Whereabouts reporting, however, has elicited much criticism. Kreft (2011) argues that whereabouts systems violate human rights and are intended to “safeguard the clean trademark of the sport business” by strengthening “the grip of business over labour: even when you are a star of the first rank, you have to know who is really in charge” (p. 160). Kreft dismisses athletes’ support for whereabouts reporting, arguing that they have no choice if they desire to participate in elite sport. Studies assessing athletes’ opinions, however, paint a more nuanced picture. Focus groups of Canadian and US athletes found unanimous support for out-of-competition testing, and for the testing to be “more stealth, less formulaic, more comprehensive (to include blood tests for example), and less predictable” to make it more difficult to avoid detection (Johnson *et al.* 2013, p. 13). The same study included a finding of special interest to readers of this handbook: “One participant even suggested having access to an on-call expert that the athletes could talk with about perfunctory and philosophical questions alike” (p. 12). A survey of Danish athletes (Overbye and Wagner 2013) revealed a mostly begrudging acceptance of whereabouts reporting. Some respondents even saw it as a complimentary acknowledgement of their elite status. But they also complained of its impact on their lives, the time it consumed, the feeling of surveillance, the fear of a warning, and reducing the joy they otherwise find in sport. Rather than blithely ignoring athletes’ complaints, or discounting their reasons for tolerating something they both dislike and find necessary, we should pay attention to athletes’ voices (Hanstad and Loland 2009).

Injustices

Justice should be a priority for all institutions, certainly for anti-doping whose mission is to foster fair competition. Like all human institutions, the pursuit of justice in anti-doping is an aspiration imperfectly fulfilled. In a recent plea for relaxing doping controls, the authors opened with the case of Michael Rasmussen, a prominent Danish cyclist who was kicked out of the Tour de France, they say, “on an allegation of doping (without evidence)” (Savulescu and Foddy 2011, p. 304). In January 2013, Rasmussen appeared at a press conference where he admitted to doping from 1998 until 2010, using EPO, growth hormone, testosterone, dehydroepiandrosterone (DHEA), insulin, insulin-like growth factor-1, cortisone and blood transfusions.

The forms of injustice of which anti-doping can be accused include treating like cases differently (for example, different sanctions for similar offenses), or treating different cases similarly (for example, leveling the same sanctions for inadvertent and intentional violations). Anti-doping codes generally attempt to accommodate the distinction between intentional and inadvertent use, but they also typically presume that athletes are responsible for whatever is found in their bodies. This is a rebuttable presumption, but the burden of proof that the use was unintentional falls on the athlete in whose body the prohibited substance was discovered. Lance Armstrong complained vociferously that his lifetime sanction is unfair because both teammates and competitors also doped and got off with suspensions of as little as six months. USADA (2012), the agency administering the sanctions, claims that he was both ringleader and enforcer of a highly sophisticated doping program, and that unlike others, he refused to cooperate in the investigation (USADA 2012). The adjudication and appeals process has been criticized for its standard of evidence (less than that required in a criminal proceeding) among other aspects.

The most common form of injustice in anti-doping is the failure to catch and sanction athletes who dope. This is both a defect and a design feature. Anti-doping agencies strive to avoid punishing athletes who have *not* violated anti-doping rules. Historically, they have set criteria and established procedures calibrated to insure that only genuine rule violators are sanctioned. As an entirely predictable consequence, an unknown number of violators escape detection. It is likely that those escaping detection far exceed the number caught each year.

Harm prevention as goal

One suggestion for how to respond to athlete's use of drugs such as steroids is to employ harm-reduction strategies such as needle exchange programs that have diminished disease transmission among heroin users. Kayser and Smith (2008, p. 87) proposed "making legal the use of drugs associated with low harm and testing health rather than testing for drugs." They argue that more athletes would use performance-enhancing drugs if they were legal and safe, and that this would make the playing field level. Holm (2007), from a game-theoretic perspective, argues that doping under medical control is very unlikely to have the benign impact its proponents describe.

Their proposal encounters practical and conceptual difficulties. First, what criteria will be used to decide which drugs are safe? EPO, the drug of choice for endurance athletes, carries a "black box" warning because of evidence that it increases the risk of death, stroke, heart attack, and blood clots in patients with kidney failure as well as more rapid tumor growth in patients with head and neck cancers (US Food and Drug Administration 2011). Anabolic steroids have a long history in sport, accompanied by a controversy over their impact on health with some commentators suggesting steroids' risks have been exaggerated (Hoffman and Ratamess 2006). Other scholars conclude that the risks are real (Sjoqvist *et al.* 2008).

Second, the focus on harm reduction appears to presuppose that the only valid grounds for opposing the use of performance enhancing drugs in sport is risk to health. Protecting health is certainly one reason for concern over drug use by athletes. But it is not the only objection. And their proposal does not, in any event, reduce the risk of harm, which becomes clear once we understand the contrast in the dynamics of drug addiction versus drugs in sport.

For one thing, making drugs legal and available to all athletes will surely increase population exposure to whatever drugs fall under the "harm-reduction" umbrella. If the drugs are truly harmless, and – another big "if" – if athletes do not take the "safe" drugs in higher dosages or in contraindicated combinations, or add other, unapproved drugs to the mix, then perhaps

the proposal might reduce harm. But there are many reasons to be skeptical such a benign scenario will unfold.

The harm-reduction proposal rests on a fatally flawed analogy. Heroin users do not compete with each other to see who can get “higher.” But that is precisely what athletes do. If particular drugs that enhance performance are permitted, they will instantly become the new minimum for any athlete who hopes to be competitive. And not all athletes will stop there. The same dynamics that drive some athletes to use banned performance-enhancing technologies will continue (Murray 1983). We can expect athletes to use dosages far in excess of the approved “safe” level and to combine “safe” drugs with banned ones in the continuing search for a competitive edge.

Conceptual ambiguities

Quite early in the debate over drugs in sports appeared the argument that no coherent distinction could be drawn between accepted practices to enhance performance and technologies that were banned (Brown 1980). Foster argued that the distinction between “additive” and “restorative” drugs was untenable; he advanced a similar claim about the distinction between drugs and food (Foster 1986). Many anti-doping arguments adopt a similar strategy, describing a continuum of technologies affecting performance and arguing that at no place along this continuum can a conceptually coherent line be drawn.

This is a curious argument to make about sports, which continually draw lines along continua. Why is the goal in football (known in the United States as soccer) 8 feet (2.44 metres) tall and 24 feet (7.32 metres) wide? Why is the width not 48 feet (14.6 metres)? Surely that would lead to more scoring. When I suggested this change to a group of European scholars, they reacted in horror. Widening the net would diminish the goalkeeper’s ability to block shots. It would make scoring much easier, as no goalkeeper could guard such a massive target. The goalkeeper’s talents would effectively be nullified, kickers could be much less accurate and still score; the tension between the goalkeeper’s athleticism and strategic savvy, and the striker’s quickness, deceptiveness, and accuracy would dissipate. Now, if the goal were one-quarter of an inch (0.635 cm) wider or narrower, the game of football would not be radically altered. In order to have matches that display and reward the honed talents of would-be goal scorers and goal keepers, a line needed to be drawn somewhere along the continuum. It did not have to be at precisely 24 feet, but that distance works well for adults. Smaller goals are used for younger ages, for the same reason. To put the point more generally, sports must draw lines along a continuum in order to have meaningful play; all such lines must find their justification in the values and meanings that particular sport embraces. Baseball is especially proud of the continuity of its rules. Perhaps the most arbitrary measure in any sport is the distance between the pitcher’s rubber and home plate: 60 feet, 6 inches (18.44 metres). Its origin lies in the early days of baseball as its rules were consolidated. It survives for the same reason football nets are 24 feet wide: it preserves the tension, in this case between pitcher and batter, that allows the display of athletic talents. When pitchers began to dominate in the 1960s, baseball responded not by increasing the distance to home plate but instead by lowering the height of the pitcher’s mound from 15 inches (38.1 cm) to 10 (25.4 cm) inches. The aim was to restore the creative tension central to the game. Line drawing in sport may be “arbitrary” in the innocent sense that any particular line might have been drawn a bit to one side or the other without undermining the meaning of the sport. But when lines are drawn wisely, they are not “arbitrary” in any morally disreputable sense. Indeed, drawing lines to preserve meaning is an indispensable component of sport.

At times, new strategies, new types of players, or new technologies challenge where a sport has drawn its lines. Not surprisingly, as line drawing along continua is inherently challenging, it can be quite difficult to do it to everyone's satisfaction. Savulescu and Foddy (2011) compared technologies used to enhance endurance. Hypoxic chambers are not banned, while using EPO is prohibited, yet both increase the number of circulating red blood cells and both can enhance endurance.

Hypoxic chambers pose a hard case for defenders of anti-doping. What could justify treating them differently from drugs such as EPO? Loland and Hoppeler (2012) begin their defense of such differential treatment by noting that EPO bypasses the body's evolutionarily determined adaptations to the demands placed on it by training; instead, it directly manipulates certain physiological parameters. They describe EPO as a "short cut" that "trespasses, often in harmful ways, human phenotypic plasticity" (p. 352). They argue that "short cut" technologies nudge the locus of responsibility for improving performance towards experts and away from athletes. A core of their larger argument hinges on values and the meaning, or spirit, of sport: "The use of prohibited substances and methods overruns natural talent, reduces athletes' possibilities of developing sporting excellence as human excellence in virtuous ways, and contradicts the spirit of sport" (p. 352).

Ideas about values and the meaning of sport are important in understanding many, though not, all, of the criticisms from the anti-anti-doping camp. In the case of pro-doping advocates, the debate over values and meanings is all the more central.

Pro-doping

Pro-doping arguments fall into three categories: libertarian; transhumanist; and doping as a means to restore fairness to the genetic lottery that is sport. The libertarian strain appeared quite early in the debate (Fost 1986). As applied to sport, though, libertarianism seems particularly inapt. Its moral force rests most comfortably on purely self-regarding actions. But the use of performance-enhancing drugs in intensely competitive environments is profoundly other-regarding. My advantage is your disadvantage. Exercising my liberty can have a direct and disadvantageous impact on you. The response of an anonymous former elite athlete echoes the feelings of uncountable others facing competitors who doped:

the syringes came out and I just felt at that stage very vulnerable and eh, I didn't feel that I could really mentally ... that if I hadn't succumbed to it then, I didn't feel I'd actually be able to race that day.

(Kirby et al. 2011, p. 213)

The libertarian argument fails to take into account the structure and dynamics of competitive sport, but it does not directly engage disagreements about values and meaning in sport quite the way the next two arguments do. Look first at transhumanist views of enhancement and sport.

Miah urges us to "celebrate the rise of a new age of genuinely superhuman athletes" in which we:

recognize that what's important within sports is the degree to which athletes are competing on a level playing field, where everyone is free to choose the enhancements that best accentuate their performance. That is what the natural athlete should look like today.

(Miah 2008)

This “natural” athlete, he proposes, could have surgically enhanced webbing between his fingers and toes, with genetic enhancement just around the corner. Miah predicts that current policies toward enhancement in sport are doomed to collapse: “As human enhancements become a constitutive element of broader social circumstances – and as enhanced adults give birth to similarly enhanced children – the concept of enhancement and of the natural human will become even more difficult to sustain” (Miah 2006, p. 318).

Optimism about technology and human enhancement is a core component of this world view. But it also incorporates ideas about meanings and values in sport. Miah asserts that we do not know what we want from sport, but then proceeds to tell us that we want world record breaking, extraordinary, superhuman athletes, and that enhancements will make the playing field both more level and more entertaining. Consider the following account of values in sport, in particular, what values should determine who wins:

Far from being against the spirit of sport, biological manipulation embodies the human spirit – the capacity to improve ourselves on the basis of reason and judgment. When we exercise our reason, we do what only humans do ... Sport would be less of a genetic lottery. The winner will be the person with a combination of the genetic potential, training, psychology, and judgment.

(Savulesu et al. 2004, p. 667)

And, presumably, the best biomedical enhancements. Or, from the same article, this view of the meaning of sport: “in many ways the athletic ideal of modern athletes is inspired by the myth of the marathon. Their ideal is superhuman performance, at any cost” (p. 666). Tamburrini seems to agree:

professional sport is now driven by a desire to expand the boundaries of what hitherto was considered to be humanly possible, even by jeopardizing one’s own health ... Banned doping substances and techniques are therefore obviously in accordance with the ‘spirit’ of today’s crudely competitive, highly technified sports world, as they have everything to do with the essential purpose of the athletic contest: to expand the limits of our capacities.

(Tamburrini 2006, p. 203)

Ideas like these are helpful in locating the underlying sources of disagreement over doping. If, as these and other authors argue, the meaning of sport is superhuman performance, then what makes us merely human is an obstacle to be overcome. And, because humans can choose to use technology to extend our powers in other spheres, employing biomedical enhancements in sport is simply an extension of our humanity.

Some suggest that biomedical enhancements are a legitimate means for correcting sport’s moral defects, in particular, how sport favors natural, unearned talents. Tännsjö describes this point of view:

It seems to be part of the ethos of sport that the winner of the genetic lottery, the person who, genetically speaking, is most fit, should also be the winner of the competition. This (Nietzschean) notion of justice or fairness is very different from, and even opposite to, the (more civilised) one we rely on in other contexts ... in sport we should allow that people level out their inborn differences. We should allow all sorts of (safe) medical and genetic methods of enhancement of athletes. This would pave

the way for more exciting competitions and for the possibility that anyone who wants to do so can take part in them on equal terms. And at last we would come to grips with the problem of elitism in sport.

(Tännsjö 2005)

On this view, a person's unearned natural talents are a source of elitism and injustice in sport, and doping a possible way of leveling the playing field. Tamburrini predicts:

as genetic modifications probably will level out differences in performance capacity established by birth, athletes' initial conditions will be more equal than they are at present. Thus ... sport competitions will probably turn out to be fairer ... there will be more room for morality in this enhanced new (sport) world.

(Tamburrini 2007, p. 234)

The accusation that advantages provided by natural talents are unfair is a curious one for academics to make. Presumably, their institutions select the brightest faculty and students. To the extent that intellect, curiosity, and drive are either inherited or imbued through favorable environments and upbringing, those talents are likewise unearned; therefore, hiring faculty or selecting students is to that extent unfair. One fruitful approach for thinking about unfairness is to do as Walzer advises: by asking what goods are being distributed according to what principles in that particular sphere of human endeavor (Walzer 1983).

We could also turn to John Rawls, who used sports as a metaphor to explain how his theory of justice deals with unearned advantages. It does not rely on the principle of redress:

This is the principle that underserved inequalities call for redress; and because inequalities of birth and natural endowment are undeserved, these inequalities are to be somehow compensated for ... [but] the difference principle is not of course the principle of redress. It does not require society to try to even out handicaps as if all were expected to compete on a fair basis in the same race.

(Rawls 1999, p. 86)

The difference principle takes the unequal distribution of natural talents as a "common asset." Individuals "favored by nature" may benefit from their "good fortune" when "the basic structure can be arranged so that these contingencies work for the good of the least fortunate" (Rawls 1999, p. 87). Justice does not require that everyone be equally talented in all respects. But it does require attentiveness to the basic structures of society.

Rawls also provides a model in his fundamental approach, which endeavors to identify a framework of value implicit in a sphere of human endeavor and then to determine what the moral nature of persons must be in order for them to find value in such a sphere. In his work on justice this is a political conception, an account of our moral nature relevant to our role as citizens in a constitutional democracy. It is likewise possible to develop an account of a person's moral nature relevant to her or his role as a participant in sports (Murray and Murray 2011). Such an account requires identifying a framework of value implicit in sport. This cannot be accomplished simply by declaring what one believes sport is really all about. Rather, it requires an approach much like Rawls' reflective equilibrium, which embraces facts and arguments as well as moral observations and theories (Daniels 2013).

Good facts and enhanced scholarship on doping in sport

More than 30 years ago, philosophical scholarship in bioethics looked somewhat like contemporary work in philosophy of sport on doping. A rough distinction useful then might be helpful to current debates. To put it simply, some scholars used the issues in medical or bioethics as an opportunity to flex their philosophical muscles by, for example, exploring how a particular theoretical stance might be applied to a problem such as informed consent in research, the patient-physician relationship, or decisions at the end of life. This approach has been described as “top-down” bioethics (Murray 1987). However interesting philosophers may have found such work, it often failed to impress people faced with difficult practical decisions in the clinic or laboratory. A good part of the problem was the lack of understanding of the complex realities people faced. Context was a key to wisdom. A good way to consign one’s scholarship to irrelevance was to get the facts wrong or fail to include centrally relevant realities.

An alternative approach appeared quite early in bioethics epitomized by the Hastings Center. It stressed interdisciplinary collaboration; a commitment to getting the facts right and attending to context; clear writing accessible to all with a minimum of specialist jargon; and a genuine engagement with difficult, complex problems intended not so much to display cleverness or erudition as to provide help to patients and research subjects, clinicians and researchers, and policy makers.

The debate over doping in sport is far more than a theoretical exercise. As a problem in practical ethics that affects not merely elite athletes but the many millions of people of all ages who participate in sport it deserves respectful consideration, including a firm grounding in facts wherever and whenever relevant.

At times the facts are about science or medicine. Atry *et al.* (2011) issued a call for less hype and more sophisticated discussions of the underlying science of gene doping; such discussions are too often simplistic and reductionist. Where credible, unbiased reviews are available on, for example, the risks of anabolic steroids or EPO, they should be favored over isolated studies that favor the author’s point of view.

Athletes’ lives and attitudes are referred to frequently. There is a growing empirical literature shedding light on how athletes experience and respond to doping. Boardly and Grix (2013) found that bodybuilders excused their use of performance-enhancing drugs on the grounds that they were *not* competing and therefore doing no harm to others. These bodybuilders understood that doping in a competitive setting is not, despite some scholars’ claim, a “victimless” activity (Savulescu and Foddy 2011).

Lentillon-Kaestner *et al.* (2011) interviewed professional and aspiring professional cyclists who describe team physicians organizing and endorsing doping programs, sometimes lying, telling them they were taking vitamins rather than anabolic steroids and corticosteroids. The authors conclude: “as long as some cyclists take these substances, doping will be perceived, at the elite level, as essential to be able to keep pace with race leaders and to protect cyclists’ health” (p. 8). That athletes see at least some of the banned drugs they use as protecting their health is a perception anti-doping agencies must take seriously.

Kirby *et al.* (2011) conducted intensive interviews with five athletes who had previously admitted to doping, guaranteeing them anonymity within the study. Several themes stood out. One cyclist described what happens when competitors are using effective performance-enhancing technologies:

I got tired of being left behind and not riding at the ability that I know I am capable of on a level playing field ... I had a certain place in the peloton, and you know, over

the years I had lost that and it was not because of a lack of training and my physical talents.

(Kirby et al. 2011, p. 212)

Interviewees faulted their sport's governing body for failing to address doping. They stressed transparency and fairness, and welcomed extending sanctions to non-athletes who enable or foster doping.

Bloodworth and McNamee (2010) report on focus groups conducted among elite, mostly young, athletes in the UK. On the whole, these athletes strongly opposed doping citing health and inauthenticity as reasons. The authors note the importance of social sanctions and anticipated shame in shaping the athletes' attitudes to doping. A survey of elite Norwegian athletes revealed that they made a sharp distinction between vitamins and minerals on the one hand, and EPO, steroids and amphetamines on the other. Hypoxic chambers occupied an intermediate zone of acceptability. Interestingly, athletes were even more dismissive of EPO, steroids and amphetamines than the general public (Breivik *et al.* 2009). Surveys of the Swiss population and top-tier Swiss athletes showed growing awareness of doping and strong support for strict prohibitions and sanctions along with education and information programs (Stamm *et al.* 2008). Focus groups of promising young North American female triathletes found consensus that the biggest problem with doping was the unfair advantage it provided over athletes who did not dope. One athlete said that when doping is prevalent, "you get to the point where you have athletes on complete steroids, or whatever, just doing everything they can to win, killing their bodies to win. And then the sport isn't what it's meant to be like" (Johnson *et al.* 2013, p. 6). This study also found unanimous support for blood testing and out-of-competition testing.

Beyond the scholarly literature is a wealth of information on athletes' beliefs and attitudes. David Millar, a prominent professional cyclist who confessed to doping, told an interviewer: "It got to a point where it was almost easier for me to dope than not to," he says, pain clouding his face.

Psychologically I just gave in, I couldn't fight it any more, it seemed like such a lost cause. No one seemed to care: not the team bosses or heads of the sport. Even the media seemed naive and blind to it all. So many things built to that point. It was an accumulation of little things, a deterioration of character and my ethical standards.

(Swarbrick 2011)

Scholars should likewise be cautious in offering generalizations as to how people feel now or will feel about doping in sport. Tamburrini (2006), for example expresses confidence that "the direction in which sport is evolving at present suggests the public will increasingly accept doping" (p. 206). At present, evidence from surveys of the public show no such trend in acceptance. In his case for genetically enhanced athletes, Tamburrini offers a prediction about fans: "genetically enhanced athletes will perform at levels never dreamt of before, which most probably will increase the sport fans' fascination with the activity" (Tamburrini 2007, p. 234). It would be helpful to know on what empirical evidence this forecast is based.

In general, philosophy of sport's scholarship on doping would benefit from a more interdisciplinary approach that takes into account the dynamics of sport and, when facts of any kind are at issue, gathers and assesses dispassionately the relevant evidence.

Defending anti-doping

Three reasons stand out in defense of sport that does not resort to doping and, by extension, to effective and fair anti-doping programs that respect the rights of athletes. Critics challenge the effectiveness, fairness and respectfulness of current programs. But these are characteristics of programs, not justifications for their existence in the first place. Those reasons may be summarized as to:

- promote fairness
- protect health
- preserve meaning.

Promoting fairness

Anti-doping critics recognized quite early that doping would not be unfair if all athletes had equal access to drugs or whatever other biomedical technologies were being used (Brown 1980). Of course, as long as forms of enhancement are prohibited but at least some athletes seek the competitive advantage they bring, anti-doping programs have a role to play in promoting fairness. Whether to ban particular biomedical performance enhancements in the first place is not a matter of fairness. Justifying prohibitions falls to the next two reasons.

Protecting health

It was likewise clear early in the debate over doping that, with respect to mature adult athletes, a pure paternalist argument failed. Indeed, athletes viewed it as hypocritical to urge them to take serious risks in pursuit of their sport, but also to tell them not to use anabolic steroids or stimulants because they might hurt themselves. (Paternalist arguments remain cogent in the case of younger athletes.) Context matters greatly here: The dynamics of competitive sport press athletes not to give up a competitive advantage, including advantages conferred by biomedical enhancements (Murray 1983). This was made clear in conversations with athletes in the early 1980s and is resoundingly confirmed by social science research and by athletes' personal accounts. The act of doping is not merely a self-regarding act, against which the accusation of unjustified paternalism would be warranted. Doping affects the other athletes in the competition, either putting them at a disadvantage or pushing them to join in the doping. It may not be the same as a gun pointed at one's heart, but especially in the case of elite athletes for whom success at sport is central to their identity and flourishing, it seems fair to describe the phenomenon as "coercive." This is the first line of defense of anti-doping under the rubric of protecting health.

A second justification lies in the public health dimensions of doping. Public health is concerned with the health of populations, in this case both elite athletes and all other sport participants whose wellbeing might be affected by doping. This includes young and very young aspiring athletes as well as adult amateurs and "masters" – older athletes. A kind of contagion is likely to result. To the extent that elite athletes are permitted to use biomedical enhancements, it seems reasonable to assume that some, perhaps many, non-elite athletes will want to do the same. As doping becomes more prevalent in non-elite populations, more people are at risk of harm. Anti-doping skeptics proposing that only "safe" drugs should be permitted have to contend with several factors likely to make their widespread legitimation far from safe. For one thing, the dynamics of sport competition, the relentless quest by at least some athletes for

a competitive edge, and the deep reluctance to surrender a competitive advantage, will result in permitted forms of doping becoming more or less required for all athletes at that level. Further, everything we know about human behavior and sport says that some athletes will use the “safe” drugs, and then pile on top of them whatever other biomedical enhancements they or their enablers believe will give them a further edge. The risks to health increase as more drugs are used in higher doses; drug interactions are more likely the more drugs get added to the mix. As for non-elite athletes, only the fortunate few are likely to have access to expert medical management, and many may seek out cheaper supplies of drugs with fewer guarantees they will be safe (Holm 2007). All in all, this is not an encouraging scenario for good public health.

Preserving meaning

The most interesting and challenging intellectual task facing the philosophy of sport on doping is to develop a robust account of the values people seek in and through participating in sport, and of the meaning of sport as a component of persons’ flourishing (Schermer 2008). Bald declarations that sport is about superhuman performances, or that a desire to preserve what is valuable and meaningful in sport is a foolish pursuit of “purity” or a moralistic response to the use of drugs in culture are, frankly, unhelpful (Ritchie and Jackson 2013; López 2012).

Let me pose a challenge to the philosophy of sport community: What method(s) is (are) appropriate for elucidating values and meanings in sport? What criteria should be used in evaluating the coherence, validity, and moral persuasiveness of candidate accounts of values and meanings in sport? Addressing these questions seriously would, I believe, benefit discussions on ethics and sport broadly, and not merely on doping.

Earlier, I suggested employing a version of Rawls’ wide reflective equilibrium: developing a values-based account of sport that incorporated as many relevant details as possible from individuals’ perceptions of fairness and of why they participate, to social and institutional dimensions of sport, to the reality of human embodiment and human variation. A full account would be normative and not merely descriptive. It would include accounts of values and meanings in sport, and of persons as sport participants. All proposed accounts should be subjected to vigorous critical appraisal in the spirit of wide reflective equilibrium.

Loland has contributed to such accounts with his discussions of the place of technology in sport and his distinction between the structure of sports competitions (which includes comparing, measuring and ranking competitors) versus the meaning and value of sport. McNamee has likewise been developing an account of virtues in sport and the impact of doping in a variety of publications (McNamee 2008b, 2012; McNamee and Edwards 2006). Murray (2007) has also been developing such an account of enhancement in general and of the relationship of doping to values and meanings in sport around the central idea of sport as the virtuous perfection of natural talents in the quest for human excellence (Murray 2009). This account is meant to encompass sport and sports participants broadly, not only elite athletes.

How do these approaches differ from others in the philosophy of sport? Take the matter of fairness. Critics of anti-doping often recite the many differences among people that determine the outcome of sports competitions. Some are differences in opportunities and resources – easier access to good coaching, nutrition, equipment, practice areas, and more. Other differences, roughly the characteristics described as natural talents, are often rather simplistically described as “genetic” though most are likely complex expressions of interactions among genes, epigenetic processes, and intrauterine, physical and social environments. Nevertheless, it seems fair to describe most of these differences, as the critics do, as unearned. Of course, some people

actively seek out more favorable circumstances and environments and presumably deserve credit for those initiatives. But the critics' central point remains: among the factors determining the outcomes of competitions many cannot be described as "earned" by the successful athlete. Other factors – their dedication, willingness to persevere and suffer, strategic cunning, and more – may count as earned. Some critics hail biomedical enhancements as a way to diminish the importance of unearned differences: "as genetic modifications probably will level out differences in performance capacity established by birth, athletes' initial conditions will be more equal than they are at present" (Tamburrini 2007). The underlying presumption is that success due to unearned differences is unfair. How well does that presumption stand up to other ways of thinking about fairness and unfairness in sport?

Paralympic competitors must often rely on equipment to be able to compete at all. Wheelchairs, prostheses, throwing frames and the like have the potential to give advantages to athletes. In response, IPC Athletics has had to be explicit about what it calls fundamental principles: safety; fairness (as in no "unfair advantage that is not within the 'spirit' of the event they are contesting"); universality (available commercially to all); and "physical prowess" described as "i.e., human performance is the critical endeavor not the impact of technology and equipment" (International Paralympic Committee 2014). The IPC is concerned with setting fair competitions that reward athletes' talents and dedication, not the technologies they employ. In the Paralympics, as in most sports, technology is seen as *enabling*, not determining, performance.

What then should we make of differences in natural talents, genetic or otherwise? Kayser *et al.* (2007) claim that "conventional sports ethics policies" treat inherited characteristics differently from doping. No argument there. "Conventional sports ethics policies," by which I assume they mean anti-doping programs, welcome and embrace the diversity of natural talents on the one hand and ban performance-enhancing drugs on the other. It is also true, as they say, that neither natural, inherited talents nor bodies enhanced by steroids, human growth hormone or EPO are "earned" by the athlete.

Basketball was the sport of my youth. Suppose that I challenge LeBron James, widely regarded as the most gifted current athlete in the National Basketball Association, to a game of one-on-one basketball. Suppose also that I have trained intensively for six months – just as hard as LeBron – for this match. I have worked as diligently to earn my conditioning and skills as he has. He's still going to overwhelm me: completely, resoundingly. It would be more farce than sporting competition. At barely 5 foot 11 inches, 170 pounds, in my 60s and with the arthritic knees to attest to a youth spent on cement and blacktop courts, it would be no contest. (Not that the match would have been any less uneven in my prime.) Today, at the top of my jump, you can slip maybe two credit cards under my foot. I would be lucky to get a single shot off without being blocked, or take two dribbles in a row before he stole the ball from me. The only way it might interest spectators would be as comic relief.

Now, according to Kayser *et al.* (2007), I have a right to complain that this contest was unfair. I worked as hard as LeBron (remember, this is a thought experiment). It just so happens that he is much taller, stronger, faster, and quicker than me. He is also more agile, leaps higher, with superior reaction time and better eyesight. And he is younger by nearly 40 years. These are all "unearned" advantages, like Eero Mäntyranta's abundance of red blood cells. If I challenged LeBron to a rematch a year later, devoting the year to relentless training while LeBron lounged in his recliner, ate donuts and watched television, the result would be the same. He is vastly more talented at basketball than I have ever been, even in my fantasies. So, if I take my inspiration from Kayser, I should be really steamed: This is *unfair*. I worked hard, he did not, but he still dominated me on the court.

By now, I trust that you see how ludicrous my complaint would be. There is no law of biology, or ethics, that demands that every talent be given out in equal measure to all persons, or that victory go only to the virtuous. Differences in natural, inherited talents are an inescapable, in fact, celebrated part of sport. When athletes talk of a “level playing field” they don’t mean neutralizing all differences in natural abilities. But are all “unearned” differences – inherited abilities, equipment, drugs – ethically the same for sport? Only if you believe that the talents athletes are born with are morally indistinguishable from anabolic steroids, EPO and other performance-enhancing drugs. There is absolutely no contradiction in saying that sport values one kind of “unearned” advantage, and despises another. The way forward will be to decide whether conceiving of sport as valuing the virtuous perfection of natural talents, from the perspective of wide reflective equilibrium, is a more inclusive account than that offered by critics of anti-doping.

Bibliography

- Atry, A., Hansson, M.G., and Kihlborn, U. 2011. Gene doping and the responsibility of bioethicists. *Sport, Ethics and Philosophy*, 5 (2), 149–60.
- Bloodworth, A. and McNamee, M. 2010. Clean Olympians? Doping and anti-doping: The views of talented young British athletes. *International Journal on Drug Policy*, 21, 276–82.
- Boardley, I. D. and Grix, J. 2013. Doping in bodybuilders: A qualitative investigation of facilitative psychosocial processes. *Qualitative Research in Sport, Exercise and Health*, 6 (3), 422–39.
- Breivik, G., Hanstad, D.V., and Loland, S. 2009. Attitudes towards use of performance-enhancing substances and body modification techniques. A comparison between elite athletes and the general population. *Sport in Society*, 12 (6), 737–54.
- Brown, W. M. 1980. Ethics, drugs, and sport. *Journal of the Philosophy of Sport*, 7, 15–23.
- Daniels, N. 2013. Reflective equilibrium. In: E. N. Zalta, ed. *Stanford Encyclopedia of Philosophy*, Winter 2013 ed. Available online at <http://plato.stanford.edu/archives/win2013/entries/reflective-equilibrium> (accessed October 16, 2014).
- Fost, N. 1986. Banning drugs in sports: A skeptical view. *Hastings Center Report*, 16 (4), 5–10.
- Gladwell, M. 2013. Man and superman: In athletic competitions, what qualifies as a sporting chance? *New Yorker*, September 9. Available online at www.newyorker.com/magazine/2013/09/09/man-and-superman (accessed October 16, 2014).
- Hanstad, D.V. and Loland, S. 2009. Elite athletes duty to provide information on their whereabouts: Justifiable anti-doping work or an indefensible surveillance regime? *European Journal of Sport Science*, 9, 3–10.
- Hoffman, J. R. and Ratamess, N. A. 2006. Medical issues associated with anabolic steroid use: Are they exaggerated? *Journal of Sports Science and Medicine*, 5, 182–93.
- Holm, S. 2007. Doping under medical control: Conceptually possible but impossible in the world of professional sports? *Sport, Ethics and Philosophy*, 1 (2), 135–45.
- International Paralympic Committee 2014. *Athletics Rules and Regulations 2014–2015*. Bonn: IPC. Available online at www.paralympic.org/sites/default/files/document/131218164256138_2013_12%2BIPC%2BAthletics%2BRules%2BAnd%2BRegulations%2B2014-2015_digital.pdf (accessed October 16, 2014).
- Johnson, J., Butryn, T. and Masucci, M. A. 2013. A focus group analysis of the US and Canadian female triathletes’ knowledge of doping. *Sport in Society*, 16 (5), 654–71.
- Kayser, B., Mauron, A. and Miah, A. 2005. Viewpoint: Legalisation of performance-enhancing drugs. *Lancet*, 366 Suppl 1, S21.
- Kayser, B., Mauron, A. and Miah, A. 2007. Current anti-doping policy: A critical appraisal. *BMC Medical Ethics*, 8, 1–10.
- Kayser, B. and Smith, A. C. T. 2008. Globalisation of anti-doping: The reverse side of the medal. *BMJ*, 337, 85–7.
- Kirby, K., Moran, A. and Guerin, S. 2011. A qualitative analysis of the experiences of elite athletes who have admitted to doping for performance enhancement. *International Journal of Sport Policy and Politics*, 3 (2), 205–24.

- Krefit, L. 2011. Elite sportspersons and commodity control: Anti-doping as quality assurance, *International Journal of Sport Policy and Politics*, 3 (2), 151–61.
- Lentillon-Kaestner, V., Hagger, M. S. and Hardcastle, S. 2011. Health and doping in elite-level cycling. *Scandinavian Journal of Medicine and Science in Sports*, 22 (5), 596–606.
- Loland, S. 2009. The ethics of performance-enhancing technology in sport, *Journal of the Philosophy of Sport*, 36, 152–61.
- Loland, S. and Hoppeler, H. 2012. Justifying anti-doping :The fair opportunity principle and the biology of performance enhancement. *European Journal of Sport Science*, 12 (4), 347–53.
- López, B. 2012. Doping as technology: a rereading of the history of performance-enhancing substance use in the light of Brian Winston's interpretative model for technological continuity and change. *International Journal of Sport Policy and Politics*, 4 (1), 55–71.
- López, B. 2013. Creating fear: the 'doping deaths', risk communication and the anti-doping campaign. *International Journal of Sport Policy and Politics*, 6 (2), 213–25.
- McNamee, M. J. 2008a. Anti-anti doping: Why scepticism doesn't cut the mustard. *BMJ*, 337, a584.
- McNamee, M. J. 2008b. *Sports, Virtues and Vices: Morality plays*. Abingdon: Routledge.
- McNamee, M. J. 2012. The spirit of sport and the medicalisation of anti-doping: Empirical and normative ethics. *Asian Bioethics Review*, 4 (4), 374–92.
- McNamee, M. J. and Edwards, S. D. 2006. Transhumanism, medical technology and slippery slopes. *Journal of Medical Ethics*, 32, 513–18.
- Miah, A. 2006. Rethinking enhancement in sport. *Annals of the New York Academy of Sciences*, 1093, 301–20.
- Miah, A. 2008. Enhanced athletes? It's only natural. *Washington Post*, August 3, B1–B1. Available online at www.washingtonpost.com/wp-dyn/content/article/2008/08/01/AR2008080103060.html (accessed October 16, 2014).
- Murray, T. H. 1983. The coercive power of drugs in sports. *Hastings Center Report*, 13 (4), 24–30.
- Murray, T. H. 1987. Medical ethics, moral philosophy and moral tradition. *Social Science and Medicine*, 25 (6), 637–44.
- Murray, T. H. 2007. Enhancement. In: B. Steinbock, ed. *Oxford Handbook of Bioethics*. Oxford: Oxford University Press, 491–515.
- Murray, T. H. 2009. In search of an ethics for sport: Genetic hierarchies, handicappers general, and embodied excellence. In: T. H. Murray, K. J. Maschke and A. A. Wasunna, eds. *Performance-Enhancing Technologies in Sport: Ethical conceptual and scientific issues*. Baltimore, MD: Johns Hopkins University Press, 225–38.
- Murray, T. and Murray, P. 2011. Rawls, sports, and liberal legitimacy. In: G. E. Kaebnick, ed. *The Ideal of Nature: Debates about biotechnology and the environment*. Baltimore, MD: Johns Hopkins University Press, 179–99.
- Overbye, M. and Wagner, U. 2013. Experiences, attitudes and trust: An inquiry into elite athletes' perception of the whereabouts reporting system. *International Journal of Sport Policy and Politics*, published online May 9, 1–22. DOI:10.1080/19406940.2013.791712.
- Rawls, J. 1999. *A Theory of Justice*, rev. ed. Oxford University Press.
- Ritchie, I. and Jackson, G. 2013. Politics and 'shock': reactionary anti-doping policy objectives in Canadian and international sport. *International Journal of Sport Policy and Politics*, 6 (2), 195–212.
- Savulescu, J. and Foddy, B. 2011. Le tour and failure of zero tolerance: Time to relax doping controls. In: J. Savulescu, R. ter Meulen, and G. Kahane, eds. *Enhancing Human Capacities*. Oxford: Blackwell, 304–12.
- Savulescu, J., Foddy, B. and Clayton, M. 2004. Why we should allow performance enhancing drugs in sport. *British Journal of Sports Medicine*, 38, 666–70.
- Schermer, M. 2008. On the argument that enhancement is 'cheating'. *Journal of Medical Ethics*, 34, 85–8.
- Sjoqvist, F., Garle, M. and Rane, A. 2008. Use of doping agents, particularly anabolic steroids, in sports and society. *Lancet*, 371, 1872–82.
- Stamm, H., Lamprecht, M., Kamber, M., Marti, B. and Mahler, N. 2008. The public perception of doping in sport in Switzerland, 1995–2004. *Journal of Sports Sciences*, 26 (3), 235–42.
- Swarbrick, S. 2011. Cyclist David Millar tells of his battle with drugs. *The Herald (Scotland)*, September 13. Available online at www.heraldsotland.com/life-style/cyclist-david-millar-tells-of-his-battle-with-drugs-x.1123335 (accessed October 16, 2014).
- Tamburrini, C. 2006. Are doping sanctions justified? A moral relativistic view. *Sport in Society*, 9, 199–211.
- Tamburrini, C.M. 2007. What's wrong with genetic inequality? The impact of genetic technology on elite sports and society. *Sport, Ethics and Philosophy*, 1, 229–38.
- Tännsjö, T. 2005. Hypoxic air machines: Commentary. *Journal of Medical Ethics*, 31 (2), 113.

- US Food and Drug Administration 2011. Information on erythropoiesis-stimulating agents (ESA) epoetin alfa (marketed as Procrit, Epogen), darbepoetin alfa (marketed as Aranesp). Available online at www.fda.gov/Drugs/DrugSafety/PostmarketDrugSafetyInformationforPatientsandProviders/ucm109375.htm (accessed October 16, 2014).
- USADA 2012. Statement From USADA CEO Travis T. Tygart Regarding The U.S. Postal Service Pro Cycling Team Doping Conspiracy, U.S. Postal Service Pro Cycling Team Investigation, October 10. Available online at <http://cyclinginvestigation.usada.org> (accessed October 16, 2014).
- USADA 2012. Reasoned Decision of the United States Anti-Doping Agency on Disqualification and Ineligibility: United States Anti-Doping Agency, Claimant, v. Lance Armstrong, Respondent. Colorado Springs, CO: United States Anti-Doping Agency. Available online at www.scribd.com/doc/109619079/Reasoned-Decision (accessed October 16, 2014).
- Walzer, M. 1983. *Spheres of Justice: A defense of pluralism and equality*. Basic Books.
- World Anti-Doping Agency 2014. A Brief History of Anti-Doping. Available online at www.wada-ama.org/en/who-we-are/a-brief-history-of-anti-doping (accessed October 16, 2014).
- World Anti-Doping Agency 2015. *World Anti-Doping Code*. Montreal: WADA. Available online at www.wada-ama.org/en/resources/the-code/2015-world-anti-doping-code#.VD_ei75fUQ4 (accessed October 16, 2014).