FROM SCIENCE TO SPORT:
A CROSS DISCIPLINARY EXAMINATION OF THE JUSTIFICATION FOR DOPING BANS

A Dissertation in
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by
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ABSTRACT

In this dissertation, I will use a cross-disciplinary approach to evaluate the ethics of doping and performance enhancement in sport. I believe such an approach will help remove many myths and assumptions about the ethics of performance-enhancing substances (PESs) that have long stalled the debate. These myths emerged due largely to scholars misunderstanding or remaining unaware of research that existed beyond their individual “silos” of expertise. Subsequently, one central question regarding the ethics of PESs remains unsatisfactorily answered: are sporting organizations justified to prohibit athletes from using PESs?

This question will be at the center of my dissertation. Yet I will not offer any final conclusions about the permissibility of drugs in sport, either. Indeed, I do not believe there are any. What I will claim, instead, is that sporting communities have no necessary grounds for rejecting PESs. Yet contingent reasons may exist justifying their decision to prohibit or regulate athletes’ PES use.

In order to provide appropriate context for my later claims, my first two chapters will examine the historical development of the doping attitudes from their nascent stages to the death of Knud Enemark Jensen at the 1960 Rome Olympic Games. These chapters provide the necessary context for the modern PES debate by showing how significant cultural movements such as the fascination with doping horses for gambling, muscular Christianity, temperance movements, amateurism, and notions of public health helped shape today’s anti-doping attitudes.

Following, my third chapter will turn to modern PESs and the science behind them. This chapter will help establish certain facts about performance enhancement such as performance gains, mechanisms of action and health risks which are important in ethical decision making. These scientifically grounded conclusions will help dismiss many myths as well as shape subsequent evaluations of the arguments for and against prohibiting PESs. This evaluation will
come in my fourth chapter, where I will thematically and critically review past literature discussing the ethics of banning PESs in sports. This review will show that little consensus exists regarding the justification for prohibiting PESs and new efforts towards understanding the ethics of PESs may be justified.

In my final two chapters, I will use the cross-disciplinary evidence developed in the first half of my dissertation to establish new ways of viewing the PES debate. The first step, which I will address in chapter five, involves viewing the debate as two separate questions: what are the acceptable means for “performance enhancement” and why should sports ban “doping.” In my sixth chapter, I use the cross-disciplinary information to inform a more rational evaluation of PESs, arguing that performance enhancing substances may either improve or harm well-established sporting tests. This, I will argue, renders any ipso facto rejection of enhancement unwarranted if not also irrational.

I end with an epilogue that cautions against hastily altering the pharmacological landscape as certain issues still remain at work. Despite such issues, I acknowledge that specific PESs may potentially improve certain sports by opening new avenues for enjoyment. Thus I do not conclude that all PESs are necessarily wrong, but that sporting organizations can justifiably choose to ban or regulate athletes’ use of such technologies principally for reasons not typically advanced in the current PES literature.
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To My Loving Wife

Magdalena

Kocham Ciebie
Prologue

I begin with a short parable. Two young fish are swimming along when they happen to meet an older fish swimming the other way. He nods to them and says “Morning, boys. How’s the water?” The two young fish swim on for a bit, and then eventually one of them looks over at the other and goes “What the hell is water?”

The point of the fish story is merely that the most obvious, important discoveries can be the ones that are hardest to see and talk about because they appear so familiar. Whether from within the silos of our own discipline or within our own cultural milieu, we often fail to see the world accurately because of our own blind spots, unexamined assumptions and unnoticed limitations. This has proven especially true when it comes to researching the doping phenomenon. Dominant culture’s negative perception of performance-enhancing substances such as steroids influences—if not the entire debate—at least where the scholarly discussion starts. At the same time, doping-related scholarly research has remained relatively myopic and fragmented, with each scholar proceeding largely unaware of research outside of his or her immediate discipline. One way out of such a situation is to confront, like the young fish in the story, possibilities found outside one’s own comfortable perspective, the world view provided by one’s own discipline.

Such confrontations are at the heart of this dissertation. Building upon much of my previous research completed as a doctoral candidate at Penn State, I reexamine the issue of doping and performance-enhancing substances (PES) (a distinction I will clarify later) in sports through a cross-disciplinary approach that integrates research from three of kinesiology’s dominant cultures—the natural sciences, social sciences, and humanities—to shed new light on the issue of doping and performance enhancement in sports. By applying research from three of
kinesiology’s cultures, I believe the relevant questions in the doping debate significantly change. Instead of worrying over issues of paternalism or how to distinguish between treatments and enhancements, for example, my cross disciplinary approach shows that doping-related research ought to focus on how PESs alter the sporting landscape and affect the meanings that are central to contemporary sport. With such new considerations informing the doping debate, I will reexamine whether sporting communities should prevent athletes from using PESs and, if bans are warranted, on what grounds such restrictions would rest.

To be sure, the social and cultural issues surrounding the ban on athletes using medical technology or pharmaceutical drugs in their quest for ultimate performance extends beyond the ovals and arenas of sport. Questions about the ethics of enhancement have spread into concert halls, classrooms, homes, and workplaces. Such forms of enhancement in daily life are outside the scope of this work. However, in this dissertation I will expand the conversation from many previous analyses. I do not limit myself to just considering the plight of elite athletes as have many scholars in the past. Instead, I focus on determining the appropriate role of PESs—ranging from drugs such as steroids and erythropoietin to methods such as blood transfusions and potential gene therapies—throughout contemporary sport. I consider the impact such PESs have on the general sporting landscape, which includes not just elite-level athletics but also serious competitive sport and the less frequently considered youth and master’s level athletes.

Throughout this investigation, I will frequently use the term performance-enhancing substances (PESs) to refer to a range of substances, drugs, and practices. While in scholarly discourse the term PES is often used alongside terms such as performance-enhancing drugs (PEDs) and doping, I use the term PESs for a number of reasons. First, “doping,” as I shall argue in Chapter Five, is a loaded term that carries pejorative connotations and, because of this, biases the conversation from the outset. The phrase “performance-enhancing drugs,” while superior to
“doping,” is still misleading because many substances meant to be included in the phrase are not, in fact, drugs. For example, the practice of blood boosting, whereby an athlete increases the amount of hemoglobin in their blood in order to transport more oxygen to working muscles, can be done by using the banned drug erythropoietin, but it can also be done through a reinfusion of an athlete’s packed red blood cells (the science will be discussed more in Chapter Two). While the former is clearly a PED, the latter is better classified as a substance and not a drug.

Additionally, other products such as ephedrine are banned but are naturally occurring substances. Thus, for the purposes of this dissertation—and for the sake of accuracy and objectivity—I will use the terms “performance-enhancing substances” or PESs to refer to a variety of drugs and natural substances used specifically to enhance performance.

My investigation of PESs focuses on one central question: Are rules that prohibit the practice of using certain PESs justified? Following, I will argue against accepting the well-worn trope that drug use is inherently wrong, but I warn that permitting PESs also presents a number of contingent problems. Thus despite the inadequacy of current arguments to uphold the prohibitions, I conclude that sporting organizations can justifiably either ban or regulate athletes’ use of such technologies, albeit for reasons that are not currently central to the discussion.

To defend this claim, I will draw upon a cross-disciplinary methodology that integrates historical, sociological, scientific, and philosophical research to inform my investigation of the ethics of PESs and performance enhancement in sport. By starting with research from such diverse fields, I will reevaluate the ethics of PESs from a perspective underused in existing scholarship. This cross-disciplinary perspective will aid in avoiding traditional biases towards the drugs and biotechnology that underlie many of the official policies prohibiting such methods as well as much of the existing scholarship regarding performance enhancing drugs. It will also allow for fresh insights into the best way to arbitrate the issues surrounding PESs.
Conducting such cross-disciplinary research is not easy, however. Cross-disciplinary inquiries, such as those that relate to doping and performance enhancement, require a familiarity with research from different disciplines that often have their own language, methodologies, and professional standards. These differences can be off-putting, and familiarizing oneself with them requires patience. But the reward, I have found, is that old problems can take on new shapes. It is as if, after spending years of hiking the weathered trails of a mountainside and trying to make sense of the mountain’s landscape, one decides to climb an adjacent mountain. After learning its trails and the nuances of its slopes, one reaches the top of the new mountain and is able to look back from a distance at the trails one so earnestly traversed. The reward is a fresh—yet still limited—perspective of one’s former subject matter. One can more clearly see how the original mountain’s trails connected and diverged or how certain parts of the mountain had remained unexplored. Finally, after familiarizing oneself with the old mountain from a distance, one can return to and continue investigating the mountain armed with new perspectives. By leaving our familiar “trails” and engaging new mountains of research we can return to our subject matter with more complete picture of the problems at hand.

In examining the ethics of PESs, philosophers have carved many deep paths into their subject’s mountainside. Yet few have ventured off of their home slopes. As a result, philosophical literature on doping remains insular, trapped in old paradigms and seemingly stale debates. Even worse, the literature’s arguments and conclusions have been left behind as evidence-based research in the natural and social sciences calls into question certain philosophical assumptions. Yet the PES problem transcends individual research silos. It is unlikely that anyone operating from one silo can fully understand the complex doping phenomenon. Thus philosophers investigating the PES issue will benefit from familiarizing themselves with the language, research methods, and advances of different fields. They need to collaborate (or at least converse) with
colleagues from different departments and diverse disciplines. When this happens, as Kretchmar explains, “silo walls, unlike those at Jericho, will not come tumbling down (nor should they), but they will be thinner, lower, and far more permeable” (Kretchmar 2008). Research into PESs is but one area in which thinner, lower and more permeable walls are essential.

In the work that follows, I employ just such a cross-disciplinary approach by drawing upon research in various disciplines to address the complex PES problem. True cross-disciplinary research can begin anywhere with conclusions from one discipline informing research in other disciplines. But for this project, I believe it is best to start with historical and scientific conclusions about PESs for two reasons. First, for the readers particularly interested in the philosophical discussions of the dissertation, starting with the historical and scientific research provides the necessary context required to grasp the philosophical issues that concern them the most. Second, I hope that by starting with less abstract disciplines I will encourage readers unfamiliar with philosophy to find practical importance in what may appear to be only esoteric philosophical issues.

To accomplish these goals, I begin in Chapters One and Two by providing the historical background for enhancement with an emphasis on doping and PES use. In Chapter One, I outline the introduction of doping, a practice that emerged through the sport of horse racing, into the public imagination. In Chapter Two, I turn my focus to the historical development of the anti-doping ideology in human sport from its nascent stages to its modern incarnation following Knud Jensen’s death in 1960. In Chapter Three, I will review the science behind the ergogenic practices that can improve athletic performance. The history and science behind PESs will inform my thematic review of past literature presented in Chapter Four. In this chapter, I will critically discuss past arguments for both prohibiting and permitting certain PESs in light of scientific and historical evidence.
Following Chapter Four, I use conclusions presented in the previous chapters to reframe the PES debate. In Chapter Five I argue that, in fact, the PES debate is hindered by the conflation of two separate issues: acceptable means for enhancing performance and cultural attitudes toward doping in general. In Chapter Six, I flesh out the issue of performance enhancement by arguing that performance enhancing technologies present a previously unacknowledged set of contingent problems related to the integrity of sporting tests. In Chapter Seven, I take seriously the fact that a sport allows its participants to shape narratives about themselves. How we play sport matters. I will argue that altering the pharmacological landscape can threaten narratives that provide many people including athletes, trainers and spectators with sources of meaning. I conclude with a brief epilogue discussing the future prospects for performance enhancement in sport based upon claims defended in this work.

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1 Adapted from David Foster Wallace’s essay This is Water, Wallace, *This Is Water: Some Thoughts, Delivered on a Significant Occasion, About Living a Compassionate Life*, 1st ed. (New York: Little, Brown, 2009).

2 Within these three cultures fit the myriad sub-disciplines such as physiology, biomechanics, sport psychology, sport sociology, philosophy, etc.
Chapter 1
“Not for the Good of Sport:” The Rise of Anti-Doping Attitudes in Horse Racing, 1890-1911

Introduction

Doping continues to captivate the twenty-first century public’s imagination.¹ From Barry Bonds’ designer steroids to the stored blood bags of Operación Puerto to the omnipresent fear of gene doping, the public appears both fascinated and mortified by modern medical technology’s promise of Promethean Sport. Every new scandal brings out both demagoguing politicians who worry about the message sent to the world’s youth and reformist pundits who demand harsher sanctions that would “clean up sport.” Sponsors threaten to withdraw their money while once recalcitrant athletes apologize and return to their sports remade. All the while, the public continues to tune in to see the next round of “higher, faster, stronger” athletes who would push the limits of human performance.

This all-too-familiar doping discourse, however, first appeared over a century before Barry Bonds’ use of “the cream” and “the clear” made national news.² As the nineteenth century closed, the public caught its first doping buzz. Editorials harangued trainers who allegedly used doping to cheat. That sport’s governing bodies hastily enacted rules prohibiting doping—the first ever anti-doping rules. The pressure increased when an athlete in the sport by the name of Lou Dillon dropped dead. Headlines bemoaned the problem of “unscrupulous touts” using doping to make money in the sport while various sporting organizations sought a reliable test that could quickly catch cheats. They brought with them the usual calls for reforms, tougher sanctions and fears that the very essence of sport itself was under threat from the evils of doping. In which sport
did the problems originate? Who was “patient zero” of the doping epidemic? It is none other than the sport of kings—horse racing—that first introduced the idea of “doping” to the sporting world.

To be sure, dating back at least to the ancient Greeks, humans have certainly attempted to enhance performance through a variety of methods including the use of substances and herbal remedies. Thus the idea of enhancing performance is not new. Even in the late nineteenth century, as the horse racing community first passed anti-doping rules, human athletes sought to enhance their performance by using stimulants such as alcohol, strychnine, narcotics, or digitalis. However, these earlier practices did not capture the public’s imagination in the way that modern doping did. Few raised objections to such practices and even fewer labeled such practices “doping.” In fact, not until 1928, thirty years later, did another sporting organization—the International Amateur Athletic Federation—follow horse racing’s proscriptions and ban doping among its athletes.

The horse racing community, on the other hand, voiced significant and sustained concerns over doping decades earlier. Racing organizations passed rules prohibiting the practice. More importantly, newspapers covered the doping issue often and in great detail. Concerns over doping spread beyond the confines of the track insiders and into popular discourse. Thus, while turn-of-the-century six-day cyclists openly experimented with stimulants without garnering much negative attention, newspapers regularly decried the doping of horses and referred to it in no uncertain terms as an “evil of the turf.”

Eventually public concerns about doping would lead to human sports banning the practice as well. While many historians have examined the political, social and cultural forces that shaped doping in human competition during the twentieth century, scholars heretofore have not paid enough attention to the intellectual birth of doping discourse that first occurred in the late nineteenth century in horse racing. In focusing solely on human athletics, they have tended to examine reactions to doping as a cultural extension of increasingly rationalized and scientized
sport or a result of sport’s changing political and cultural landscape. Certainly such views, and the social, cultural, and political patterns revealed by those views, have a great deal of merit. Yet what remains unanswered is why horseracing, of all sports, was the first to address doping? How did the sport address the issue? What influence did horse racing’s concern over doping have on other sports? And, more importantly, given the lack of effective doping techniques during that era, what explains the enormous fears doping raised for horse racing’s leaders?

Such questions necessitate an examination of the fascination with doping as it migrates beyond horseracing to truly capture the modern world’s imagination. This is what makes the concerns and fears about doping so interesting. Concerns over doping reveal deeply rooted cultural beliefs that translated into socially effective elements for shaping the larger social discourse. Indeed, concerns over doping in horse racing mask the anxieties as well as the desires that governed the social imagination. The first reactions to doping stemmed from larger cultural and social forces that existed beyond horse racing or sport in general, yet these reactions subsequently laid the groundwork for how modern communities responded to performance enhancement.

To those familiar with the cultural and social forces that helped modernize sport, it is no surprise that horseracing would be home for the first anti-doping attitudes. Numerous historians have noted the impact that horse racing had on modernizing sport. Indeed, much before other sports, horse racing embodied historian Allen Guttmann’s seven characteristics of modern sport: standardization, rationalization, bureaucratization, quantification, equality, secularization, and the quest for records. Historian Richard Holt notes that “horse racing was transformed from a casual competition between noblemen to perhaps the most highly organized of all sports.” The degree of organization—from standardized tracks to the detailed calculation of odds—meant that horse racing became one of the first quintessentially modern sports. Perhaps it is not mere coincidence, then, that horse racing also was the first modern sport to address doping.
The Initial Rejection

The historian John Hoberman argues that modern sport reflects a scientific and rationalized approach first to quantify human performance and then to improve it. For Hoberman, doping is the extension of modern sport’s rationalized attempt to push human performance to its boundaries. Yet if doping is the rational result of modern sport, why did other modern sporting communities in general, and horse racing in particular, vehemently reject the thoroughly rationalized practice of doping? The answer lies at the very birth of “doping.” The Oxford English Dictionary (OED), accepted generally as the authority on the evolution of the English language, dates the word “dope” to 1851, where it was first used colloquially to mean “a stupid person, a simpleton, and a fool.” By 1889, however, “dope” had taken on a new verb form—doping—that meant “to administer dope to (a person, a horse); to stupefy with a drug; to drug.”

Stupefying with a drug is not typically considered when discussing doping in elite sport today. In the horse racing world of 1889, however, stupefying a horse had a clear purpose. As evidenced by one of the first doping trials, which occurred in 1890 in Canada, two owners, George Renwick and Frank Baldwin, faced criminal charges for what the press called “doping” a horse. According to the press account, the Canadian magistrate dismissed the case citing insufficient evidence but “gave both [defendants] a severe lecture on disreputable practices involved at the race courses and advised them not to engage in any of the disgraceful tricks so common at races on American soil.” The judge explained that “there were laws here for the protection of legitimate sport and they would be vigorously enforced.”

For modern audiences, the judge’s admonition about doping appears to echo contemporary sport’s concerns. Sporting organizations today, such as the World Anti-Doping Agency, assert that they aim to preserve legitimate sport and prevent disreputable practices. However, the initial concerns about doping do not reflect today’s anti-doping attitudes about safe,
fair competition for the athletes but rather about the need to preserve fair environments for gambling on horse racing. Thus in one sense, anti-doping rules were about fairness. But it was for the gamblers’ sake, not so much the jockeys or horses or, if they even existed, the select few non-betting fans.

In fact, early examinations of doping focused almost solely on its impact on gambling. An 1896 Los Angeles Times correspondent reported that trainers could dope horses to “start off with a good show of winning or he can so handicap [the horse] that the very elect can scarcely detect the difficulties under which the poor animal is laboring.” However, this early article clearly expressed moral reservations about the practice. “The Society for the Prevention of Cruelty to Animals would do well to turn their attention to the race tracks of the country,” the reporter contended: “from a mercenary point of view, sacrificing a horse to win stakes of from $5,000 to $10,000 doesn’t seem such a terrible thing; but from a humane point of view, it is brutal and indefensible. That ‘man’s best friend’ should be ‘dosed’ and doctored to death for gambling purposes is a sad comment on the morals of our day and generation.”

The Eastern Jockey Club, one of the United States’ most powerful jockey organizations, put force to such concerns (and codified them into formal rules) in 1897, when the organization introduced a rule designed to “put an end to the reprehensible practice of ‘doping’ horses.”

What was so reprehensible about this practice? The article goes on to explain, for those readers still unfamiliar with doping, that “‘doping’ as it is called, is the injecting under the skin of the animal some liquid stimulant, such as cocaine, morphine, etc.” The dope, the author contends, “can also be used to stop a horse as well as to help him win…So its use by the unscrupulous can be made to pay big profits.” Although the reporter names no specific suspects, he contends that “almost every owner and trainer at the outlaw tracks carries a ‘dope’ outfit with him and uses it as his interest in the pool-box or betting ring dictates.”
Concerns over money and gambling had long driven the development of rules in the horse racing community. The transforming force for horse racing’s organization primarily came from the influence of gambling. Gambling, notes historian Wray Vamplew, influenced the development of sport rules in two ways: “One concerned creating the equality of opportunity to win; the other involved regulations to eliminate cheating and sharp practice.” With large amounts of money on the line, rule makers would not tolerate unfair competitions. Fair competitions facilitated betting both among the owners of the horses as well as those fans enjoying the spectacle. Thus Vamplew notes that at the outset of modern sports such as horse racing, rule makers concerned themselves with the issue of fair play only insofar as fair betting was concerned.\(^{18}\)

Moreover, the social status of the rule-makers reveals much more about the sport of horse racing. Vamplew notes that modern horse racing’s gamewrights, those who formalized the rules of competition, primarily gained their position “by virtue of their social position.” The rule-makers were both gambling large sums of money and the owners of the horses racing in the competition.\(^{19}\) With significant financial investments on the line, these men created rules that ensured at the minimum the equality of conditions at the competition.\(^{20}\)

Against the backdrop of gambling and standardization, the issue of doping horses arose. Insiders in the horse racing world perceived that doping—whether to speed up a long-shot or to slow down a favorite—allowed insiders to place wagers on fixed races. This amounted to an unfair advantage, not necessarily just in winning the contest but in profiting from it as well. Thus those writing the rules banning doping and those concerned over the spread of doping in horse racing remained primarily concerned about creating fair competition in the utilitarian sense of equality of the conditions of competition. The high-minded rejection of enhanced performances in favor of natural ones or an allegiance to a “true spirit of sport”—both aspects of today’s doping debate in human athletics—were not factors in the initial anti-doping movement.
Although the Eastern Jockey Club had taken the lead in cracking down on illicit doping by passing the first rule banning doping in 1897, it was not long until the practice (or at least the fear of doping) crossed the Atlantic. By 1900, as the British turf season drew to a close, concerns over the “American practice of doping” reached fever pitch. For the first time, the British Jockey Club’s prestigious award for Jockey Champion went to a foreigner named Lester Rieff. An accomplished American jockey, Rieff spent the 1900 season dominating British flat racing with his fellow American cohorts including famed jockey Ed Corrigan.

The American’s success did not sit well with Britain’s horse racing aristocracy. Lord Durham, a British patrician heavily involved in horse racing, accused the American jockeys and trainers of doping their horses while racing in Britain. The New York Times reported that the Daily Telegraph of London protested against the idea that the supporters of Lord Durham “are animated by feelings of jealousy and points to instances of warm welcome extended to American owners and Jockeys.” Everything was fine until “the latest comers were suspected of ‘doping’ their horses. This is a punishable offense in the United States, and ought to be here also.” There were doubts, however, as to whether Lord Durham had solid evidence or was simply drawing an inference about the American’s practices. Quoted in the same article, the Times of London asserted that “there is no doubt that if he [Lord Durham] possesses evidence of the alleged misdeeds of American jockeys the stewards will be pleased to give it careful consideration but the tone of his letter of Wednesday last does not indicate that he possess such evidence as he rather modifies what he said in his speech at the Jockey Club about newmarket being the dumping ground for American jockeys. It is unfair to single out American jockeys, or even their followers, as worse than English without cogent evidence to support such an allegation.”

Leopold Rothschild, a member of the famous Rothschild family and horse racing enthusiast, heightened the suspicion of doping by suggesting that “there is no positive proof that doping has been
practiced in England, although the extraordinary improvement made by horses which had been trained by Americans led to the supposition that it had.”

While nationalism likely influenced the focus of the investigation on Rieff, who later would be “ruled off” in 1901 for “pulling his horse,” the British focus remained on gambling. The common belief in Britain remained that American doping allowed individuals to manipulate the gambling action surrounding the sport. Indeed, the Jockey Club’s investigation of American jockeys focused on suspicious betting. “It is not their method of riding that has caused such a bitter campaign against the Americans, but their open betting on their own and their friends’ mounts,” the *Chicago Tribune* noted. The American Jockey Ed Corrigan defended his compatriots against such allegations saying that “I don’t believe any such thing is done. In my opinion it is a system employed by the new school of training, which gives the horses a change of form, but if there is a trainer in England who dopes his horses it should be traced to him and stopped immediately.”

In the end, the investigation into American doping practices revealed little. A meeting was called by the Animal Aid Society that included veterinary surgeons, trainers and jockeys, but according to *The Times* of London the meeting proved a “fiasco.” When no one came forward with direct information on doping, the meeting’s organizer, professor John Atkinson, became its star witness. Atkinson could only repeat unsubstantiated rumors that “in America, such stimulants as strychnine were given to horses in the form of capsules, while opium was administered to prevent a horse from doing its best.” Such claims appeared laughable to many in the audience, according to the newspaper’s recounting of events. Atkinson hurt his credibility with the audience further when he insisted that the Americans had used “an instrument [that] consisted of an electric battery carried by the jockey in a belt, the wires passing down the legs, and the poles being so placed that by pressure of the heels the jockey could impart to the horse an electric shock at any moment.” He explained that he had thus far been unable to acquire such an
instrument although he had hoped to have one for the meeting. Beyond Atkinson's hearsay, no one present at the meeting came forward with solid information regarding doping, and the meeting was quickly dismissed “amid much laughter.”

This meeting, despite the frivolous nature of the doping allegations, reveals a pattern of increasingly serious concerns about doping. These concerns manifested themselves in further investigations of such alleged practices and a willingness to pass anti-doping rules prohibitions—in spite of a lack of clear evidence indicating any widespread doping problem. Indicating how these fears persisted despite evidence, Austria followed the United States and instituted rules banning doping on its tracks in 1900.

The British Jockey Club continued to wrestle with the issue. As one reporter for *The Times* surmised, “the Jockey Club could scarcely have a more difficult subject to deal with than what is called ‘doping’,” as “it is quite obvious that if on certain occasions animals are subjected to this treatment, and so rendered capable of special exertion, their form will be very different from that which they show when nothing is administered to them; and there is of course, the further suspicion that if they are doctored to run well in some races, drugs which would have the opposite effect might be given to them by dishonest men in others.” The author continued, inferring that “[members of] the American Jockey Club, indeed, have introduced special rules against the practice; they would surely not have done so without reason, and it is admitted that some men on this side have made experiments—whether on race-courses or elsewhere is not quite clear.” Although no one had yet been caught in Britain doping a horse, and a formal investigation had turned up little information, newspapers and horse racing officials continued to portray doping as a serious problem in Britain.
A Background Lesson

After the initial spate of doping accusations that emerged at the close of the nineteenth-century, journalistic reports attempted to provide larger audiences with background on the rise of doping in horse racing. These reports accepted the premise that doping could modify a horse’s performance to suit a trainer or owner’s pocketbook. Indeed, the OED notes this shift in 1900, by introducing a new definition for the word doping, which “meant the administration to a horse of certain medical preparations, with the object of either stimulating or retarding the animal’s progress in a race.” This use of the word doping governed both how newspaper reporters and turfmen understood the practice.

The notion that dope could modify a horse’s performance in either direction played into the notions about how doping entered horse racing. A 1901 New York Times exposé on doping cited “Doc” Ring, a frequenter of the New Jersey tracks, with originating the procedure of using injections of stimulants to dope a horse. Rather than taking payment, Ring insisted that the horse’s owner place a bet on the doped animal for him. This was a shrewd move by Ring since having his profit tied to the horse’s success protected him from an owner’s potential accusations of slowing the horse if the horse failed to do well. Rumors reported that Ring’s stimulant was composed of “nitro-glycerin, cocaine, carbolic acid, and rose water.” As such concoctions proved ultimately damaging to the horse, later doping protocols involved “strychnine, capsicum, ginger” and other unknown ingredients.

Through the spring of 1901, newspaper reports continued investigating doping. Again dividing doping along nationalistic lines, the American-based New York Times described “dope” as “an American term,” asserting that “since the turf attained the dignity of a language of its own, there has never been coined a term which has attained the popularity that the one ‘dope’ has achieved.” Offering its unsupported history of doping, the New York Times explained that “for a
number of years the expression has been common on American race tracks, but in the past two seasons it has gone further afield and extended its usage to England and Continental Europe. Not only do British turfmen nowadays chatter of ‘dope,’ but the French turf has taken up the term, and Paris has as much to say of the ‘doping’ of horses as has the community that has its being close about the confines of Tattersall’s in London. Even to Austria the term has made its way, and at the further side of the earth, in distant Australia, the use of dope is known if not practiced.” Further indicating doping’s intellectual cachet, the article explained that “though the word, if it be permissible, to so classify it, is used most frequently as a term which implies impropriety, or at least the use of methods that do not come strictly within the provisions of the rules of horse racing and the methods that the usages of the turf as a sport have recognized as legitimated and fair.”

Nonetheless, the New York Times column dismisses the British concerns over the supposed American doping scandal. “In America there are stringent turf laws against ‘dope,’” the article reports, since “on most of the great race tracks special officials are employed to keep a supervision over the horses as they are being prepared for the track, and to see that they are not dosed in any way, either to stimulate with speed or to have a contrary effect.” The British concern in 1900 grew instead out of American success on the track since, “in England it has been less the actual practice of ‘doping’ horses than the scandal that grew out of the talk that American touts indulged in and the impression that they managed to spread throughout the country but their mysterious hints of trickery.” It is these hints of trickery that bothered the British as it became apparent how they influenced the gambling action. The concern was always that doping gave “unduly shrewd turfmen the opportunity to get more speed out of certain horses than the betting public and the bookmakers believed they had.” Those doping horses maintained secrecy as a “precaution against the spoiling of contemplated coups by having the knowledge that a horse had been specially prepared to win a certain race become general and so reduce the odds that the bookmakers otherwise might have been willing to bet against his chance.” Perceptions that
bookmakers and owners profited by doping greatly added to concerns over doping, since individuals began suspecting that “several followings had taken enough money out of the betting ring to make the layers feel that a new influence was at work among them.”

In Great Britain, Sir George Chetwynd, a well-known English sportsman and aristocrat, complicated the story that doping had been an American import. He provided a different historical account, explaining that “all this hue and cry about doping horses is worse than silly. Doping has been practiced on the English turf for twenty-five years. My horse, Chypre, winner of the Ascot Stakes in 1875, went to the post doped. It was a lazy and unmanageable brute and needed stimulant. Veracity, the Cambridgshire winner in 1888, frequently proved the efficacy of dope. The principle is precisely the same, however a horse is doped. The Jockey club [sic] never pronounced against it.”

With newspaper reports describing doping throughout 1900 and the spring of 1901, it was no surprise that by summer, turfcmen on both sides of the Atlantic began seeing—or believed that they were seeing—doped horses everywhere. A newspaper report indicated that the New Orleans Crescent City Jockey Club ruled that it would no longer permit the owners Buckner and Welker or trainer R.J. Stewart from entering their races after an incident of doping with their horse Apple Jack. The report states that “Apple Jack was plainly under the influence of some drug or stimulant when he came out of the paddock in the fifth race and ran away two miles the wrong way of the track. Previously he had been backed down from 30 to 1 to 7 to 1.” The presumption that gambling and more specifically the manipulation of odds featured prominently in the doping of Apple Jack reveal the suspicion that owners and trainers were attempting to make profits off of doping rather than gaining fame or emerging victorious.

The interest in doping soon affected horse racing’s “insider” language. Discovering which horse was doped became key information for any serious gambler. Such information became “inside dope.” In fact, the OED marks this colloquial usage shift in 1901, explain dope to
be “information, esp. on a particular subject or of a kind not widely disseminated or easily obtained.” The *Chicago Tribune* used “doping” in that sense following one successful day at the track where many bettors “simply outdid the handicappers, or ‘dopers,’ as they are termed. The latter class or turf followers figured the winners of the first three events to a nicety, but slipped numerous cogs in ‘doping’ the last three.” This addition to the meaning of the term doping led to the introduction of the term “dope sheets” in 1903, which in horse racing parlance referred to sheets listing the odds bookmakers had assigned to horses. By 1904, the *New York Times* connected the “doping of horses” with “information regarding the condition, weights, odds, &c. and explained to its readers that “it is well known that the part of a newspaper containing the advance information regarding races horses is called the ‘dope sheet.’” While no direct evidence connected “dope sheets” to the practice of doping or obtaining insider information on doping, the colloquial usage of dope-as-information connects to the practice of doping horses for gambling purposes.

Eventually, this use of the term doping spread beyond horse racing into any sort of pre-match prediction for sports like prize fighting, football and baseball. When asked who would win a prize fight in 1901, famed prizefighter Robert Fitzsimmons was quoted saying that “when it comes down to doping the thing, why Fitzsimons figures the better fighter.” A 1906 article in the *National Police Gazette* explained that “‘Doping’ fighters and ‘doping’ horses on form are two very different propositions,” yet the “doping” the writer refers to is picking the winners rather than administering any sort of drugs. Writers would “dope the World Series” or complain that “doping baseball was harder than doping football.” By the start of the 1920s, the connection between “doping” the World Series and the actual administration of dope to horses appears lost on those who used the term.

Nonetheless, the fact that doping entered the lexicon in such ways shows the link in the public consciousness between doping and gambling. The public became captivated by the belief
that doping allowed individuals to control physical performances in such a way as to fix the outcomes of competitions. Although the public cried foul when owners or bookkeepers doped horses, they also aimed to get the “inside dope” to be used to their own benefit. Either way, with suspicions about doping rife, the horse racing community sought ways to prevent concerns over unfair betting practices from keeping horse racing fans at home.

Cracking Down on the “Evils of Doping”

The horse racing community understood the threat that perceptions of doping (and unfair gambling practices) posed to their sport’s livelihood. Without gambling, horse racing held very little appeal to its masses of spectators. In a 1902 Chicago Tribune article entitled “Turf Officials Show Activity,” fears of the “evils [of doping] on the increase” were offset by news of turf officials cracking down on “some of the flagrant form reversals and ‘doping’ practices.” The Tribune labeled such practices an “injustice to the public which supports the game.” The guilty culprits, the Tribune asserted, remained the “owners and bookmakers” and not jockeys. The newspaper insisted that sporting penalties and legal action faced those who brought about “inconsistent running and ‘doping’ of horses.”

The posturing within the horse racing community in the United States during 1902 did not prove to be empty rhetoric. Concerns over doping as a means to fix races caused horse racing officials to alter their anti-doping statute—Rule 162—to read that “any person who shall be proved to have affected the speed of a horse by the use of drugs or stimulants administered internally and who shall have used appliances, electrical or mechanical, other than the ordinary whip and spur shall be ruled off [emphasis added].” The change in wording from “stimulated” to “affected” reveals the increasing concern that trainers, owners and jockeys used dope to modify a horse’s performance to support their betting needs. Doping increasingly became known
as the “methods of horse swindlers,” while articles describing how to spot a doped horse encouraged the ambitious gambler to examine a horse for “profuse perspiration” after exercise and that a doped horse’s “eyes look unnaturally brilliant and he becomes restless and ill at ease” compared to other thoroughbreds.

In 1903, the British Jockey club formally banned doping. Yet the bans appear to have only fueled speculation about the degree of doping and its effects on gambling. In April of 1903, the stewards of the New Orleans became suspicious of a thoroughbred owner named W.H. Fizer and suspended him for doping his stable of horses. One month later, reports linked the illicit practice of doping to the death of a race horse in New York. In July, the press reported that two unnamed men faced criminal charges for doping a “heavily backed” horse following its poor performance.

By the fall of 1903, the *New York Times* ran a headline entitled “‘Dope’ Evil of the Turf [sic]” and reported that “amateur detectives are on the lookout not for the good of racing, but for the benefit of their own betting operations.” Although “no tangible evidence has been gathered so far,” the column contended that doping is “the scandal of the racing season.” Later that season, the racing stewards sent a veterinary surgeon with a view towards determining whether or not drugs had been used when six favorites all lost on the same day. Concerns over doping lurked behind every inexplicable event.

By the close of 1903, Lord Stanley, in a toast to the aristocratic horseracing aficionados of the York Gimcrack Club, explained that “there was nothing more than likely to tend to the depreciation of the English thoroughbred than the practice of ‘doping’ which had latterly existed.” Although a rule had been passed on the matter and stewards could take swift action, Stanley feared that proving doping would be difficult. Stanley’s criteria was simply “suspicion sufficient to prove to men of common sense and judgment that there had been ‘doping’.” When
such allegations were proven, Stanly asserted that he was one for “taking such action as would prevent those associated with such practices from ever again setting foot on the British turf.”

**Alone in its Efforts**

Despite Lord Stanley’s threat of lifetime bans, the doping issue never abated. Doping scandals and accusations kept the subject in the newspaper headlines. With obvious storm clouds looming, the horse racing world turned to modern science for a rationalized approach that could stem the concerns over doping. The proposal was a test that could verify whether a horse had received any doping substances. The horse racing community introduced just such a drug test in 1912. Using a horse’s saliva, scientists could test the horse for certain doping substances such as cocaine or opium. Proponents of drug testing saw it as a way to prevent the doping of horses, although it remains unclear what effects such testing had on the sport. Nonetheless, the quick acceptance of drug testing in horse racing from disparate governing bodies—ranging from France to tracks across the United States—indicates the widespread concern over doping in horse racing. Horse racing’s governing bodies made it clear that doping had no place within its sport.

However, the horse racing communities’ efforts to eradicate doping stand in stark contrast to other sports of the era. Not only did no other sport ban drugs during this period but sports such as six day cycle racing, pedestrianism or even the modern Olympic Games had athletes openly experimenting with doping. Moreover, when reports of doping human competitors appeared in the press, they reflected less moral consternation than that expressed over horse racing. With horse racing calling for lifetime bans, instituting drug tests, and generally fretting over the future of the sport, why did doping in human competition escape similar treatment?
In all likelihood, doping in human sports garnered little attention since most assumed that humans only doped to improve performance. While fixing human sporting events remained a major concern, doping was not seen as a method for fixing such events. Rather, most assumed that, even if every athlete was not doped, then at least they were doing everything in their power to perform their best. Such an assumption appears relatively safe since, unlike horses, human athletes received payment primarily based on performance. With purses and prize money, along with perhaps a degree of fame, most people assumed that if an athlete chose to dope, they did so in their own best interest.

So while incentives might have reassured bettors that human athletes only doped to enhance their performance, when athletes were harmed through doping, it made major news. For example, a myth about the popular trainer of professional cyclists and pedestrians James “Choppy” Warburton indicates that he ran afoul of the tenets of fair play not from enhancing his charges but from his alleged poisoning of the champion cyclist James Michael, who was preparing to leave Warburton for more lucrative contracts. In 1907, the New York Times ran an article describing two cyclists ironically accusing someone of “doping their stimulant” after they had to withdraw from a six-day-race at Madison Square Garden. The fact that the riders did not hide their use of stimulants and called the administering of a harmful substance “doping” further reveals turn-of-the-century attitudes about performance enhancement. In 1912, boxing officials investigated the prize fighter Abe Attell for a suspiciously poor performance. To clear his name, Attell argued “his poor work was the result of an over-does of cocaine,” administered to his right hand before the fight and denied that “he had made any private arrangement with any one not to do his best.” Attell’s admissions, however, did not clear his trainer or medical personnel from suspicion that they had sought to profit by hindering Attell’s performance.

The concern over doping as something used to fix matches—whether human or equine—shows that turn-of-the-century sporting culture cared more about fair competitions than they did.
about how an athlete enhanced themselves. Today’s concerns over naturalness or artificiality did not enter the discourse. Indeed, the discourse shows that the public feared that doping created unfair gambling environments. In other words, the concern for the horse racing community was not ensuring that the fastest horse crossed the finish line first, but that nefarious trainers or bookmakers did not profit from unsuspecting patrons. Thus the rationale for doping bans in horse racing reflects modern sports concern with equality of opportunity but shares little in common with the concerns of contemporary arguments against doping.

Another Victorian Compromise

Although efforts to rid the turf of doping were popular decisions, they did not allay the concerns that doping persisted. Doping—or at least fears of doping—became the hallmark of horseracing for decades to come. Efforts to eradicate doping in horse racing resulted in the first anti-doping testing, many suspensions, and an ever increasing number of scandals. In the end, the saga of doping in horse racing reflects the sport’s role as a bellwether of modern sport. The rest of the sporting world quickly followed suit, first denouncing doping, then banning it, and finally witnessing the scandals that inevitably followed.

The shift towards the general rejection of doping in human sport reflects a complex web of shifting cultural, political, and intellectual forces. However, as early attitudes towards doping formed, they grew against the widespread backdrop of the horseracing community’s efforts to demonize and remove doping practices. Such attitudes, widely covered in the press, shaped the public image of doping as something nefarious, no matter its form.

Amidst the cultural cries over doping, illicit gambling, and cheating in horseracing, one problem remains especially troublesome: why were people so concerned about doping? Certainly owners had used any number of methods to make their horses run faster, even employing special
breeding to do so. They had used training, diets and any other magic potion prior to any mention of the word dope. Moreover, no reasons supported the belief that doping of the early twentieth century actually worked. Modern pharmacology and physiology reveal that the substances used to stimulate horses likely had deleterious effects on performance. Substances such as mercury, strychnine, cocaine, and nitroglycerine, among many others reported to have been used on horses, offer no performance enhancing benefit. While certainly people at the time believed such substances worked, the horses would not have been fooled by any “placebo effect.” Indeed, on the basis of today’s scientific evidence, there is no reason to believe that people were actually improving a horse’s performance. In a sense, all doping likely harmed the horse’s performance despite the belief that doping could make a horse run faster. Given that evidence, what explains the consistent and unrelenting concerns that individuals were doping horses to win races?

Indeed, a placebo effect of sorts was at work, except this one was not on the users of the drugs but the people administering them. While the substances themselves did not enhance performance, people believed that humans possessed the knowledge to create substances capable of controlling physical performances. Consequently, the new concern over doping in horse racing was part of a larger cultural turn towards science that had begun with the Scientific Revolution. The belief that humans increasingly could control their environment, including their horse’s performance, meant that people were ready to believe that such practices worked. Although no empirical evidence supported such claims, the mindset of the horse racing community was set such that people could control performance through substances and injections. Given that they believed such practices were possible, those in the horse racing world—and the general public—began seeing doping everywhere. If a horse ran better than expected, the cause was doping. The same thought process occurred when a horse ran slower than expected. No matter what a horse did, the belief that humans could control performance through science caused many to suspect doping was the responsible for the outcome.
Thus the widespread belief that doping worked drove concerns among the bettors that doping actually influenced the outcome of races. In fact, by the summer of 1903, the New York Times reported the practice of a con that played on peoples’ willingness to believe in doping. According to the report, a new method of swindling involved men going into pharmacies and, in confidence, reporting that the next day they were going to “dope” a certain well-known race horse and were buying drugs precisely for that purpose. If that horse won, the men would pay another call, this time explaining they intended to dope a longshot with a big payoff. They invited the pharmacist to place a bet on the new horse and reap some of the reward. The fact that pharmacists, who should have understood their own product’s limited powers, could be duped indicates the general willingness to believe that such drugs could turn a long shot into a winner. These con artists played on the powerful popular belief in doping and medicine to swindle even those who should have known better.

Thus at the turn of the century, it was not that someone suddenly had discovered ways to manipulate a horse’s performance. Rather, it was that people believed that such manipulation was possible. The popular belief in the promise of science and medicine proved fertile ground for the idea of doping to take root. The result was a cultural fascination and preoccupation with a practice that had little actually going for it at the time. However, the Western worldview allowed people to believe that they could increasingly control their own world.

Historian Crane Brinton described this attitude as part of the “developed cosmology of the nineteenth century.” Coming on the heels of the overly confident optimism of the late eighteenth century that culminated in French Revolution, Brinton notes the belief in material progress and scientific advancement continued where other aspects of the “Enlightenment’s” intellectual experiment failed. Thus the attitude about progress put in motion in the eighteenth century became what Brinton describes as “a state of mind that welcomed and expected material improvements, faster travel, bigger cities, better plumbing, and more abundant diet”—and a
magical pharmacology. By the end of the nineteenth century, the public imagination accepted the idea that people increasingly could control the world.

For those witnessing horse racing on both sides of the Atlantic, this developed cosmology influenced their perception that science permitted people to control physical performance. Individuals now assumed that manipulating performances was as easy as pulling levers. While the nascent field of physiology sought to quantify such performances, the ordinary individual already assumed the power existed to modify them. Much like today’s fascination with genetic modification, or gene doping, the fascination of the Victorian era with scientific and technological mastery convinced the horseracing community that individuals, through doping, could modify a horse’s performance. They were willing to believe it was possible and thus responded as if it was already occurring. The lack of empirical evidence never discouraged or reduced suspicions of doping. Indeed, it only deepened them, as people simply assumed that science permitted individuals to dope in secret.

**Conclusion**

The horse racing world’s concerns regarding doping focused primarily on ensuring the equality of conditions and not any idealized notion of horse racing. There were no calls for horse racing to be about natural and not artificial talent or fears that doping provided a shortcut to racing greatness. Indeed, the primary concern was simply ensuring fair and transparent competition that enabled betting. Uncritically reading into turn-of-the-century horse racing today’s anti-doping discourse distorts the issues that occupied the debates of the day. Although superficially similar to what anti-doping advocates preach today, the driving concerns behind this movement were not based on any idealized notion of sport serving a higher purposes or assumptions about sport show casing natural talent. Thus concerns regarding doping in this period
were not, as one author had explained, for the ensuring the quality of racing, but for maintaining the betting operations which supported the sport.\textsuperscript{66}

Such conclusions fundamentally alter the traditional doping narrative in academic literature. In historian John Hoberman’s seminal work \textit{Mortal Engines}, he answers his question “What is Doping?” with the conclusion that:

The concept of “doping” includes two basic themes. In colloquial usage, “doping” refers to the boosting of human performance by artificial means. In recent years, that has meant drugs in general and anabolic steroids in particular. The second, more complicated aspect of “doping” aimed at improving human performance is the presumption that it represents an illegitimate strategy. While all sports federations, including the international Olympic Committee, and virtually all sports journalists denounce doping as scandalous, many elite athletes do not regard doping as illegitimate.\textsuperscript{67}

Hoberman illustrates two misconceptions about the nature of doping: that its colloquial usage implied “boosting” performance, and that its rejection is without any justification. In fact, at its outset, doping did not have the colloquial usage of \textit{just} boosting performance. A doped horse was one that was as likely to perform worse as it was to perform better. Thus Hoberman is at least partially wrong when he claims that “the doping of racehorses throughout the twentieth century is only one of many parallel developments that link human and equine athletes,” as the doping of racehorses had to do both with fixing of bets as well as the human fixation with boosting performance.\textsuperscript{68} Modifying horses’ performances—whether to stimulate or diminish—captured the public imagination. Only later did doping become a practice colloquially understood to be used to boost performance.

Second, that horse racing organizations banned the practice of doping horses appears, at least partially, legitimate. The methods trainers and jockeys used to modify a horse’s performance appear cruel by any standards, and people of the time recognized such cruelty. Additionally, the need to create the appearance of fair competition in turn-of-the-century horse racing emerged from the need to preserve the integrity of the gambling environment that surrounded horse racing.\textsuperscript{69} This at least provides a kind of logic behind the decision to ban doping in horse racing.
Unlike in human contests where assumptions held that all human athletes were performing their best, trainers were modifying horses to suit their betting whims—only a few strange examples of this occurred in human sport.\(^{70}\)

Nonetheless, the rejection of doping in horse racing likely influenced negative public perceptions of other doping practices, if only through “guilt by association.” By using the same word to describe the practice of modifying horses in order to fix races as the practice of improving elite athlete’s performances, those discussing doping imported negative attitudes without being fully aware that they were doing so. The moral condemnation of doping that had emerged from the horse racing world’s concerns over cheating and gambling allowed people to more easily condemn the practice in human sport, even if the reasons were not the same. Quickly, doping in human sport became a practice for cheats and unscrupulous touts. The public, so familiar with the negative discourse created by horse racing, accepted this narrative with little debate. Combined with other shifting cultural attitudes about drugs in the early twentieth century, the idea of permitting doping in human sport never really had a chance.

Today, the focus on doping and the rise of anti-doping ideology mainly as a response to drug use in human sport has obscured the intellectual currents that provided the foundation for the rise of a modern anti-doping philosophy. That focus has also underestimated the power of influences outside sport in shaping modern sport’s discourses. Such approaches have also neglected the fundamental concerns that brought about initial anti-doping efforts, efforts that influenced larger cultural views towards doping. Indeed, throughout the horse racing world of the early twentieth century, many decried doping—and doping scandals—in terms often repeated today. Articles often referred to dope in terms such as “evil of the turf” and labeled those who doped as “unscrupulous touts.”\(^{71}\) Such language could just as easily emerge from a WADA or IOC president. Like today’s rhetoric surrounding doping, accusations often emerged based on nationalistic lines or when an athlete suspiciously performed better than expected. Calls for
increased testing and surveillance often followed high profile scandals as a means to “clean up” the sport. Even the idea that lifetime bans could discourage the practice of doping emerged in the first doping debate.

Given the familiarity with such anti-doping comments, the temptation exists to lump initial anti-doping discourses together with contemporary ones. However, the past debate only provides a fossilized imprint showing what today’s debate evolved from. Yet today’s discourse still shows the evolutionary residue or the horse doping concerns. For example, the causal argument that doping should be banned because it is unfair remains prominently placed like an ornamental horn—still eye catching but of little practical use. Nonetheless, the archeological record of the doping discourse’s development reveals, like evolution itself, the environmental pressures and stressors to which the subject adapted. Indeed, as modern society increasingly attempted to understand the changing promise of technology, sport reflected these views in its doping discourse. Thus, the discourse about doping reflects a public imagination not only coming to terms with its own changing world but also wrestling with the idea of its mastery over it.

Endnotes

1 The term doping is often used interchangeably with terms such as performance-substances and Performance-enhancing drugs. While each of these terms carries slightly different connotations, I have chosen to use the term doping first because that was the term used during this period of history and second because, as I will argue in this article, doping was not always performance enhancing.


Evil (New York: Routledge, 2007), Hoberman, "History and Prevalence of Doping in the Marathon,” 
Sports Medicine 37, no. 4-5 (2007), Møller, The Doping Devil (Copenhagen, Denmark: Gyldendal, 2008), 
Rosen, Dope: A History of Performance Enhancement in Sports from the Nineteenth Century to Today 
(Westport: Praeger, 2008).

5 The next organization outside of the horse racing community to prohibit doping was the 
International Amateur Athletic Federation nearly three decades later in 1928. See I.A.A.F., "I.A.A.F. 


7 I emphasize discourse here because scholars have certainly examined the history of athletes using doping 
but few have examined how sporting communities debated the issue. Thus this text examines the 
intellectual discourse of doping rather than the practice itself.

8 Adelman, A Sporting Time : New York City and the Rise of Modern Athletics, 1820-70, Illini 
Books ed., Sport and Society (Urbana: University of Illinois Press, 1990), Huggins, Flat Racing and British 
Society, 1790-1914 : A Social and Economic History, Sport in the Global Society, (London ; Portland, OR: 
Frank Cass, 2000), Vamplew, "Playing with the Rules: Influences on the Development of Regulation in 


10 For a discussion on the change from traditional to modern sport and the characteristics of 
modern sport, see Guttmann, From Ritual to Record : The Nature of Modern Sports, Updated with a new 

11 Hoberman, Mortal Engines: The Science of Performance and the Dehumanization of Sport 


13 Indeed, the vast majority of times doping was used in connection to horse racing and sport and 
not the general drugging of people. "Dope, V.1," in Oxford English Dictionary (Oxford University Press, 
1989).

14 "The Field of Sport," The Oregonian, October 18 1890, 2.


16 The rule read as follows: “Any person who shall be proved to have stimulated the speed of a 
horse by the use of drugs, whether administered by hypodermic or any other method, or who shall have use 
appliances, electrical or mechanical, other than the ordinary whip and spur, shall be ruled off.” “'Doping' to 
Be Stopped," Michigan Farmer, February 6 1897, 100.

17 Ibid.

18 Vamplew, "Playing with the Rules: Influences on the Development of Regulation in Sport," The 

19 Ibid.
For more on this development, see Chapter Two of Guttmann, *From Ritual to Record: The Nature of Modern Sports*, Updated with a new afterword. ed. (New York: Columbia University Press, 2004).


Pulling one’s horse is an accusation of not racing to win "Lester Reiff Ruled Off Turf," *Chicago Tribune*, October 2 1901, 6.

"To Weed out Americans," *Chicago Tribune*, November 5 1900, 8.

Other occasions indicate the unwillingness or lack of first-hand knowledge surrounding doping. An in-depth examination of doping in 1896 by a Los Angeles Times reporter explained that, when asked anonymously about doping, “each one blames the practice on the others. I only found one man who admitted that he did. The others tracks ‘over the hills and far away’ where the practice prevailed.” This indicates either that doping was not practiced as much as people suspected or that few were willing to own up to their own actions. "How Horses Are "Doped"," *Los Angeles Times*, January 5 1896, 25.

"The 'Doping' of Racehorses," *The Times*, November 20 1900, 7.

"Notes," in *The Outlook* (London1900).

"Offer No Evidence of "Doping"," *Chicago Tribune*, November 20 1900, 9.

"Tom Collins Defeated at Newport; No "Doping" on Austria Tracks," *Chicago Tribune*, November 27 1900, 4.


In hindsight, it is unclear how such "tips" actually helped bettors. Few, if any, would ever see the horses close enough to "examine their eyes" or to view a horse exercising before the race. These clues to a doped horse appear to be, like other things in this era, more myth and hearsay designed to ward off fears of being duped or to inspire confidence in betting on doped horses rather than on any real science of doping. But this is a point to be returned to later. "Use of 'Dope' Grow on Turf," The Times of Washington, September 22 1902, 5.

"Reopening of Selling War," Chicago Tribune, April 1 1903, 6.

"Doped' Race Horse Died: Dr. Riddle, Figure in Morris Park Scandal," New York Times, May 16 1903, 7.

"Bondage Suffers from Dope," Chicago Tribune, July 30 1903, 7.

This defense was used by "two men say they can prove an alibi and bring witness to prove they bet on Hayward Hunter," a different horse in the race. "Vignaux Will Play Sutton," Chicago Tribune, October 31 1903, 6.


"The Gimcrack Club," The Times, December 5 1903, 8.

"French Club after "Dopers'," Chicago Daily Tribune (1872-1922) 1912.


Ibid.


Ibid.

I say appear because, while little evidence indicates doping actually produced the intended effect, many believed that the drugs could modify performance and thus had to be stopped.

Although a jockey could take a dive, as was evidenced by Reiff’s expulsion for pulling his horse, this practice was often obvious to the racing stewards. Doping one’s horse, on the other hand, was impossible to detect.

Chapter 2
An Intellectual History of the Discourse on Performance Enhancement and Doping, 1889-1960

Introduction

Somewhere between the heady, strychnine-fueled world of six-day cycle races in the late 1800s and the death of Knud Jensen at the Rome Olympics in 1960, the general discourse on doping in sport changed dramatically. One should not confuse that statement with the belief that athletes’ behavior regarding using doping had changed; athletes have continued to dope—for a period licitly but often illicitly—since sport first modernized.¹ Yet the attitudes about doping that originally ranged from tacitly tolerant to outright advocacy of the practices gave way to a general sentiment of moral condemnation best characterized by what historian Verner Møller calls “anti-doping fundamentalism.”²

The experimentation by athletes with performance-enhancing substances is as old as modern sport. Since the nineteenth century, participants have attempted to rationalize sporting performances through a scientific worldview.³ As the historian John Hoberman notes “the idea that the sports world was pure and honorable before anabolic steroids spread across the world remains an influential misconception.”⁴ While a patchwork of moral disapproval always surrounded drugs and stimulants in sport, not until the International Amateur Athletic Federation (IAAF) wrote a rule in 1928 prohibiting athletes from doping did a sporting federation or league ban athletes from using certain practices for enhancing their performance.⁵ Ten years later, the International Olympic Committee (IOC) passed a similar rule that included not only Olympic sport but all amateur athletic competition.⁶

Over the next few decades sporting organizations wove the original patchwork into a tighter pattern prohibiting doping. Still, significant holes remained in the weave such as the more
tolerant attitudes of professional cycling and association football towards doping. The Danish cyclist Knud Enemark Jensen’s drug-related death at the 1960 Rome Olympic Games indicated the remaining holes in the anti-doping tapestry. After the Jensen event, even in cycling and other professional sports, doping increasingly became anathema. The sporting world rapidly began to increase both the formalization of anti-doping rules as well as instituting new testing measures designed to catch athletes who cheated.

In starts and stops, anti-doping policies grew more established in the period following Jensen’s death, with increased drug testing coming often as a reaction to drug-related scandals. Initially hamstrung by science and politics, the IOC finally introduced drug testing at the 1968 Games, but would not have a serious commitment to curtail doping practices until after Canadian sprinter Ben Johnson’s high profile positive test for stanozolol during the 1988 Olympic games. As the Cold War’s “big arms” race played out in anti-doping of the 1970s and a global war on drugs (regardless of whether their use was for sport or recreation) swept the 1980s, the intellectual streams of early anti-doping ideologies were forgotten as they joined larger social tributaries. The NCAA approved drug testing rules in 1986 following scandals at Clemson University. The National Football League began drug testing in the late 1980s after a string of high-profile players suffered drug-related deaths. Major League Baseball, one of the last organizations to implement drug testing, finally succumbed to public pressure in 2004 following a high number of anonymous tests that were positive for anabolic steroids and human growth hormone the previous season and the constant, less anonymous public scandals involving its athletes.

The most recent substantial change in anti-doping policy came in 1999 with the establishment of the World Anti-Doping Agency (WADA). WADA exists as a quasi-independent agency designed to oversee all doping related issues ranging from policies, testing and punishments to education and even, at times, the provision of legal assistance to governments.
wishing to prosecute athletes caught using performance enhancing drugs. It handles all Olympic sporting federations’ drug testing and sets the policies which the international federations follow. WADA currently receives official endorsement from the United Nations through UNESCO as well as numerous countries including the United States. While drug testing policies—including WADA’s own—continue to evolve, no major shift in anti-doping policy or in sport’s general approach to doping has occurred since 1999. Thus WADA represents the dominant narrative shaping today’s anti-doping debate.

The intellectual influences behind WADA’s anti-doping ideology have long existed, if only in their nascent stages. Imported from the world of horse racing, the public has heard doping described as an evil for over a century. Gradually over the first half of the twentieth-century, sporting communities shifted their views of PESs from casual acceptance to outright condemnation of their use. This shift reflects larger cultural and sometimes counter-cultural forces. Few historians have yet to examine this intellectual shift. What were these driving social and cultural forces shaping the sporting world’s march towards near universal condemnation of performance enhancing drugs?

As a cultural history, this chapter does not aim to reconstruct the story of who doped “when” and with “what” or even to document in what era a variety of sports organizations passed legislation prohibiting doping. Full scholarly histories of these issues already exist. Moreover, athletes’ behavior regarding doping does not faithfully mirror changing ideological sentiments. Yet often this disconnect factors into the public discourse. Both the fact and the fiction regarding doping practices reveal significant points about the rhetoric that shaped the rising anti-doping narratives in sport. Indeed, the intellectual forces that brought about the current homogeneous rhetoric decrying the use of doping in sport reflect social and cultural changes about class, sport, medicine and public health.
Understanding these changing intellectual forces presents certain challenges. Historians cannot simply poll past people’s perceptions. Yet the rhetoric that people used to describe doping provides certain insights into the general public’s attitudes towards the idea of doping in sport. What complicates this picture further, however, is that sport was never monolithic. Instead, sport remained a diverse—and at times self-contradictory—amalgamation of peoples, geographies, leagues and cultures. For instance, the working-class, Francophone culture of professional cycling differs greatly from the Anglophone gentlemen cricketers frequenting the Oval which also differs more from the polyglot track and field athletes of the Cold War-era. These diverse sporting cultures often understood doping differently.

At the same time, doping attitudes were tethered not just to sport, but the variety of forms sport could take. For example, international, professional, collegiate, and amateur sport—each with its own rich cultural history—often held differing views towards doping, even within the same sport. For example, professional pedestrians and marathon runners could dope in turn-of-the-century running contests, while amateur runners rejected the practice. Yet all sports in their reactions to doping reveal something about how contemporary anti-doping attitudes emerged. From Muscular Christianity and its view of sport as a healthy, character-building endeavor to class tensions built into the middle-class amateur values to the emerging disciplines of physiology and public health, conceptions of doping and performance enhancement gradually coalesced into a hegemonic, if somewhat contradictory, anti-doping ideology. These forces, ranging from the changing landscape of international sport to the changing cultural attitudes towards drugs in modern societies, have shaped how the modern sporting world viewed athletes using performance enhancing drugs. Indeed, it was the changing social and intellectual forces surrounding sport and not a debate internal to sport itself that largely influenced the sporting landscape in which athletes doped.
Amateurism, Muscular Christianity, and an Emerging Anti-Doping Philosophy

Horse racing’s early anti-doping attitudes appear to have influenced the sporting world’s later decision to prohibit human athletes from doping. At the start of the twentieth century, athletes openly and at least somewhat acceptably experimented with a number of doping substances for purposes of improving performance. Doping was a natural extension of modern sport’s quest for ultimate athletic achievements. However, unlike horse racing, human athletes, trainers, and coaches mainly sought improved performance or positional advantage in their individual quests for sporting glory, not for their betting interests. They experimented with not only pharmacological substances but any other potions, elixirs or herbal remedies that promised increased strength or improved endurance.

However, the sporting world’s general acceptance of doped athletes would eventually end. The horse racing communities’ war on doping had saturated newsprint and popular discourse with the belief that doping was immoral and unfair. Although the threat to gambling that drove the ban on doping in horse racing did not apply to other sports of the day, the debate primed general audiences to accept it as generally unscrupulous.

Thus champions of a new anti-doping philosophy found their path somewhat already paved. These anti-doping advocates were a vocal and literate group, who drew most of their membership and support from the new middle classes and the elite leadership of the aristocratic class. On the whole, they generally condemned booze and gambling and were skeptical of certain aspects of sport. They advocated the principles of amateurism and muscular Christianity and perceived the stimulants available to athletes as a threat to those principles. In turn, these movements translated their views into concrete sporting legislation. In 1928, the International Amateur Athletic Federation (IAAF) banned any athlete who doped from amateur competition for
life. Ten years later, in 1938, the IOC would follow suit, passing a rule that prohibited doping by any athlete in amateur competition.

In the twentieth century, the cultural belief in amateurism, imbued with middle-class values and developmental goals consistent with the philosophy of muscular Christianity, provided the ideological impetus for wider prohibitions on doping. In the first half of the twentieth century, apostles of amateurism and true believers in sport’s moralizing force increasingly demonized the practice of doping. That is not to say, however, that all sporting organizations banned doping. Many professional sporting organizations continued to permit their athletes to dope. For example, professional six-day cyclists openly experimented with an array of stimulants in hopes of warding off fatigue. It is out of these tensions—tensions between journeymen professional athletes making a living and aspiring middleclass apostles of amateur sport—that the roots of today’s anti-doping philosophy first sprouted.

But before this claim can be defended, it is important to establish what is meant by amateurism. To be sure, historians of sport have found the concept of amateurism quite challenging to define. This is mostly because no single, fixed concept of amateurism ever existed for all sports. Definitions of amateurism varied significantly depending on location, sport, and even time period. Historian Mike Huggins explains, the British first used the term amateur as “a synonym for an upper-class patron or sporting enthusiast (whether or not earning money from sport).” Unsurprisingly, the aspiring middle-classes gradually appropriated this word over the course of the nineteenth century, apparently hoping to enjoy its upper-class connotation while infusing it with distinctly middle-class values. Such values, derived in part from the moral force of muscular Christianity, aimed to transform the newly minted leisure class’s fixation on sport into a force for moral and social development in British society.

Amateurism also allowed the class-conscious middle and upper-classes to stratify their leisure time. Amateurism became a thinly veiled disguise for preventing working-class
individuals from joining their “social betters.” A prime example of amateurism’s class distinction is found in the British Amateur Rowing Association’s (ARA) prohibitive “mechanics-clause,” which defined an amateur as a rower who had not only never competed for pay but had never had been “employed in or about boats for money or wages.” Indeed, in the nineteenth century the ARA even excluded anyone who “had been by trade or employment for wages, a mechanic, artisan or labourer.” This clause had the effect of preventing any working-class individuals from competing in so-called “amateur” rowing events. In less overt ways, amateurism’s rejection of broken time payments—payments to amateur athletes for missed work due to training or competition—and its dependence on disposable income prevented working-class individuals from accessing amateur sport.

At the same time, the use of professionals in certain “amateur” sports further defined class distinctions. For example, the British Amateur Yachting Association permitted professional crews to compete in amateur events as long as the captain remained an amateur. The specialization of roles based on class served to reinforce social boundaries. In cricket, the gradual shift from teams comprised of wealthy landowners and their estate workers to the clearer distinction between “gentleman” (amateurs) and “players” (professionals) provided another means for amateurism to distinguish between the classes. Eventually amateur cricketers accepted nominal employment with their respected clubs, earned the gate receipts from testimonials, and (under the table) received “broken-time payments” as compensation for their play. Professional players, on the other hand, often received modest payment, usually maintaining the grounds or performing other labor as part of their contract. Strict social rules also applied to sporting protocol. The players could not dine with the amateurs and also were forbidden from captaining a side. Additionally, the gentlemen served as a side’s batsmen and the professionals as the bowlers. This assignment of positions emerged from class hierarchy, as the risk of a working-class batsman embarrassing their social betters by scoring too many runs proved too great.
Amateurism in the British Empire, writes historian Mike Huggins, was “accompanied by snobbishness, hypocrisy and double standards” and “became emblematic of class.” With social class also came the question of power. The middle-classes’ hold on amateur sport prevented working-class athletes from directly challenging middle-class prowess. Working-class players, whose physically demanding professions often produced physically fit athletes, found themselves marginalized or excluded from direct inter-class contests of athletic prowess. They had little leverage in changing a social system that prized a way of playing sport never open to them. For those segments of the middle-class that adopted amateurism, participation in amateur sport allowed them to emulate the upper-classes through their behavior on the sports field. Those on the outside of amateurism’s gated fence found their sporting feats lacked the social status of their more affluent counterparts. Once ensconced in amateurism’s cocoon, an aspiring middle-class doctor or lawyer would never jeopardize their social status by becoming a professional athlete. For example, cricketing legend William Gilbert Grace, maintained his amateur status by keeping up the appearance of being a practicing physician despite his professional approach to the game. Similarly, the amateur golf legend Bobby Jones portrayed himself as a practicing lawyer throughout his career. Had Grace or Jones elected to play as professionals, their decisions would have relegated them to the social status of the working-class, a group that neither athletes would have likely wished to join despite any monetary benefit.

Professional athletes of the early twentieth century tended to be working-class individuals, for whom professional sport was simply a better version of manual labor. These athletes sought to use their bodies and physical prowess for profit in the same way as a miner or factory worker. In sports such as association football, pedestrianism and cycling, the athletes who competed in the Olympic Games never were, in the eyes of amateurism’s true believers, amateur athletes because they usually aspired to enter the professional ranks. For those amateurs in such professional sports, a successful “amateur” career was a means to a lucrative professional
contract. For example, many marathon runners, including the Italian hero Dorando Pietri and the American Thomas Hicks, parlayed their athletic fame into professional running contests following their Olympic success. But in Victorian Britain, money gained by any trade—whether through sport or manual labor—simply held lower social status.\(^3\) Even if professional athletes attained wealth, that wealth did not translate into perceived status. Thus professional sport was not an instrument of social mobility. At best, a typical professional cyclist could save enough money to own a bicycle shop, whereby they traded on their fame as a cyclist to drum up business. Similarly, a famous professional football player may be appointed groundskeeper for their club, thus earning a steady paycheck. Yet the attainment of the title “gentleman amateur” was never open to working-class professional athletes, even before they accepted payment for sport.

While professional athletes sought incomes, apostles of amateurism associated sport with higher purposes. Such attitudes primarily resulted from the pervasive Victorian value of Muscular Christianity. Muscular Christianity combined contemporary views of male physicality with nationalistic patriotism and socially acceptable religious piety (although the latter often received the least attention). It viewed sport as physically and morally edifying. Infused with the same social forces driving nineteenth-century temperance movements and other “lifestyle” crusades, Muscular Christianity tied robust, physical health to abstinence from inebriating substances.\(^3\)

Originating in nineteenth-century Great Britain, Muscular Christianity quickly crossed the Atlantic and caught on with Americans. The ideology appealed mainly to middle and upper class individuals.\(^3\) Its chief proponents include Thomas Hughes—whose famous work *Tom Brown’s School Days* exemplifies Muscular Christianity—and Charles Kingsley, the founder of the Young Men’s Christian Association, commonly known as the Y.M.C.A.\(^3\) In Kingsley’s case, outdoor recreation could fortify the body and the soul against the rigors of everyday life. It fought off the general concerns of “softness” of urban life and returned individuals to “natural” and “authentic” experiences. Hughes, on the other hand, viewed sport as a character building
enterprise, with those surviving the crucible of the cricket match or football pitch better suited for the challenges of life.\textsuperscript{34}

As Muscular Christianity and amateur sport gained greater social purchase, reactions to doping and drug use among athletes increasingly reflected these ideological sentiments. Muscular Christians were mistrustful of substances such as alcohol, cocaine and opiates, regardless of their application to sport. Hoberman links this attitude directly to the rising anti-doping ideology as “the early scientific investigations into potentially performance-enhancing drugs coincided with powerful temperance movements aimed at stigmatizing alcohol and tobacco as medically and socially harmful ‘poisons.’”\textsuperscript{35} While scientists and trainers discussed alcohol and nicotine as stimulants for aiding athletic performance, the temperance aspect of muscular Christianity tended to view such substances as unhealthy and thus contradictory to their vision of sport.

Those who sought to rid sports of doping also benefited from changing social views regarding “drugs” in general, not specifically drug use in sport. Temperance and prohibitionist movements during the nascent period of modern sport provided intellectual cover for those seeking bans on doping. In a 1901 article in Women’s Physical Development, author J.C. Burns describes how “gymnastics and athletic exercises have lately become generally recognized as being far superior to the ‘drug treatments’ so long in vogue.”\textsuperscript{36} Setting healthy sport against “doping the patient” exemplifies the general belief that “drugs” and “healthy living” inherently conflicted with one another. Such a sentiment emerged again in an 1899 article titled “The Greatest Athlete That Ever Lived.” The author praised “the foremost of American athletes” and “a model amateur,” William B. Curtis, for abstaining from stimulants and maintaining a pure lifestyle of an amateur athlete.\textsuperscript{37} The article portrays Curtis as an athlete who earned his athletic success the right way, by avoiding stimulants and the professional lifestyle. At the collegiate level, both the Harvard and Yale crew teams made a similar point in 1900 by forbidding their athletes from using stimulants during the season.\textsuperscript{38} In 1905, the Christian newspaper \textit{Herald of}
Gospel Liberty pointed to the use of strychnine in American football as evidence of the sport’s immoral influences.\textsuperscript{39}

Despite such objections, other amateur athletes at the start of the twentieth century had no moral qualms about using stimulants.\textsuperscript{40} The Cambridge University graduate and amateur tennis champion Eustace White explained in 1901 that “alcohol does have certain advantages for modern athletic conditions.” White believed that when a player felt tired near the end of a tennis match and needed ten more minutes of good play, “he takes a glass of brandy; he keeps up for ten minutes longer; he wins.”\textsuperscript{41} A person considered at that time to be a clear amateur, White’s attitude towards stimulants and winning indicated that he did not see stimulants conflicting with the values of amateur sport. Moreover, White reveals other amateur athletes used alcohol for training purposes. To ward off “staleness,” White explains, the Cambridge crew team would take a glass of port following training and a beer at midday.\textsuperscript{42} Indeed, The Times dates the use of alcohol for training back to an 1860 resolution from the Oxford rowing team stating that it would pay for the champagne it deemed necessary for the athletes’ training.\textsuperscript{43}

Yet advocates of amateur sport overlooked such transgressions in their efforts to promote their brand of sport. An 1895 article in the elitist New York Times fretted over the “extraordinary interest and widespread indulgence” in stimulants for performance enhancing purposes. The article argued that no “true athletes” would use “any such injurious and adventitious aids,” despite the fact that professional athletes could use such drugs “in order to help them prepare for their work.”\textsuperscript{44} Amateurism’s ideological influence meant that professional athletes and “true” amateur athletes played under separate moral codes, codes derived from their social and class status.

In working-class professional sport, the class divide separating professionals and amateurs allowed professional athletes the freedom to use stimulants as they plied their labor free from amateur sport’s moralizing influence. Professional cycling trainer James “Choppy”
Warburton, the aforementioned coach who allegedly used substances to prevent one of his athletes from winning, openly doped his riders throughout the 1880s and 1890s. By 1903, the public’s expectation that professional athletes put on a good show increased to the point that in one case, a reporter openly lamented the lack of doping when fatigue slowed the riders at a six-day cycling race at New York City’s Madison Square Garden. The journalist complained that “some of them seemed sadly in need of stimulants.” 47 A 1904 article discussed the value of “a good second” in a prizefight since they knew how to dope the boxers with stimulants.48

The grinding nature of professional sports such as cycling and prize fighting where pay was moderate and based on performance meant newspaper reports portrayed stimulants as a tool for professional athletes doing their job.49 These reports did not depict doping as unfair or cheating. Rather, the act of doping to assist in physical labor fit within the acceptable social behaviors for the working-class. Their jobs demanded they use their bodies in physically demanding ways. Sport was not a means of leisure but a means for economic profit. Middle class notions about sport’s moral purpose, both in this era and throughout the twentieth century, did not apply. The physical toll of such racing often meant the athletes used drugs to combat fatigue rather than gain an edge.

Even in pre-professional sports such as the 1904 and 1908 Olympic marathons—where runners of such distances often comprised working-class individuals—working class athletes could acceptably dope. Given the sport’s physical demands, many apostles of amateurism regarded the marathon as a sport suited for working-class professionals. Sports such as boxing and cycling also fit such a description, where sportswriters would distinguish between “professional” and “professional amateur.”50 For both classes, doping remained an acceptable aspect of such sports since the athletes emerged from the working-class with sights set on professional sport. Thus, when reports of Thomas Hicks in the 1904 Olympic marathon and
Dorando Pietri in the 1908 Olympic marathon using dope surfaced, no one objected to such practices. Most likely, Hicks’ and Pietri’s use of stimulants in the marathon raised little concern for those seeking to preserve amateur sport since the anti-doping advocates realized that these athletes qualified as true “gentleman amateurs” and fell outside the moral code of amateur sport. Moreover, given the strenuous and time-consuming nature of the marathon, the event itself always carried professional overtones for the amateur ideologues. While prior to their Olympic races neither Hicks nor Pietri had competed for pay or raced against professionals, most people understood that these types of athletes intended to turn pro if the opportunity arose and that the values of amateurism never truly applied to the two runners. Indeed, both runners eventually tuned professional and continued their use of stimulants throughout their careers.

When those individuals who did fall under amateurism’s ethos doped, the story appeared differently. For example, in the sport of long distance swimming, Jabez Wolfe, a British swimmer who took part in the highly publicized quest to swim the English Channel received doses of extra oxygen during one of his attempts in 1908. Wolfe’s rival, Montague Holbein, denounced Wolfe’s use of oxygen as “unsportsmanlike.” The British aristocrat and amateur sportsman Lord Lonsdale supported Holbein’s objection and argued that “the use of oxygen is unsportsmanlike and un-English.”

In the United States, where class distinctions carried less weight, the American public remained more tolerant of doping. Despite amateurism’s growing influence on the anti-doping front, some amateurs continued to use stimulants. In 1910, an editorial for the New York Times warned young athletes against over-indulging in alcohol or tobacco, although the editor conceded that “a man under severe training needs a little stimulant now and then, especially during a severe bout of training.” In 1911, the Cornell rowing coach showed his aversion to doping when he denied doping the Cornell rowers. He admitted, however, that he believed the “football men and track men were drugged before important contests.”
By the 1920s, the ideology of amateurism and the gospel of Muscular Christianity increasingly influenced middle-class attitudes. As temperance movements gave way to prohibition, an article in the *Chicago Tribune* proposed sport as “the moral equivalent for drink.” Arguing that “exercise, sports, the ideal of mens sana in corpora sano, will give us a sounder basis of happiness,” the article asserted that “you can’t drink and do justice to any sport.” If sport is a moral force and alcohol immoral, then there is no place for the two to mix. The concern was not about inefficient challenges or the nature of sport, but about healthy, moral living. This same message was transmitted by the children’s periodical *Youth Companion* to boys dreaming of baseball success by claiming that “clean living, good food, plenty of exercise [sic]” composed important aspects of physical training and warned athletes away from “stimulants or tobacco.”

Working class professionals did not see sport in a similarly moralized manner as their middle-class amateur ideologues. This disagreement between the two classes at times caused frustration. Often one such place was cycling’s preeminent race, the Tour de France, where the desires of the middle-class managers and promoters to promote a socially acceptable spectacle butted up against the habits of working-class professionals. In one incident, where professional cyclists Henri Pelissier, Francis Pelissier and Maurice Ville abandoned the Tour de France in protest of the conditions in the 1924 race, they sat down at a café with journalist Albert Londres, from the French newspaper *Le Petit Parisien*. Londres recorded their conversation:

“We suffer on the road. But do you want to see how we keep going? Wait...”

From his bag he takes a phial. “That, that's cocaine for our eyes and chloroform for our gums...”

“Here,” said Ville, tipping out the contents of his bag, “horse liniment to keep my knees warm. And pills? You want to see the pills?” They got out three boxes apiece.

“In short,” said Francis, “we run on dynamite.”

The working-class connotation of Londres’ “laborers of the road” epitomizes the popular view of professional cyclists in France. Historian Christopher Thompson explains that working-
class behavior, such as doping, often led to tensions with Desgrange who expected cyclists to behave in more socially acceptable ways. Yet evidence exists that with professional cyclists, their working-class behavior often endeared them to their fans, much to the frustration of upper management. 60

By the end of the 1920s, amateurism’s aversion to doping had finally taken hold on the international stage. Amidst the debates over amateurism at the start of the 1928 Olympic Games, doping became an issue. During the debates, the IOC threatened not only the International Amateur Athletic Federation (IAAF) but also association football and lawn tennis threatened “unless [the federations’] amateur rules are changed” to align with the IOC’s. 61 This prompted the IAAF to implement certain rules intended to show its compliance with amateurism. One effort was its ban on doping in amateur sport. On the eve of the 1928 Games, the IAAF became the first international sporting federation to formally ban their athletes from doping in competition. 62 Their declaration read:

Doping is the use of any stimulant not normally employed to increase the poser of action in athletic competition above the average. Any person knowingly acting or assisting as explained above shall be excluded from any place where these rules are in force or, if he is a competitor, be suspended for a time or otherwise from further participation in amateur athletics under the jurisdiction of this Federation. 63

This decision, especially coming on the heels of American star sprinter Charlie Paddock’s disputed status as an amateur, reinforced the IAAF’s commitment to amateur competition.

Others also believed doping eroded sport’s moral influence. In 1929, the director of health education for the state of New York, Dr. Frederic Rand Rogers, critiqued what he believed to be wide-spread use of strychnine in sports, arguing that using stimulants conflicted with the value of “play for play’s sake,” and worried about doping’s corrosive effects on character development. 64 However, in professional sports such as prizefighting, doping continued. Reporter
Westbrook Pegler of the *Chicago Tribune* reported in 1930 that he believed “all great professional athletes and the majority of the professional amateurs drank stimulants,” and praised German prizefighter Max Schmeling for his abstinence and moral guidance.”

Although the repeal of the 18th Amendment in 1933 ended prohibition in the United States after just thirteen years, Muscular Christianity, both in the U.S. and abroad still carried cultural currency. Its fundamental principles—a sound mind in a sound body—dominated secular discourse in the years preceding World War II. Societies increasingly viewed sport as a moral and healthy endeavor. Drugs threatened its moral value and the general aversion to doping as an unhealthy practice gained wider cultural currency. Although the IAAF and the horse racing communities had established anti-doping bans, the once-open cultural attitudes about doping had solidified decidedly against the practice.

This became clear following the 1932 Los Angeles summer Olympics. At these Games, the Japanese men surprisingly trounced their American counterparts in the swimming events, winning gold in five of the six races. After the games, two swim coaches from the United States, Matt Mann and Robert Kiphuth, formed a National Collegiate Athletic Association (NCAA) subcommittee to investigate allegations that the Japanese swimmers breathed purified oxygen prior to their events. Mann adamantly denounced the actions of the Japanese men as doping (despite no rules prohibiting the practice) and declared a “war against doping” of amateur swimmers, “such as was done by the Japanese in the 1932 Olympic Games.” Moreover, Mann sought rules “to forestall the danger of the practice spreading in this country, as it “was unethical, regardless of harmful effects.”

Mann’s accusations that doping amateur swimmers with oxygen was unethical, regardless of health effects, likely included nationalistic motives. Following a public drubbing, Mann desired to delegitimize the performance of the Japanese. The Associated Press sports editor, Alan Gould, notes as much in his criticism of Mann. “It seems quite all right, in principle,”
Gould explains, “to conduct a ‘war against doping’ in the matter of star swimmers or athletes in general, but it smacks of poor sportsmanship at this date for any American, much less a college coach, to belittle the magnificent victory of Japan’s young swimmers in the 1932 Olympics, on the basis that oxygen was used by them as a stimulant.” Gould subsequently called Mann’s criticism of doping “altogether inopportune and out of order,” pointing out the legacy of American use of stimulants in past Olympic sports.”

Mann’s comments—and Gould’s response—indicate the larger cultural forces at work. Mann’s nationalist criticism would not have resonated with newspaper reporters nor the general public—nor would Mann have even offered doping as criticism—unless the general public already believed that doping contradicted amateur values. By dubiously tying the Japanese swimmers to the practice of doping, Mann marginalized the swimmer’s accomplishments. Gould’s reaction reveals this effect, as Gould attempts to restore credibility to the Japanese swimmers, calling them “grand sportsmen,” and asserting that “the Japanese would have won the Olympic swims, anyway, with or without [oxygen].” Mann intended his criticism of the Japanese to resonate with a broader audience—an audience that also perceived doping as un-amateur and undesirable. Mann and Gould’s interchange reveals that a general climate existed that viewed doping as incongruent with amateurism. These views indicate, at least partially, that the wider public also likely accepted a similar narrative as early as 1933.

Although Mann’s crusade against doping produced no tangible results, in 1938, the IOC formally declared that “the use of drugs or artificial stimulants of any kind must be condemned most strongly, and everyone who accepts or offers dope, no matter in what form, should not be allowed to participate in amateur meetings or in the Olympic Games.” The IOC’s decision to formalize anti-doping sentiment into bureaucratic rules reveals a certain degree of agreement among its members. The members believed strongly enough that doping conflicted with amateurism that they were willing to formally take action by threatening any athlete who doped.
with suspension from the Olympic Games. Clearly, by 1938, the IOC believed that doping did not belong in either the Olympics or any amateur sport. That the IOC specifically introduced formal language prohibiting doping in Olympic and amateur competition indicates the degree that anti-doping attitudes had begun solidifying in amateur sport.

By the end of the 1930s, many now believed that doping could improve an athlete’s performance, but that such enhancements also violated amateurism’s implied code. Spurred on by the Second World War and advances in pharmacology, athletes witnessed the mass-production of a new generation of drugs, drugs that actually worked much better than the doping substances used by earlier generations of athletes. These drugs included the amphetamine Benzedrine along with synthesized testosterone and, eventually, androgenic-anabolic steroids. Not only could these drugs improve performance more than previous stimulants, but they also appeared far more dangerous.

Yet in the post-World War Two era, the advocates of amateurism soon found their anti-doping policies tested. The 1948 London Olympic games witnessed the first modern doping scandal, if on a rather modest scale. Although the IOC caught no athletes doping during the 1948 Games, this did not stop Dr. Christopher Woodard’s allegations that some athletes had cheated by taking unspecified doping products. Dr. Woodard, a thirty-four-year-old physician and an official medical adviser to the British Olympic team at the games, reports that he “became suspicious that some competitors were receiving artificial stimulants at the Olympic games,” and explained that unnamed European athletes “were stimulated by drugs, much in the manner of race horses.” Although the practices were likely nothing like what was done in horse racing, the connotation was clear.

Four years after Woodard’s allegations of doping, Dr. Karl Evang, Norway’s director general of public health, stood before the first session of the international conference on sports and health in 1952. He argued that “the use of dope … in the amateur sports world, needs very
strong and united counter-action.” Such sentiments played to the larger cultural fears among certain organizations that the amateur sports world was no longer maintaining one of its key distinctions—that between the world of professional athletes and the world of amateurs. When allegations of amateur doping emerged later that year following the many record-breaking performances at the Helsinki Olympic Games, American physiologist Dr. Arthur Steinhaus argued that “medical study, not ‘doping,’ has helped athletes.” Concerning doping, Steinhaus expressed the belief that “there’s no place for that kind of stuff in athletics.”

In professional sports of this era, a more liberal view of doping remained throughout the 1950s. Professional athletes’ attitude towards doping remained rooted in their perception of sport as a profession and of themselves as journeymen or artisan workers plying their trade. These men continued to reject the notion of participating in sport for some higher purpose. In 1954, the Secretary of the “Football League,” Britain’s premier professional soccer organization, Fred Howarth, explained that “there is nothing illegal in the use of oxygen as a distributor of energy. Stimulants are not forbidden; commonsense condemns all excesses just as it has maintained within reasonable limits the glandular treatments given to footballers.” In professional association football, stimulants in general posed little concern since professional athletes were assumed to have enough experience with the drugs so as to limit their harm. Falling outside the umbrella of amateurism, professional athletes appeared to have no moral qualms over professional athletes using stimulants during athletic competition.

Professional sports in the United States exhibited similar attitudes. Following World War Two, amphetamines entered professional clubhouses in both baseball and American football. Among players, amphetamines such as Benzedrine and Dexadrine became known as “greenies” or “pep pills.” First hand reports confirm that players and trainers knew amphetamine use occurred yet few protested. In 1957, a trainer for the Philadelphia Phillies baseball team and Philadelphia Eagles football team reported that he knew of professional athletes on both teams
using amphetamines. When asked in 1957 about amphetamines in the National Football League (NFL), Bert Bell, the league’s commissioner, cryptically responded that he was “just as much against indiscriminate use of pep pills as anyone else,” and that “all players in the NFL are watched over by team doctors and the players take the medicine prescribed for them by the doctors. We have good doctors in charge of all teams and they’re not going to let any player take anything he shouldn’t have.” Bell never specifies what counts as “indiscriminant use” and leaves open the possibility that doctors may be prescribing amphetamines for players. Perhaps the Cleveland Browns shed light on this as they reportedly gave twenty five of their players an estimated 30,000 pep pills over an eight week period during the 1957 season. The Browns would go on to win the Eastern Conference before losing in the NFL championship game to Detroit.

In professional baseball, the same familiarity with amphetamines also existed. Decades later, Major League Baseball’s commissioner Bud Selig directly confirmed the use of amphetamines in professional baseball, reporting that he heard conversations as far back as 1958 about amphetamines in the Milwaukee Braves’ clubhouse. In 1959, reporter Joe Trimble casually penned that “a year ago, the Detroit Tigers were taking pep pills as they tried to overcome a bad start.”

Professional cycling also continued its tradition of doping. Still seen by many as what the journalist Arthur Londres had labeled “forcats de la Route,” or “laborers of the road” the expectation that professional athletes could dope out of professional necessity continued. When Knud Jensen died following a skull fracture at the 1960 Rome Olympics, many people pointed to professional cycling’s continued drug as the source of the amateur’s demise. The French Olympic cycling team coach, Robert Oubron, acutely depicted the cycling community’s mentality following Knud Jensen’s death, saying that “many pros are drugged, of course, but we don’t drug amateurs.” Oubron, a former professional cyclist and Olympic cyclist, perhaps believed such a
distinction existed, yet in sport where Olympic athletes were pre-professionals, the idea that
riders such as Jensen and his teammates remained unfamiliar with the world of performance
enhancement rings hollow. More to the point, Oubron’s comments—whether intentional or not—
distanced Jensen from his cycling community, portraying him as a loan agent rather than a
product of cycling’s culture.

Despite professional athletes’ use of stimulants, amateur athletes throughout the 1950s
continued to express disdain for stimulants. Unlike the general tolerance shown to amphetamines
in baseball and cycling, the amateur sport of track and field showed little patience for such drug
use. For example, a 1957 conference of the American Medical Association (AMA) sent
shockwaves when Dr. Herbert Berger suggested that some of the twelve runners who had run
sub-four-minute miles—including Roger Bannister—had done so by using amphetamines. Responding to Berger’s allegations, Bannister claimed “to have heard nothing about the use of
stimulants,” a dubious assertion historian John Hoberman points out considering Bannister’s
medical training and the prevalence of amphetamines in British society. Following the AMA’s
lead, the American College of Sport Medicine’s (ACSM) president, Dr. Joseph B Wolfe, used
concerns over amphetamines to establish “a committee to investigate amphetamine’s use among
amateurs.” Although Wolfe knew professional sports such as baseball and American football
had players using amphetamines, Wolfe targeted amateur sports where doping still raised moral
problems.

Although Bannister’s claim of ignorance over amphetamines remains slightly suspect, he
clearly understood that accusations of amphetamine use in his record breaking run diminished the
status of his accomplishments. The other accused runners quickly joined Banister in denying
Berger’s allegations. Australian milers Merv Lincoln and John Landy went so far as to claim that
they “had not taken so much as an aspirin.” For all of these men, accusations of doping
essentially meant that they had not achieved their success in an acceptable manner. Instead, the
accusations implied that they had performed like professionals and that devalued their status and
their athletic accomplishment. Their status as amateur athletes rested on the perception that they
had achieved their success “clean” and without the use of any artificial aids.

By the time Knud Jensen perished in the heat of the 1960 Rome Olympic games, the
dichotomy between doped professionals and clean amateurs had firmly entrenched itself in
popular culture. The class and social separation between working-class professionals and the
middle-class counterparts directly or discreetly allowed professionals to use drugs while the
middle-classes denounced such practices as immoral and unhealthy. At the same time,
professional athletes remained marginalized by middle-class society who ascribed to
amateurism’s values. Thus doping became another wedge for dividing and ranking classes. The
tacit tolerance of professional doping allowed professionals to perform better while at the same
time reducing the social status of their athletic performance. The professional athlete who came
from the working class and competed to earn a living could acceptably use drugs to more
effectively do their job. Yet for those who viewed sport as a moral force, doping became sport’s
mortal sin. Once having tasted the forbidden fruit of doping, those who doped bore sport’s
proverbial mark of Cain. Amateur ideologues often used principles derived from their notion of
amateurism to condemn the practice of doping.

Today, the IOC-funded World Anti-Doping Agency (WADA) still reflects amateurism’s
influence on current anti-doping policies by arguing that doping contradicts “the spirit of sport.”88
The values promoted by Muscular Christianity and amateur sport still form the basis for much of
the sporting world’s rejection of doping. The problem with such attitudes, historian John
Hoberman notes, “is it assumes that there is a contradiction between high-performance endurance
sports and doping practices that is not found in historical record.”89 Curiously, at the very same
time amateurism is for all intents and purposes extinct in the twenty-first century Olympics.
Openly-professional athletes now reign. Although the ideology of amateurism may have died out, it continues to shape how the sporting world views doping and the use of drugs in sport.


The historian John Hoberman writes about the pioneering French sports physician, Phillipe Tissie, performing “a crude doping experiment on a long-distance cyclist as early as 1894, feeding him a variety of liquids (mint water, rum, champagne) as the 30-year-old athlete sped 400 miles around a velodrome in Bordeaux.” Hoberman notes that for Tissie, his concern about boosting athletic performance “was entirely medical rather than moral.” “As improbable as it may seem a century later,” Hoberman explains, “Tissie expressed no moral or ethical reservations about the use of drugs to enhance athletic performance.”

Not until the 1920s and 1930s did physicians begin to be concerned about the ethics of doping, as modern sports became a branch of the entertainment industry and acquired a new kind of social significance in an age of mass communication. The idea that the pharmacological enhancement of athletic performance constitutes a major problem for the sports world, and for society in general, developed gradually from the late 1950s through the 1990s. The two historic events in this development involved Ben Johnson and 1998 Tour de France. Both scandals involved the doping of athletes by physicians and raised basic questions about doctor-athlete relationships that aimed at success in high-level competitions.

While many cultural changes influenced the sporting world’s decision to prohibit doping, it would be wrong to conclude that anti-doping measures received universal support. In fact, from fin-de-siècle scientists to medical personnel working with elite athletes, alternative attitudes about doping’s propriety existed. These alternative attitudes—and their failure to persuasively alter
general perceptions of doping in sport—reveal that anti-doping views arose out of larger cultural influences rather than scientific discourse on the nature of enhancement.

Hoberman characterizes the modern notion of “scientific” sport in his work Mortal Engines, by describing the “gigantic biological experiment carried out on the human organism” as medical research became increasingly applied to modern sport performances.91 As groups and individuals increasingly quantified sports performances—a key feature defining modern sport—scientists and physiologists throughout the western world began first investigating and then attempting to modify athletic performance. Once physiologists of the nineteenth-century turned their attentions from investigating human potential towards improving it, it was not long before scientists began exploring the effects of potentially energizing substances such as alcohol, cocaine, strychnine and other magic elixers. “The idea that drugs might boost human performance grew out of physiological science and its attempts to understand the nervous and muscular systems of human beings,” explains Hoberman.92 These interests—both in improving human performance and in boosting it through substances—influenced how parts of the scientific and medical communities viewed doping. Housed in laboratories, hospitals and universities around the globe, many scientists rejected the view that stimulants and drugs were morally objectionable substances with no place in sport.

Their new interest in the potential of the human organism corresponded to a time when human energy and Darwinian thinking fascinated Western culture.93 With the spirit of the times pushing towards quantitative measurement, this fascination found the burgeoning world of modern sport an ideal environment. Standardization of events had made records and measurement of human performance readily available. Scientists could begin quantifying human limits and measuring attempts to extend performance beyond those limits. While, as Hoberman notes, scientists in this era remained somewhat concerned with the “pathological physiology” of elite
sport, fears of medical dangers did not prevent pursuing ways to improve performance capacities.94

While stories abound of scientists experimenting with various substances, their reactions to using these substances are far more telling. In 1895, physicians studying the benefits of the African Kola nut gave positive accounts of the stimulant taken from mountain climbers who used it when overtaxed on their climbs.95 In an extended article on the African kola nut for *Medical and Surgical Reporter*, Dr. William Pierce “highly recommended” the stimulant for athletic training. Peirce explains that the kola nut’s ergogenic effect “was notably demonstrated last autumn in several prominent foot-ball contests,” and resulted in “a long line of world-record breaking victories for our boys.”96 The kola nut appeared to present no moral objections and no effort existed to hide its use.

Soon another stimulant—the use of purified oxygen—interested scientists. As early as 1908, advocates of amateurism began questioning both the benefits and the ethics of using oxygen in sport. A pioneering researcher on the use of oxygen in sport and a professor of physiology at the London Hospital, Leonard Hill, argued that with “the use of oxygen it will be possible to break the world’s athletic records and to improve sports in general,” and that “its use can only do good to the athlete.”97 In 1908, Hill administered oxygen to runners prior to both three-mile and quarter-mile races while announcing that he sought to reproduce the experiment next with world record holders.98 Others tried doping with oxygen as well. In a letter to the editor of *The Times* titled “‘Doping’ of Athletes,” J.D. Casswell describes the amateur Oxford University crew team experimenting with oxygen in 1908, eventually concluding that it helped their rowers perform better.99

That same year, the *New York Times* reported that the University of Chicago’s American football team intended to use oxygen during their matches.100 The article reported that the university’s famed football coach, Dr. Amos Alonzo Stagg, had traveled to London over the
summer to observe Hill’s experiments with oxygen and intended to use the stimulant “to aid Chicago’s football men in making touchdowns this Fall [sic].” Some found Stagg’s plan controversial. The article’s author addressed the ethical issues surrounding what it called “oxygen doping.” The author responded to the critics, pointing out that “it is unfair to call it ‘dope,’” given oxygen’s “harmlessness as a stimulant.” The article portrayed oxygen as only “a supply of pure air.” Moreover, although oxygen enhanced the athlete’s prowess, the article contended, “its use cannot be barred from the track and football field.” The author suspected that soon, “the public or secret administration of oxygen to athletes may become the rule hereafter in all intercollegiate and professional contests.”

In a 1910 article exploring the effects of exercise on the human body, New York Polyclinic professor Dr. Woods Hutchinson praised oxygen’s benefits. After witnessing runners using oxygen, Woods explained that “the results were most gratifying; the exhausted and gasping runner, inhaling pure oxygen gas for two or three minutes, would rise and bound forward again, apparently almost as fresh as when he started.” Hutchinson did not indicate any moral qualms about enhancing athletes’ performances or show concern that such enhancements may harm sport. “In the future,” Hutchinson optimistically concluded, “the exhausted and perspiring athlete may walk into the club house to call for an oxygen fizz instead of a Scotch highball.”

Science increasingly interested itself with performance throughout the 1920s. However, few studies explicitly examined ways to improve performance. In the horse racing world, French physiologists created a stir when they grafted monkey glands onto race horses. Physiologist Alfred Chanutin experimented with creatine, a common substance used today, for enhancing performance in 1926. Scientist Bently Beetham, a fellow of the British Zoological Society, developed and used an oxygen apparatus to assist Mt. Everest assents in 1924. Interest in balloon exploration of the upper atmosphere sent praises to scientist Auguste Picard, who set new altitude records thanks to his use of compressed oxygen. These explorations, both into the
upper atmosphere of the Earth and of human limits, relied on science’s interest in boosting human
performance to achieve previously unimagined feats. Generally unencumbered by any concern
over sport’s higher purpose, scientists quickly applied such principles to boosting human
performance in the increasingly prominent world of international elite sport.

The general optimism in science’s ability to boost human performance soon tempered. By 1938, members of the medical community who feared the social effects of drug use began denouncing drugs in athletics. Voicing such concerns, a member of the Belgian Medical Association viewed the use of performance-enhancing substances as “detrimental to both the health of the person and to the morals of the athletes.” These fears would last, but soon the scientization of performance turned its attentions from sport to war and critics of performance enhancement briefly fell silent. As World War II soldiers faced challenges on the land, in the sea, and in the air, scientists explored ways to increase a human’s fighting capacity in such environments. Pharmacologists explored the effects of recently synthesized amphetamines, known increasingly as “pep pills,” on aviation pilots. In a 1947 study which indicated the performance enhancing benefits of the later practice of blood doping through blood transfusions the authors noted that increasing hematocrit levels to fifty-five percent significantly improved exercise at altitude.

After the war, scientists trained in what was largely an amoral pursuit of improving human capacity in combat returned to the laboratory of sport. The support among scientists and doctors of pharmacology in the pursuit of enhanced performance continued in the post-war era of the 1950s. These men continued to publicly reject the idea that doping inherently contradicted the principles of elite sport. For example, Professor Peter Karpovich, one of the founding members of the American College of Sports Medicine and an expert on the subject of drugs in sports, rejected the anti-doping criticism and argued that “any substance that improves performance without risking health cannot be considered unethical.”
Across the Atlantic, Adolphe Abrahams, the founding president of the British Association of Sport and Medicine, a former amateur athlete at Cambridge and the brother of Chariots of Fire legend and 1924 British Olympic gold medalist in the 100-meter dash Harold Abrahams, repeated the objection to the idea that performance enhancing substances inherently contradicted the nature of sport. In a letter to the editor of The Times, Abraham opined:

Suppose, for the sake of argument, the discovery of a substance which by its stimulating or inhibitory action was capable of conferring enhanced athletic efficiency…The substance to be guaranteed to be free from any harm, temporary or remote. As a sine qua non all element of secrecy must be eliminated, it would have to be universally available. What objection could be raised against its use? Only that—to use the question-begging term—it would be unsporting to enable athletes to surpass records achieved by the giants of the past, who lacked that advantage. I do not think the conscience of the sporting world would or need be disturbed.112

Not all of the scientific and medical community accepted athletes’ use of drugs. Of those who objected, their primary concern came from the health risks posed by the use and abuse of the few doping products that worked. In 1940, an editorial in the Journal of American Medical Association warned medical practitioners of the danger of certain pharmacological drugs because they risked damaging the organism but showed no objections to enhancements like oxygen, ultraviolet rays, and sodium bicarbonate.113

By 1957, groups such as the American Medical Association and the American College of Sports Medicine began investigating amphetamine use in sport. Worried about “the widespread use of pep pills among athletes,” ACSM president Dr. Joseph Wolffe, organized a committee “to determine the effect of amphetamines (including Benzedrine and Dexedrine) and tranquilizers on athletic performance, and their effect on health,” along with “the ethics involved in the use of these drugs.”114

By 1960, the sporting landscape would change drastically when Danish cyclist Knud Enemark Jensen tragically died at the Rome Olympic Games. Although evidence calls into question the cause of Jensen’s death, the tragic event that unfolded under the spotlight of the
Olympic Games provided a face for those who sought to underscore the health risks of doping. Voices such as Dr. Albert Hyman, president of the American College of Sports Medicine, defended the idea that for the professional athlete who “has a job to do which may be his sole livelihood; under such conditions it is an accepted fact that he may employ any means which will permit him to achieve his best performance.” Yet such advocates—or apologists for doping—were few. Indeed, the cultural forces rejecting doping continued to push the popular spirit of the times. From Institutional Review Boards to misinformed assumptions about doping, scientists drifted away from examining the physiological effects of performance enhancing drugs in the 1960s and 1970s. This halted research into anabolic steroids and would later delay research on the blood boosting substance EPO, two substances with evidence supporting their purported effects. Scientists, unwilling or unable to study steroids due to popular perceptions about drugs, watched on the sidelines as the sports world continued its “giant biological experiment” on themselves.116

From the Kola nut and oxygen to amphetamines and steroids, scientific curiosity and interest in human physiology and health played out in the world of elite sports. In their quest to first understand and later enhance human performance, scientists accepted doping practices. The rise of moralized medicine and concerns over the health risks of performance enhancement prompted calls to cease such experiments. Those who viewed performance enhancing drugs as keys to unlocking human potential found themselves ignored or silenced. For them, sport was a “giant biological experiment” and doping was one lever to pull in their efforts to push humans farther. The cultural push towards public health combined with cultural forces that viewed sport as a morally and physically fortifying practice carried the day.

Certainly scientists and medical personnel have continued to play key roles in doping athletes. While these individuals are often depicted as “rogue” or “corrupted” scientists, using their knowledge for evil instead of good, historically these individuals continued to show an interest in improving athletes’ performance, regardless of the means. Those who ascribed to
scientific sport viewed doping as part of the pursuit to improve performance. Their attitudes remained rooted in nineteenth-century curiosity about the human organism. While nationalistic, political and even personal profit may have driven some of these individuals to violate the rules of sporting organizations or even seriously jeopardize athletes’ health, early support for doping remains tied to the very ideals that have dominated elite sport. The athletes’ quest for records and the public’s desire to witness—and subsequent rewarding of—athletes who venture to the extreme limits of performance lends itself to the view that doping presents no inherent contradiction to sport. Thus in the period before sporting organizations firmly codified anti-doping policies and as alternative voices that continue today, it is no surprise that those who understood pharmacology’s power to improve performance showed little reticence regarding its use.

**Conclusion**

Despite dissent from some quarters, the sports world set itself upon an anti-doping course that has yet to change directions. Prior to Jensen’s drug-related death at the 1960 Rome Olympic games, various intellectual forces had made public tolerance for doping impossible. Jensen’s death simply put the match to the fuse. By 1962, The Olympic Bulletin described doping as “one of the plagues of modern times …. which unfortunately has been adapted to sport,” and argued that “the use of drugs and artificial stimulants nowadays are the chief evils from which one must protect athletes.” By June of 1962, the IOC concluded that “at present time, sport is affected by a real menace and evil: the practice of doping,” and concluded that “this evil must be fought.”

Such rhetoric continues today in the World Anti-Doping Association. In 2007, its then-President Dick Pound told Wired Magazine that doping “destroys the whole exercise,” and that “It’s not fair, and it’s not right. It’s outrageous.” Perhaps without realizing it, Pound’s twenty-
first century feelings about doping reflect the very intellectual movements that initiated the anti-doping movements. That doping constitutes a “menace” and an “evil” continued to guide the behavior of international sporting organizations and federations into the twenty-first century. Yet the genealogy of their anti-doping sentiments traces back to intellectual movements of which few appear aware.

Never in a straight line and not without its dissenters, the sporting world gradually turned diverse and often contradictory narratives into a single anti-doping tapestry. Yet these narratives also spawned problematic offspring. As elite sport increased in social prominence and became increasingly scientized, it clashed with the values of amateurism and Muscular Christianity. Elite athletes, with doctors recording every heart beat and bowel movement, have sporting organizations imposing the amateur ideals of “pure” performance and expecting athletes to act as kinetic proof of the Muscular Christian belief in sport as a character building and healthy lifestyle. The public expects athletes to act as role models while also only rewarding those who demonstrate a narcissistic and pathological devotion to extreme performances.

Today, WADA’s reformulation of amateurism’s traditional ideological values and its commitment to the a modernized version of Muscular Christianity which sought to include both healthy physical activity and traditional desires for character building sport, underscore the tensions which lay beneath the calls to create clean sport. Yet WADA’s anti-doping efforts are not purely rhetoric. The belief that sport means something more than just recreation has continued into the twenty-first century. Certainly people enamored with sport are not ready to give up the belief that they are witnessing something more than just amazing feats of physical spectacle. At the same time, the obvious tensions between the quest for records and the rationalization of sport and the belief that sport serves a higher moral purposes means that practices often conflict with rhetoric.
Pursuing the ultimate in performance but under an ideology they scarcely understand, many elite athletes do not regard doping as illegitimate and perceive the anti-doping rules as arbitrary lines drawn in the sand. Other athletes find the prohibitions at odds with the very careers they pursue. Some athletes blatantly break the rules in pursuit of enhancements while on the other end of the spectrum, some athletes blindly defer to a moral framework. Hence woven into the very fabric of the anti-doping ideology were the contradictory values that rest at the heart of today’s doping debate. For this very reason, any philosophical discussion about anti-doping rules must understand how and why doubts about enhancing human performance have arisen during the modern period. Identifying, teasing apart, and lying bare the competing narratives sheds new light on the arguments and values that shape today’s doping debate. Indeed, the doping debate’s intellectual history reveals the very themes shaping today’s anti-doping attitudes.

**Endnotes**


2 Møller, *The Doping Devil* (Copenhagen, Denmark: Gyldendal, 2008).


11 For an admittedly excellent description of sport and doping in the Cold War during the 1970s, see ibid.


25 Ibid.


28 I acknowledge that some debate exists as to whether Grace made more money competing as an amateur than he would have as a professional. Nonetheless, a loss of social status would have inevitably followed Grace’s move had he chosen to work as an outright professional.


37 "Greatest All around Athlete That Ever Lived," *Fort Worth Morning Register*, July 16 1899, 14.


Ibid.


"The Use of Stimulants by Athletes," *New York Times*, December 1 1895, 16 p. 16.


For more on Hicks and Pietri’s doping as amateurs see Gleaves, "Doped Professionals and Clean Amateurs: Amateurism’s Influence on the Modern Philosophy of Anti-Doping," *Journal of Sport History* 38, no. 2 (2011).

Both Hicks and Pietri would capitalize on the pedestrian craze and go on to successful professional running careers.


Ibid.


Ibid.


Trimball, "Robinson Sticks Casey with Pen," *The Miami News*, June 8 1959, 1C.


92 Ibid.


96 Pierce, "Kola," in *Medical and Surgical Reporter* (1896).


98 Ibid.


101 Ibid.


107 Lyman, "Flying up 'Where Human's Don't Belong'," ibid., April 2 1933, SM6.


Chapter 3
The Science Behind Modern Performance Enhancement and Performance Enhancing Drugs

Introduction

In a *New York Times* article, Alice Dreger asserts that when it comes to many ethical issues in today’s sports, “the fundamental problem is that the science of sport has outpaced the philosophy of sport” (2009, 409-411). I agree with Dreger’s point. Many factors are to blame for this state of affairs. Scientists receive more funding and prestige while attracting more scholars into their fields. On the other hand, philosophers of sport (and those involved in the socio-cultural study of sport) share some responsibility for this discrepancy. When researching many of these ethical issues, including performance-enhancing substances (PESs), some philosophers fail to grasp the science behind the substances they debate. Instead, such hasty scholars operate on loose assumptions and partial truths about the science of performance enhancement.

This practice results in socio-cultural scholars (usually unintentionally) creating straw men arguments or writing philosophical “science fiction.” Such arguments carry little weight for those in the natural sciences. They fail to accurately describe what many scientists already know and thus are often viewed as philosophical flights of fancy rather than useful insights into the PES issue. Consequently, philosophers struggle, both intellectually and politically, to contribute to the contemporary world of performance enhancement. Their research on PESs has had little impact on the larger scholarly community and remains mostly absent from practical consideration. Yet if socio-cultural scholars were to understand the science behind their subject matter, their research might play a larger and much needed role in today’s debate.

Following, I present an extensive—but not exhaustive—study of the science behind PESs. This chapter is intended for a non-scientific community. Thus I will attempt to translate the
many scientific studies on various ergogenic aids into general terms. At the same time, the evidence contained herein reflects the most current, evidence-based research on a wide array of ergogenic aids. It examines PESs based on scientific facts and not philosophical assumptions. Such information provides the scientific context necessary for the informed philosophical research that will follow in later chapters.

The science of PES is situated within the larger issue of performance enhancement in sport. According to statistician, Ray Stefani, four factors feature in the widespread improvement of performance in any sport—these are, “physiology (the size and fitness of athletes, perhaps aided by performance-enhancing drugs), technology or innovation (things like the advent of rowing machines to train rowers, and the Fosbury Flop in high jumping), coaching (changes in strategy) and equipment (like the clap skate in speedskating or the fiberglass pole in pole vaulting)” (Branch 2009). Altering any one of these factors can enhance an athlete’s performance. Moreover, advances in physiology, technology, coaching and equipment are not inherently immoral. Often, in fact, they are celebrated as offering new and better ways to accomplish athletic feats. At the same time, sporting organizations have not embraced all such changes. Prohibitions have been issued for performance enhancers ranging from the “barking dog” play and the spitball to super-fast polyurethane swimsuits and certain PESs.

While Stefani’s four factors influence performance enhancement in sport, performance-enhancing substances (PESs) primarily fall under physiological changes (although there is a case to be made that they are also technology). The physiological changes produced by PESs affect sports differently. These differences result from the different human capacities each sport tests. Such human capacities include combinations of endurance and strength as well as different abilities such as executing skillful movements or habits. For example, endurance sports such as cycling, running and cross-country skiing benefit more from aerobic power than sheer muscle strength and require long periods of focused attention while performing technically
straightforward skills. Powerlifting, on the other hand, places a premium on maximal strength and athletes’ abilities to channel their focus into a single lift. Other sports such as riflery require competitors to control their nerves under pressure while placing little strain on other physical capacities. Baseball requires very specific skillful movements such as throwing and hitting. In fact, looking at the multitude of sports around the world, humans have designed contests that test an exponential combination of human capacities and abilities.

Providing this scientific context in one succinct chapter is no easy task. Selections must be made. One selection is the range of PESs to examine. I have chosen to examine include both permitted and prohibited PESs in this chapter. Including permitted PESs alongside banned PESs accomplishes two goals. First, it shows the degree to which banned PESs differ (or not) from the permitted substances. Second, it situates the issue within the larger discussion of general performance enhancement and not just substances that certain organizations have selectively prohibited.

A second choice I have made is what specific information to investigate. There are many aspects to studying PESs, ranging from pharmacology to physiology to organic chemistry. Nailing down the nuances of these subjects for each specific PES would add considerable length without yielding tangible benefits for the issues at hand. For that reason, I have chosen to focus on three aspects of each PES. I first investigate a substances’ modes of action, or how it interacts with the body. Next, I cite evidence, to indicate the PES’s ergogenic effects. Last, I discuss the suspected long-term and short-term health effects associated with using each substance for performance enhancement. These three aspects of PESs allow for comparability between the various substances. It also provides the necessary scientific context for socio-cultural investigation of PESs.

Additionally, I have chosen to examine PESs based on their ergogenic effects. Despite the range of capacities and abilities displayed in sports, the physiological changes produced by
PESs primarily affect four basic performance categories: endurance, strength, energy and focus. These four categories can be manipulated by various PESs. Thus I will examine the PESs as they affect each of these four elements of sporting performance.

Finally, I have also chosen to omit certain PESs from my discussion. The PESs that I omit are often either in developmental stages or hypothesized interventions. These include the drugs classified as hypoxia-inducible factor (HIF)-1, selective androgen receptor modulators (SARMs), rapid acting insulin, vascular endothelial growth factor (VEGF) and genetic enhancements. These PESs remain in developmental stages with limited research regarding their use, and their potential for improvement of performance does not appear to be radically different than the PESs discussed below. At the same time, the PESs within the four performance categories are sufficient to provide the necessary context to understand PESs generally. By understanding the science behind these substances, scholars can realize both new perspectives on old arguments and new issues previously absent from the performance enhancement debate.

**Increased Endurance through Oxygen Transport**

The term blood boosting is a generic term used to describe both licit and illicit methods for enhancing an athlete’s ability to transport oxygen (O\(_2\)) to muscle mitochondria where it can be utilized as the terminal electron acceptor for oxidative metabolism. From breathing oxygen and the site of O\(_2\) uptake in the lungs to O\(_2\)'s transport through the electron transport chain, many points limit the amount of O\(_2\) that reaches working muscle mitochondria. Limiting O\(_2\) to muscle mitochondria is one of the largest limiting factors in aerobic performance, an essential component in endurance sports.

O\(_2\) transport can be improved by increasing the number of red blood cells (RBCs), the cells that carry O\(_2\) to muscles, while decreasing the plasma volume. This change in blood results
in a higher hematocrit, which is a measure of the percentage of RBCs in whole blood. Having a higher hematocrit allows endurance athletes to perform better because they can deliver more O\textsubscript{2} to muscle mitochondria. Increasing the amount of O\textsubscript{2} being delivered increases an athlete’s aerobic performance.

This increase in performance is marked by an increase in maximal oxygen consumption (\(\dot{V}O_{2\text{max}}\)), which is a measure of an individual’s fitness through their ability to transport oxygen during exercise. It is widely accepted as the best measure of an individual’s cardiovascular fitness and a good predictor of improved performance in endurance sports such as cycling, cross-country skiing, swimming, running, and rowing (Powers and Howley). While comparing changes in athletes’ performances across sports is challenging, changes in \(\dot{V}O_{2\text{max}}\) are very easy to compare. Thus when examining changes in performance caused by blood boosting drugs and methods, I will use changes in \(\dot{V}O_{2\text{max}}\) as the indicator of change and efficacy.

**Recombinant Human Erythropoietin (rhEPO)**

All red blood cell production depends on a naturally-occurring glycoprotein hormone called erythropoietin (EPO). By increasing the amount of EPO available for synthesis, the amount of red blood cells increases. This improves the transport of oxygen to muscle mitochondria. Under normal conditions, EPO production is only brought about by a lack of tissue oxygenation in response to hypoxia. In 1987, a synthetic form of EPO known as recombinant human erythropoietin (rhEPO) was released by manufacturers for therapeutic use. This form of EPO simulates normal red blood cell production by increasing EPO available for synthesis.

Synthesized EPO proved a life-saving boon for a number of ill patients, but it also presented athletes with a novel way to improve performance. When used by healthy individuals,
review studies conclude that rhEPO increases the amount of red blood cells above normal levels and reduces plasma volume, bringing about an elevation in hematocrit by five to seven percent. (Lundby, Thomsen et al. 2006). This increase in hematocrit results causes improvements in aerobic performance (Russell, Gore et al. 2002; Schumacher and Ashenden 2004; Ashenden, Varlet-Marie et al. 2006). During the administration of rhEPO, these studies concluded that athletes’ $\dot{V}O_{2\text{max}}$ increases, time to exhaustion increases, and recovery from intermittent exercise increases (Birkeland, Stray-Gundersen et al. 2000).

Another important note results from a review of research on blood boosting method conducted by Reichel and Gmeiner who conclude that there is “no statistically significant difference between rhEPO treatment and blood transfusion for the range in $\dot{V}O_{2\text{max}}$ per gram increased [Hb]” (Thieme and Hemmersbach 2009). This means that improvements in performance are by degree the same whether achieved through the use of rhEPO or through blood transfusions. Thus rhEPO and blood transfusions present scholars nearly identical issues as they affect performance similarly and have similar methods of actions.

While rhEPO can boost performance, it also presents health risks. Many of the health risks are overstated, as the majority of risks from rhEPO use stem from the lack of medical supervision (Reichel and Gmeiner 2009). Of the noted side effects from supervised use, the most common are hypotension, muscle cramps, upper respiratory infections, headache, thrombosis, and hypertension (Franchini, Gandini et al. 2004). However, some concerns exist that when healthy athletes use rhEPO, they increase the risk of myocardial infarctions, cerebrovascular disease, transient ischemic attack, and venous thromboembolism, although in clinical trials these occurred infrequently (Lippi, Franchini et al. 2006). On rare occasions, extended and improper use of rhEPO has been linked to the potentially fatal red cell aplasia, where the body begins producing anti-EPO antibodies and has links to tumor growth (Lippi, Franchini et al.). With proper medical
supervision, health risks could be greatly reduced. Thus the general consensus remains that EPO is relatively safe for supervised use by healthy individuals (Lundby and Olsen 2010).

**Blood Transfusion**

Blood transfusions (BTs) were one of the first methods used for increasing oxygen transport in athletes (Eichner 2007). However, due to the challenges and risks they present, they fell out of favor among athletes once synthetic forms of EPO became available. Yet with the introduction of an anti-doping test that can detect rhEPO, athletes have begun returning to the practice.

The practice of BTs for doping involves a number of steps. First, whole blood is withdrawn from a human. The blood can either be withdrawn from the individual who plans to later reinfuse it or from an individual with the same blood type as the athlete. Reinfusing one’s own blood is known as an autologous transfusion while reinfusing blood from another individual is a homologous transfusion. Once blood is withdrawn, the oxygen-carrying red blood cells are separated from the whole blood and then stored until one to three days before competition and then reinfused into the athlete.

There are a number of complicated factors to BTs. If an athlete wishes to do an autologous transfusion, the blood must be withdrawn well in advance of the competition. This is done so that their body can compensate for the withdrawn red blood cells. If red blood cells were reinfused before an athlete had recovered, the athlete would not receive a performance enhancing benefit as their hematocrit would simply return to pre-withdrawal levels. However, if athletes withdraw blood well in advance of the desired reinfusion date, they face the challenge of properly storing the red blood cells. This can be a problem because red blood cells can be refrigerated only
for forty two days. If they are kept longer, they must be frozen at -80 C (McArdle, Katch et al. 1986, 409-411).

Homologous transfusions present a host of different problems. While the athlete does not have to recover from a blood withdrawal, homologous transfusions are less desirable. Finding a match for an athlete is difficulty as is ensuring the blood supply's safety. While prior to knowledge of blood-borne diseases homologous BTs were popular, in today’s world of illicit blood doping athletes more commonly choose to use autologous transfusions since they present fewer health risks.

Although the two transfusion types present different health risks, both equally and unequivocally improve performance. Blood transfusions, when properly performed can increase hematocrit and produce significant changes in \( \dot{V}O_{2\text{max}} \) (Eichner 2007). It is common to observe a 5-9% increase in \( \dot{V}O_{2\text{max}} \) following BTs (Lippi, Franchini et al.; Ekblom, Goldbarg et al. 1972; Ekblom 1996). Again, the optimal range for blood transfusions remains the same as for rhEPO as cardiac output is limited if blood becomes too viscous due to an increase in red blood cells.

As noted, BTs carry a number of both minor and major health risks. However, under medical supervision, Bahrke and Yesalis point out that “there is no report on any complication connected to infusion with autologous whole blood or packed RBCs [red blood cells] carried out for scientific purposes on healthy subjects” (Bahrke and Yesalis 2002, 97). Additionally, many of the more serious health risks such as contracting blood-borne diseases, hepatitis, and HIV are mitigated when athletes reinfuse their own blood. Medically unsupervised BTs, even if they use an athlete’s own blood carry risks. Improperly stored blood, clerical-type errors, and mislabeling have been linked to medically unsupervised BTs. Also, the risk for heart attacks due to high hematocrit levels increases when athletes attempt BTs without medical supervision. Even in ideal
environments, BTs still carry health risks from bacterial infections, although at a much lower incidence.

**Altitude and Simulated Altitude**

When practiced correctly, altitude training, especially training following the live high-train low (hi-lo) approach, is effective (Levine and Stray-Gundersen 1992; Stray-Gundersen, Chapman et al. 2001). As hi-lo is the most effective method of altitude training, it provides the best model for evaluating altitude training in general. Altitude training works by creating tissue hypoxia since the partial pressure of oxygen decreases as total atmospheric pressure decreases with increasing altitude. Chronic exposure to altitude results in increased red blood cell production. However, there are optimum levels for altitude training found between 2,000 meters and 2,500 meters. Lower altitudes do not induce appropriate stimulation of erythropoiesis while higher elevations may be too high due to the increased negative effects of altitude acclimatization (Witkowski, Karlsen et al. 2001). Studies indicate that hi-lo altitude training increases an athlete’s $\dot{V}O_{2\text{max}}$ by 3.5-4% and increases red cell mass volume by 6.3-11% (Levine and Stray-Gundersen 1997).

By using hypobaric chambers that simulate altitude, athletes attempt the hi-lo training protocol, yet with far smaller performance gains (Stray-Gundersen and Levine 2008). This is primarily because time spent inside the hypobaric chamber is too short to cause significant hypoxia-induced EPO responses. Little evidence exists indicating that altitude chambers can cause improvement in $\dot{V}O_{2\text{max}}$ (Rodriguez, Truijens et al. 2004). For that reason, hi-lo training is best done with altitude doses lasting longer than 16 hours (Levine 2006). At the same time, for
the purpose of the present analysis there is no reason to differentiate between altitude training and simulated altitude training as both affect the same mechanisms for improving performance.

The health risks associated with hi-lo altitude training are both minimal and reversible. In general, headaches, dehydration, decreased iron stores leading to anemia are noted in individuals acclimatizing to altitude (Lippi, Franchini et al. 2006). Moreover, by staying inside the optimal range for acclimatization (2000-2500 meters) athletes avoid the more dangerous risks associated with high altitude found in high-altitude mountaineering.

**Contextualizing Oxygen Transport**

Performance enhancing methods for boosting oxygen transport, as noted in the foregoing review, have been proven efficacious. However, athletes in only a handful of sports actually benefit from such improvements. Such sports include endurance competitions where athletes must continually perform at or near their VO\(_{2}\)\(_{\text{max}}\) for extended periods of time. Increasing VO\(_{2}\)\(_{\text{max}}\) would have little effect on the performances in sports where endurance is not a limiting factor. Athletes in gymnastics, diving, baseball, weightlifting and many other similar sports would not see improved performance if they boosted their VO\(_{2}\)\(_{\text{max}}\) through such methods. This is because in those sports, oxygen transport is not a significant limiting factor in performance. Rather strength and skill tend to play larger roles. Thus, methods for improving endurance present real performance enhancements in only a limited number of sports.

While the various methods of blood boosting have similar degrees of enhancing effects based on the increase in red blood cells, they are also quite similar to other acceptable methods of enhancement. According to Jeukendrop (2002), who examined the various factors for increasing performance of elite cyclists in a forty kilometer time trial, optimizing an elite athlete’s
aerodynamic position nets the most benefit with a six and a half percent improvement 6.5%. On the other hand, altitude training estimated an improvement of 2.0% while optimal hematocrit achieved through EPO or blood transfusion nets a benefit an estimated 5-6% improvement in performance. Compared to gains from creatine or caffeine, which will be discussed later, or even the 10% improvement in performance brought about by training, in terms of actual performance in the endurance sport of cycling and others similar to it, it does not appear that improving oxygen transport provides any degree of benefit beyond that provided by a variety of other methods of enhancement. Without other mitigating factors, the degree of enhancement conferred by such substances, in other words, is consistent with other acceptable enhancements in sport. Thus to prohibit one minor enhancer and not others is inconsistent—at least on the factor of “amount of benefit derived.” Consequently, it is unclear that sporting organizations would be justified to treat them separately.

The health risks and side effects associated with supervised use of blood enhancing products and methods range from little to none. The vast majority of risks found are reversible. Moreover, with medical supervision, the risks presented by blood boosting substances and methods decrease significantly. This indicates that not only are concerns over safety exaggerated, but that by prohibiting certain performance enhancers, sporting organizations increase the likelihood that athletes will engage in unsupervised—and thus more dangerous—doping practices.

In fact, many of the dangers associated with high hematocrit levels would be avoided because they also result in decreased performance. The most dangerous side effect of blood boosting—viscous blood leading to heart attacks—occurs at levels where blood boosting no longer has performance enhancing capabilities. This is attributed to the decrease in oxygen transport caused by the increased blood viscosity that accompanies high hematocrit levels (Boning, Maassen et al. 2009). While many fear that permitting blood doping will drive athletes
to risking dangerously high hematocrit levels in their pursuit of positional advantage regardless of medical supervision, evidence indicates that such high hematocrit levels cause the athletes to perform worse. These high hematocrits can cause heart attacks as the blood becomes too viscous to move. While such concerns appear logical, evidence indicates that optimal exercise performance occurs before a dangerously high hematocrit appears (Schuler, Arras et al.).

**Decreased Fatigue and Increased Focus: Stimulants**

Although blood boosting has received considerable attention in sport and popular media, a second site for intervention has caught the eye of athletes, coaches, and physiologists. This site involves modifying the adrenergic system, which has considerable appeal because it controls the secretion of adrenaline into the bloodstream. As many know, adrenaline is the powerful hormone released in response to stress, fright or physical exercise, and it undeniably affects physical performance. By modifying the adrenergic system through stimulants, athletes hope to find increases in a wide array of performances. These include many sports that feature combinations of endurance and strength.

The method of action of adrenaline is complex, but it acts primarily to increase cardiac output by both vasoconstriction and vasodilation, thereby ideally preparing the body for physical activity (Rang et al., 2003). Modifying this system through pharmacology allows athletes to improve performance by advantageously modifying the adrenergic system when needed. The main categories of drugs acting on the adrenergic system that have been used acutely include stimulants such as cocaine, amphetamines and ephedrine. Another group of performance-enhancing substances work by pharmacologically altering the action of the adrenergic system as beta-agonists. Both the sympathomimetic stimulants and the β-agonists act as adrenergic agonists, which means that both present important sites for performance enhancement.
Caffeine

Caffeine is perhaps the most widely consumed performance-enhancing substance, although few athletes appear aware of its ergogenic effects (Lovett 2005). It is classified as a stimulant that affects three possible sites for ergogenic enhancement: the central nervous system (CNS), peripheral tissues impacting and including skeletal muscle, muscle ions and perceived work effort. Caffeine’s effect on peripheral tissue allows caffeine to improve metabolism of fat over carbohydrates, giving those who use caffeine a clear benefit in endurance sports. Its second key effect is the purported improvement of ion handling in skeletal muscle. Finally, caffeine affects the CNS by altering the perception of effort or possibly improving motor unit recruitment (Spriet 2002).

While these last two effects remain more controversial, evidence available leads scholars to conclude that caffeine may have a wide range of ergogenic effects. Persons were able to complete a cycling time trial significantly faster after caffeine ingestion (Kovacs, Stegen et al. 1998) and 2,000-meter rowing time was reduced by 1.2 percent after caffeine ingestion (Bruce, Anderson et al. 2000). Evidence has also indicated caffeine is effective in anaerobic performance, although this is likely due to caffeine’s antagonistic effect on adenosine receptors, thereby inhibiting the transmission of pain perception and perceived exertion during intense exercise. This effect may produce more forceful muscle contractions by reducing the usual decrease in firing rate of motor units by masking the inhibitory responses (Davis and Green 2009). Yet wider reviews of literature reveal that certain studies have shown no effects from caffeine in sporting performances, calling into question the quality of evidence supporting all of caffeine’s ergogenic effects (Spriet 2002).

Caffeine carries short-term and reversible side effects. These effects include increased anxiety, increased tolerance and adverse withdrawal from chronic use. Caffeine may also act as a
diuretic, an important factor in endurance sports where hydration is an issue, and have negative effects on the gastrointestinal system (Spriet 2002). Additionally, the acute side effects exist at levels far above the levels needed for caffeine’s ergogenic effect which means that many athletes may avoid such side effects while still benefiting from the substance’s performance enhancing properties (Burke 2008).

**Indirect Central Nervous System Stimulants**

In addition to direct ways to modify the adrenergic system, indirect methods also exist. These methods involve substances that act as sympathomimetic agents or noradrenalin reuptake blockers (Smith and Perry 1992; Docherty 2008). In sports, these have been classified as stimulants and include amphetamine, ephedrine and pseudoephedrine. Each of these carries potential as a psychostimulant to reduce fatigue and increase concentration and alertness and may potentially improve cardiovascular function and metabolic activity. More generally, there remains a perception in the sporting world that these performance enhancing substances can do everything from improving aerobic performance and endurance to reducing muscle fatigue and even increasing muscle strength.

While some performance benefits may be realized by using these drugs, little evidence supports many of the more optimistic claims and stories that surround their use. A number of studies have examined these agents in sport with variable outcomes, and the majority of them fail to provide substantive evidence for the anecdotal reports of pseudoephedrine or ephedrine’s positive effects. In studies that show a positive effect from such substances, the hypothesized cause of increased performance is attributed to the stimulants influence on the central nervous system (CNS) as a psychostimulant that blocks perception of pain and inhibits the natural decline in performance rather than as a substance with ergogenic properties (Docherty 2008).
This is likely also true for amphetamine, as it accentuates these same ergogenic properties. Although some studies have documented improved strength with the use of stimulants (Chandler and Blair, 1980), amphetamines also contain indirectly acting sympathomimetic amines which provide performance benefit through their psychostimulant effects. Amphetamines improve mood, alertness, concentration and decrease the perception of fatigue by elevating levels of dopamine and noradrenaline in the brain. There are few controlled studies with amphetamines in sport and evidence indicates that anecdotal reports of enhanced performance from athletes may be the result of a perceived improvement that is not actually manifested in any quantified way (Eichner, 1993; Avois et al., 2006). This suggests that the sense of euphoria provided by the drugs may provide the illusion of better performance, while no actual change in performance occurs.

**Modafinil**

Modafinil is a psychostimulant designed to treat excessive daytime sleepiness, attention deficit hyperactivity disorder, depression, or narcolepsy. While the exact mechanism of modafinil is still not fully understood as it is a rather new drug, it is believed to affect the release of gamma aminobutyric acid (GABA) in the brain (Tseng, Uralets et al. 2005). Since GABA affects sleep cycle, it prevents the onset of tiredness. Others suggest that it increases alertness by activating noradrenergic and dopaminergic systems (Docherty 2008). No studies have specifically examined the effects of modafinil on any specific parameter of athletic performance, but given its mechanism of action, it does not appear likely to improve $\dot{V}O_2_{max}$ muscle hypertrophy (Kaufman 2005). The only benefit modafinil offers is potentially improved alertness, which generally helps in sports. Yet no evidence suggests that athletes, while engaged in competition, are any more alert while using modafinil. This is because the stress of competition usually increases arousal beyond
that of modafinil. Thus modafinil is a drug with little evidence linking it to potentially improved performance despite its benefit for therapeutic purposes.

**Contextualizing Stimulants**

While stimulants do not all act in the same way, they generally aim to improve exercise endurance. This is done through a variety of mechanisms, although perhaps the most common is the suppression of fatigue. This raises a number of philosophical questions, such as the proper place of fatigue—and the overcoming of it—in sport. If overcoming fatigue is not an important component of sporting tests, substances that block fatigue by suppressing the central nervous system seem to pose no moral problem. Any improvements in performance should not be seen as “enhancements” as the body is actually performing at its physiological capacity; all these substances do is block the transmission of signals that lead to the cessation of exercise.

More importantly, these substances defy neat categorization. The range of substances, their appearance in daily life as either medication or part of athletes’ diet, their limited ergogenic benefit, and their varying risks to health make stimulants a challenging group of substances to discuss uniformly. Yet this simply mirrors the nature of performance-enhancing substances in general. Rather than discussing the performance-enhancing benefit of “stimulants” as if they were one thing, sporting communities should discuss specific substances, their effects, and their acceptable use. This avoids generalizing attributes that fail to adequately describe the substances that both directly and indirectly affect the adrenergic system or the central nervous system.
Increased Muscle Strength: Anabolic-Androgenic Steroids, Testosterone, and Human Growth Hormone

Unlike hematocrit and the adrenergic system, which remain relatively stable unless either is manipulated, skeletal muscle responds well to a broad range of physical stimuli. In exercise, these responses come in two forms: increase in muscle size (hypertrophy) and increase in muscle strength (force production). Muscle hypertrophy involves an increase in the cross-sectional area of muscle cells. The process of skeletal muscle response involves signaling mechanisms that initiate the replicating of specific DNA genetic sequences. DNA replication allows genetic messages to enable amino acids to form the essential new proteins needed for muscle growth (Coffey and Hawley 2007). Often in exercise, such responses result from increased physical exercise including training volume, intensity or frequency. Yet these different aspects of training bring about different training adaptations as the results of training adaptation relate to the mode of exercise. Thus endurance athletes and strength athletes can bring about different adaptations in muscle, which is an important factor when considering performance enhancing drugs.

Anabolic-Androgenic Steroids

Anabolic-androgenic steroids, commonly shortened simply to steroids, are the most widely known performance enhancing drug. Due largely to scandals and sensational media coverage, steroids have entered into the popular lexicon as a way to describe anything enhanced. Many will claim that some new X is “like the old X on steroids” such as when Porsche claimed that their new car model was like the “Carrera on steroids.” Yet despite this popular familiarity with the drug, much myth passes for fact. Indeed, no single PES is in more need of a thorough, evidence-based review than steroids.
Anabolic-Androgenic Steroids (AAS) are a synthetic derivative of the male sex hormone testosterone. As AASs accentuate testosterone’s anabolic (muscle building) properties, there is no need for a separate section devoted to testosterone. For the purposes of this chapter, a discussion of AAS should suffice for a review of hormone-based anabolic substances.

The mechanism by which AAS increases muscle size and strength is complicated and still not fully understood. This is partly due to the complexity of skeletal muscle and partly due to the fact that comparable doses in a healthy population bring about different responses than similar doses in testosterone-deficient populations. Thus the recorded effects of AASs in diseased populations do not apply to those with healthy testosterone levels. Despite these challenges, evidence has led scientists to conclude that AAS primarily work in healthy adults by increasing protein synthesis within muscle cells. Protein synthesis results in increases of cellular tissue by stimulating the replication of RNA. The process begins when AAS penetrates the membrane of a target cell and binds with an androgen receptor. The combined hormone and receptor diffuse into the cell’s nucleus which triggers an expression of genes. Yet in healthy adults, androgen receptors are completely saturated at physiologic concentrations of testosterone, which should prevent individuals from accruing any additional benefits from AAS. This has led some to speculate that AAS may cause an upregulation of androgen receptors, although this is still uncertain (Kuhn 2002).

Yet the complexity of AAS’s mechanisms, as well as poorly designed studies, initially caused investigators to conclude that steroids did not cause increases in muscle or strength gains in normal individuals. This conclusion first emerged despite the overwhelming anecdotal evidence to the contrary. Today, however, the positive effects of supraphysiological doses of AAS in both healthy adults and elite athletes are widely supported. Studies on testosterone ethanate showed significant dose-dependent increases in leg strength in trained athletes (Bhasin, Woodhouse et al. 2001; Bhasin, Woodhouse et al. 2001). Review studies confirm AAS’s
ergogenic effects, although different studies have shown varying degrees of enhancement (Kuhn 2002). More research into AAS is needed to provide a quantitative measure on the degree of strength enhancement provided by AASs in healthy athletes. Nonetheless, the scientific community overwhelmingly agrees that AAS can stimulate strength gains in elite athletic populations.

In addition to such strength gains, AAS may have other advantageous properties for athletes. First, AAS may have anti-catabolic properties that reduce the effects of the hormone cortisol in breaking down muscle. Although still unclear, AAS may reduce muscle breakdown by inhibiting glucocorticoids, another factor in muscle breakdown. Second, AAS may also improve body composition by reducing fat mass. This is because AAS may promote undifferentiated cells into becoming muscle cells rather than fat-storage cells. AAS also may increase basal metabolic rates in individuals which further decreases body fat (Bahrke and Yesalis 2002). Yet these additional benefits beyond strength gains are far from established in the scientific community.

While AASs may produce certain ergogenic effects, they also carry certain short-term and long-term health risks. This evidence reveals that AAS’s health concerns, while significant, are far less worrisome than commonly assumed and that the public perception of AAS does not match the evidence (Kicman 2008). The side effects of AAS use cause both reversible and irreversible changes, and are most common in long term use (Thiblin and Petersson 2005). The most common side effects tend to be cosmetic and are reversible when AAS use ceases. These include headaches, fluid retention, gastrointestinal irritation, diarrhea, stomach pains, and an oily skin (Amsterdam, Opperhizen et al. 2010). Other acute effects include jaundice and hypertension while infections can develop at the injection site, causing pain and abscess. AAS also may cause hepatic toxicity leading to the onset of jaundice (Welder, Robertson et al. 1995). Severe side effects on the liver and lipoproteins mainly result from alkylated AAS at high doses (Ishak and Zimmerman 1987). Most of the serious life-threatening effects appear relatively infrequent.
AASs also present gender-specific side effects. In males, many of the changes are reversible and include symptoms such as reduced sperm production, impotence, difficulty or pain in urinating and shrinking of the testicles (testicular atrophy). Other side effects in males include the onset of breast pain or gynecomastia due to increases in estrogen as a response to the high doses of AAS (Wilson 1988). In one study of male bodybuilders, more than half had either testicular atrophy or reversible or irreversible gynecomastia (Wilson, 1992). Interestingly, observational studies have documented the frequency of AAS related side effects, concluding that between 88 to 96% of AAS users experience at least one objective side effect, including 40 to 54% reporting acne, 40-51% reporting testicular atrophy, 10-34% reporting gynecomastia, 34% reporting with cutaneous striae and 36% reporting pain at the injection site (Evans 2004).

In females, elevated AAS levels result in menstrual irregularities and the development of more masculine characteristics such as decreased body fat and breast size, deepening of the voice, excessive growth of body hair, and irreversible loss of scalp hair (baldness), as well as clitoral enlargement. With continued administration of steroids, some of these effects become irreversible (Shifren 2004).

Additionally, both serious and mild long-term side effects also exist for AAS use. AASs have been associated with prostate cancer (Creagh, Rubin et al. 1988) and cardiovascular diseases such as hypertension, heart attack and stroke (Vanberg and Atar 2010). This can be compounded by adverse changes in cholesterol, whose general effects may last beyond the use of AAS (Thompson, Cullinane et al. 1989; Bagatell and Bremner 1996). The water-soluble varieties of AAS, which are extremely popular with athletes wishing to avoid detection, are highly hepatotoxic (Thompson, Cullinane et al. 1989; Bagatell and Bremner 1996). The fact that drug testing procedures have encouraged athletes to use more dangerous forms of AAS should be noted. However, evidence exists showing that AAS-induced hepatic pathology may be reversible.
after individuals cease using AAS (Modlinski and Fields 2006) and that the overall prevalence of adverse hepatic effects among long-term AAS users is likely low (Pope and Katz 1994).

More importantly, an environmental review of all adverse effects from AAS placed AAS very low compared to all controlled drugs (Thiblin and Petersson 2005). Compared to marijuana, cocaine, or amphetamines, AASs have the lowest environmental impact of the studied controlled substances meaning that they present little risk for individuals who use and for the society surrounding users. From a public health standpoint, AASs are not the troublesome drug that many have made them out to be. Thus the public has reason to reject any claims such as those by the United States Congress and its Mitchell Report that investigated AAS use—and devoted sizeable public funds to AAS use—as a public health threat. Rather, concerns over AASs are likely due to reasons unrelated to public health.

**Human Growth Hormone**

Human growth hormone (hGH) is a hormone that mediates both metabolic and growth processes. In health individuals, hGH is secreted by the pituitary gland and released throughout the day, although with a surge during slow wave sleep. Athletes’ use of recombinant (r)hGH in sport today is based on the belief that rhGh has both anabolic properties and positive effects on carbohydrate and fat metabolism. Yet evidence in support of such claims is quite limited as few controlled scientific studies exist. One study suggests that athletes using rhGH for doping purposes take 10–25 IU/days three to four times a week to increase their lean body mass. In practice, however, athletes often combine these doses with other doping agents depending on the sport. In power sports, athletes will combine rhGH with anabolic steroids while in endurance sports, athletes use rhGH with rhEPO (Saugy, Robinson et al. 2006).
Nonetheless, the effectiveness of rhGH in the improvement of sport performance is still under debate. Few clinical studies confirm its benefit in healthy populations primarily because the positive benefits rhGH provides to hGH deficient adults does not necessarily appear in athletes. Underground reports of rhGH remain dubious mainly because it is rarely used in isolation.

As the results of controlled studies are generally not in agreement with subjective underground reports by misusers, it is difficult to draw any definite conclusions regarding the effects of excessive hGH administration on skeletal muscle function. It must be stressed that the regimen of hGH use in sport is designed to fulfill purposes other than just an increase in athletes' muscle mass. The doses involved are specific to a discipline, its training model, and tailored to the regimen of other ergogenic substances being used concurrently.

There are very few controlled studies on the effectiveness of hGH on top level athletes or even healthy populations. In general, the few studies have been performed with supraphysiological dosages but not with the large amounts claimed to be effective, for instance, by bodybuilders. The results of most of these controlled studies are generally less impressive than the mythic claims that emerge from underground uses of rhGH. A study of volunteers under heavy resistance training found decreases in fat mass but no improvement in muscle strength (Yarasheski, Campbell et al. 1992). One study found that there was no effect of rhGH treatment on maximal force in either biceps or quadriceps muscles and that neither body weight nor body fat favorably changed significantly during treatment (Deyssig, Frisch et al. 1993).

At the same time, the health risks of rhGH use remain relatively unknown as there is still little data regarding supraphysiological doses in healthy individuals. The disease acromegaly, which results from a pathological increase in endogenous production of GH, is often cited as one of the major risks associated with excessive use of rhGH (Saugy, Robinson et al. 2006). It can be argued that long term hGH doping with high dosages will probably result in misusers experiencing symptoms of fluid retention and increased risk of development of diabetes mellitus.
and hypertension. There is also an increased risk of heart disease and heart attacks, osteoporosis and menstrual irregularities in women and impotence in men, yet many of these side effects are reversible after cessation of use (Bahrke and Yesalis 2002). As rhGH is administered by injection, medically unsupervised use poses numerous risks depending on the degree of risk permitted by the users, ranging from infections from non-sterile equipment to blood borne diseases such as HIV caused by sharing infected needles.

**Creatine**

Creatine is an amino acid that humans both produce naturally and consume through food. It can also be consumed as a dietary supplement for performance enhancing purposes. Since creatine plays several key roles in cellular function, particularly as an important energy source for resynthesis of adenosine triphosphate (ATP) in cellular energy production and as a buffer to acidity produced during high-intensity exercise, it presents an interesting opportunity for enhancement. In individuals who supplement with creatine, muscle biopsies reveal an increased amount of total creatine present (Hultman, Soderland et al. 1996).

However, increased presence of creatine in the muscle does not necessarily mean improved performance. Research, including over eighty studies of creatine supplementation on performance, reveal a variety of ergogenic changes brought about by creatine (Branch and Williams 2002). These changes include enhanced anaerobic power, anaerobic endurance and aerobic endurance resulting from creatine supplementation. A review of studies show improvements in maximal strength and power of 5 to 15% following the generally accepted standard creatine supplementation protocol—20 to 30 grams per day for 5 to 7 days (Kreider, Leutholtz et al. 2004). Long term creatine use in training (7 to 140 days) promotes significantly greater gains in strength, sprint performance and fat-free mass, which indicates its benefit as a
training aid for athletes. While many studies have shown no effect from creatine supplementation, the likely variable is in individual responses to creatine and not the general efficacy of creatine supplementation. Thus the majority of literature supports creatine’s noted increases in strength, fat-free mass, and anaerobic power (Hultman, Soderland et al. 1996; Branch and Williams 2002; Kreider, Leutholtz et al. 2004).

Despite the appearance of creatine in normal diets, creatine supplementation for performance enhancement carries certain health risks and side effects. According to a review of available literature, the only documented side effect of creatine supplementation is weight gain (Kreider, Leutholtz et al. 2004). Anecdotal reports have linked creatine to cramping, dehydration, and increased susceptibility to muscle strains while long term use of creatine suppression of creatine synthesis. However, a significant amount of research has investigated these claims and does not show justification for such concerns (Kreider, Leutholtz et al. 2004).

Thus creatine appears to be a significant performance enhancing supplement presenting little in the way of harmful side effects. This may make creatine a philosophically challenging supplement as athletes who follow generally accepted creatine supplementation practices will likely realize performance enhancing benefits. Those opposed to using substances to enhance performance, however, cannot ban creatine as it remains both an endogenous substance (naturally produced in humans) and a naturally occurring exogenous substance (found commonly in meat). The result is a performance enhancing substance whose use cannot readily be prohibited.

**Anabolic β-agonists**

As discussed earlier, there is little evidence that inhaling therapeutic doses of β-agonists enhances an athlete’s performance although athletes have experimented with such substances because of a perceived potential anabolic effect. Although these effects would only occur if an
athlete used supraphysiological doses of either the β-agonists clenbuterol or salbuterol, this has not prevented athletes from seeking these PES’s anabolic benefit. These drugs have increased in popularity primarily because of the belief that either they are a safe alternative to anabolic androgenic steroids or because they leave an athlete’s system faster and are thus harder to detect in anti-doping tests.

The anabolic effects of these drugs—clenbuterol in particular—have been studied primarily in livestock (Zeman, Ludemann et al. 1988; Moore, Pegg et al. 1994; Ryall, Sillence et al. 2006). In fact, clenbuterol originally emerged as a non-steroidal anabolic agent that improved an animal’s ability to convert food to body mass. This effect is associated with an increase in skeletal muscle protein, largely due to the inhibition of protein degradation (Reeds, Hay et al. 1986; Yang and McElligott 1989). Its use has been associated with an increase in muscle force production and skeletal muscle hypertrophy is evident in fast-(Type II) and slow-(Type I) twitch muscles (Zeman, Ludemann et al. 1988; Dodd, Powers et al. 1996). Additionally, β-agonists have been linked to a decrease in body fat, which makes them particularly appealing in sports where strength is a premium yet athletes have to maintain low body weights for weight classes such as boxing or wrestling (Yang and McElligott 1989).

However, doubts remain as to these drugs’ performance enhancing effects. In animal studies, clenbuterol showed no effect on exercise performance in rats (Torgan, Etgen et al. 1995; Murphy, Beliveau et al. 1996). Other studies have reported decreases in “sporting” performances in mice (Ingalls et al., 1996) (Duncan et al., 2000) (Burniston et al., 2007). These doubts are somewhat alleviated as the effects of β-agonists on muscle strength and mass and on physical performance appear related to the method of the drug’s administration, with oral doses requiring higher amounts than injections to achieve the same level of muscle hypertrophy in rats (Moore, Pegg et al. 1994).
As mentioned earlier, little evidence exists showing an increase in performance after inhalation of β-agonists. Yet studies showed positive effects for higher doses of orally administered salbutamol (Moore, Pegg et al. 1994; Caruso, Signorile et al. 1995; Van Baak, Mayer et al. 2000). In one study, a single oral dose of salbutamol increased isokinetic muscle strength and endurance performance in healthy male volunteers (Van Baak, Mayer et al. 2000). Despite limited evidence, the promise of increased strength coupled with decreased fat mass makes drugs such as clenbuterol and salbutamol particularly appealing to athletes (Davis, Loiacono et al. 2008).

As noted, β-agonists come with their own set of health concerns. In high doses, these drugs have been linked to tachycardia and cardiac arrhythmias (Davis, Loiacono et al. 2008). More worrisome for certain endurance athletes, these drugs increase bronchodilatation, which is their appeal in treating asthma. Yet bronchodilation in endurance athletes may increase the penetration of allergens into their airway which produces inflammation. Sports where athletes are exposed to high levels of atmospheric particulates would exacerbate this inflammation response (Broadley 2006).

**Inhaled β₂ Agonists**

While inhaled β₂ agonists—a common substance in asthma medication—remain on many prohibited substances lists, little evidence supports the claims that they carry a performance-enhancing benefit. After reviewing twenty randomized, placebo controlled studies, Kindermann and Meyer concluded that no ergogenic potential exists for inhaled β₂ agonists in non-asthmatic athletes. In the literature reviewed, only three studies reported a performance-enhancing effect of inhaled β₂ agonists. However, Kindermann and Meyer concluded that methodological shortcomings existed in the only three studies that showed positive findings for β₂ agonists.
Therefore, much doubt exists about the ergogenic effects for β\textsubscript{2} agonists in non-asthmatic athletes (Kindermann and Meyer 2006). While specific studies provide explanations for this, such as Van Baak, et al., few athletes or sporting organizations appear aware of inhaled β\textsubscript{2} agonists’ lack of efficacy (Van Baak, De Hon et al. 2004).

Yet given the epidemiology of asthma in athletes who may legitimately need β\textsubscript{2} agonists (many athletes have exercised-induced asthma) and the considerable problems caused by banning β\textsubscript{2} agonists (both the therapeutic use exemptions and the false-positives), sporting organizations may wish to reconsider banning such drugs. On a yearly basis, between 10 and 15% of all positive tests for doping are attributed to these types of substances (WADA 2008). Additionally, positives for β\textsubscript{2} agonists result in “no case to answer” half of the time (Sport 2009). While we will return to this point later, it is important to note that not all banned substances actually improve performance and many do carry legitimate therapeutic benefits. Although athletes can receive therapeutic use exemptions (TUE) for such drugs, some athletes with legitimate medical conditions have still been found guilty of doping.\textsuperscript{3} Bans on such substances must be thoroughly justified, as the negative consequences for the bans remain high and the threat they pose to competition is low or nonexistent.

**Contextualizing Strength Enhancers**

Perhaps more than any of the other groups of substances, the strength enhancers suffer from mythic levels of misinformation. This may speak to the promethean desire to unlock the secret to strength—a desire that has long fascinated scientists and athletes alike. Nonetheless, the evidence base calls into question such assumptions. AAS appear to provide increases in strength with certain health risks, but neither is near the levels commonly portrayed in media reports.
Human growth hormone, a banned substance, appears to have little effect while creatine can significantly increase performance.

While strength plays a role in all athletic sport, the effects of increased muscle strength affect different sports differently. Certainly increased strength can translate into more weight lifted in power lifting or more speed in sprinting. But the associated mass can negatively affect endurance performance. In certain skill sports, such as badminton or table tennis, athletes would perform approximately the same since strength is rarely the limiting factor in performance. Thus for many sports, increased strength is important, but the increased strength brought about through AASs does not always mean better performance; in many sports, performances would remain the same or potentially be compromised.

**Psychological Enhancers: Beta-blockers and Alcohol**

While the majority of PESs increase physical aspects such as strength or endurance, a handful of other substances promise to enhance an athlete’s psychological performance through pharmacological intervention. From focus to steady nerves to self-confidence, athletes’ pursuit of performance has led them to experiment with a number of substances including beta-blockers, alcohol and modafinil. These substances carry the promise of preventing psychological challenges from affecting athletic performances. More importantly, some fear that such psychological enhancers may affect one of the more widely cherished aspects of sport: grace under pressure (Morgan 2009). For that reason, scholars must seriously examine these PES’s mechanisms of action and effects in order to determine whether such substances ought to be prohibited in sport.
β-Antagonists

β-Antagonists, commonly known as beta-blockers, treat numerous cardiovascular diseases through beneficial actions on the heart. In sport, the main performance enhancing effect of beta-blockers stems from their ability to decrease heart rate and hand tremor, a benefit to individuals competing in sports that require steadiness and accuracy such as shooting (Bowman and Anden 1981). Additionally, evidence indicates that they may relieve the outward signs of psychological anxiety such as tachycardia and skeletal muscle tremor (Reily 2005). Thus, in a number of sports, including archery, shooting and certain events in the modern pentathlon as well as billiards, and even gymnastics, beta-blockers may have some benefit.

However, it is important to note the limited value of beta-blockers. Review studies have concluded that any performance benefit from beta-blockers is likely drastically offset by performance decreases in the vast majority of sports (Davis, Loiacono et al. 2008). Evidence indicates that beta-blockers harm performances in endurance sports because they reduce physical performance and maximum exercise load (Kaiser, Hylander et al. 1985). In addition, the use of beta-blockers has been associated with decreased anaerobic capacity (Rusko, Kantola et al. 1980). Furthermore, the effects of chronic endurance training on cardiovascular function, such as decreased heart rate and increased stroke volume at a given intensity combined with restricted muscle blood flow resulting from suppressed β2-adrenoceptor-mediated vasodilatation most likely interferes with an athlete’s ability to compensate for a decrease in heart rate caused by beta-blockers (Head 1999). These effects indicate that in sports where cardiovascular performance plays a significant factor in athletic performance—which is a great number of sports—beta-blockers likely harm general performance more than they would help performance by suppressing outward signs of anxiety.
In addition, reduction in outward signs of anxiety should not be confused with decreasing anxiety or with improved performance in high pressure situations. This is because the mechanism of action actually does not improve one’s response to pressure; rather, it prevents the outward expression of psychological anxiety by suppressing natural physical responses. Outward expressions like tremors only affect a small number of sporting performances that depend on fine motor coordination. For gross body movements, such tremors are insignificant. More importantly, the beta blockers do not take away from an individual’s agency when it comes to executing tough skills or decisions in pressurized sport situations.

Alcohol

In the early days of elite sport, many athletes turned to alcohol believing it held stimulating properties (White 1901). From marathon runners to six-day cyclists, athletes turned to alcoholic spirits hoping that, in moments of distress, it would lift theirs. Unfortunately, through trial and error, athletes learned firsthand what many physiologists later showed in the lab: alcohol harms performance far more than it helps. As Stainback and Cohen argue, “the best conclusion based on the sport literature to date is that alcohol lacks ergogenic qualities for practically all sport applications” (2002).

Despite its harms, alcohol has remained a performance-enhancing substance of interest in a handful of sports. The belief, although unsupported by evidence, that alcohol steadies nerves and improves confidence—both of which would improve performance in stressful competitions—persists to this day. Thus for sports such as shooting, archery and billiards, some athletes may ingest alcohol for performance enhancement. Yet even small amounts of alcohol (1.5 to 2.0 oz) have been shown to have negative effects on a variety of psychomotor skills, including reaction time, eye-hand coordination, accuracy, balance and complex coordination or gross-motor skills in
controlled environments (Stainback 1997). Thus despite the perception of control and confidence, athletes likely receive little to no performance benefit.

Additionally, alcohol use carriers numerous short term and long term health risks to the athlete. While recent studies have linked light to moderate use of alcohol to decreased mortality, alcohol abuse has been shown to have serious and widely-known consequences. Alcohol’s effects as an intoxicant also present significant social harms. Compared to other prohibited performance enhancing drugs, alcohol abuse certainly appears as the most harmful both to athletes and society at large. Yet with no ergogenic properties and its many harmful effects, athletes will likely refrain from heavy alcohol use during competition and training, thus negating many of these concerns.

**Contextualizing Psychological Enhancement**

Fortunately or unfortunately, depending on one’s views on enhancement, the world of psychological performance enhancement has not yet arrived. There is still no pill or substance that can improve an athlete’s ability to remain “cool” under pressure. For a select few sports, beta-blockers may be of some benefit, but this is primarily by masking physical responses to anxiety. The anxiety, on the other hand, remains. Modafinil may increase focus for people working in repetitive and unstimulating environments, such as factory workers or security workers scanning x-rays at an airport, but in situations where psychological arousal is already high, it will likely not increase focus any further. Alcohol may make one feel more successful, but on paper individuals tend to perform worse, which only further reaffirms the notion that alcohol hinders perception and judgment. Thus, on the whole, evidence reveals that these substances have limited performance-enhancing benefit while also harming other significant aspects of performance. Any concern about psychological performance enhancement remains
unfounded at this point in time and likely operates under a dualistic assumption that the mind can be enhanced separate from the body.

**Conclusion**

In summary, it is clear that few universal attributes exist that apply to all performance enhancing drugs or substances. Some enhance endurance, others enhance strength, and some seem to provide no ergogenic benefit. Certain substances carry little health risk. Others are consumed in the course of normal diets. More importantly for athletes, some of these substances are permitted by sporting organizations while others are banned.

The differences in PESs are also important for those discussing "doping" in general. Blanket statements about doping do not work because they fail because to reflect the nuances of such practices. For example, general claims that doping is unnatural fail because blood transfusions and testosterone are natural. One can argue that swallowing pills is unnatural, although when we consider the athlete who swallows vitamins and caffeine pills or who consumes a 5,000 calorie a day diet, it becomes hard to see the difference. Performance-enhancing practices exist throughout sport with varying degrees of prohibition and affecting different aspects of sporting performances.

Additionally, different sports are affected by PESs in different ways, further complicating any discussion about the general ethics of PESs and the bans on PESs in general "sports." Blood boosting is of no benefit to baseball players nor are steroids of any benefit to ski jumpers. Thus the issue of PESs in sport is not a singular issue. Rather, it is a multi-faceted issue with many moving parts.

Yet of the broad conclusions that do apply to PESs, one is that taking such substances without guidance is riskier than doing so with knowledgeable people. In many instances, the vast
majority of a substance’s health risks could be mitigated by using the substance under medical supervision. Illicit use posed far greater dangers than licit use. At the same time, the bans on PESs have not stopped athletes from using them; they have simply driven those athletes who choose to use PESs underground where they face higher risks in their efforts to illicitly use and avoid detection. This indicates that those who wish to prohibit PESs must show how the benefits of prohibitions outweigh their harms.

Nonetheless, the science of performance enhancement reveals a complex array of substances and methods, each with their own set of effects and side-effects. Any philosophical discussion of PES bans must remain mindful of this complexity. To do this, the science behind the PESs must play a central role in how philosophers view and discuss the bans. Yet as will become apparent, the literature discussing the ethics of performance enhancement has largely ignored the science behind the drugs, instead working in generalizations and assumptions rather than evidence and science. Once the science takes a seat at the table, however, it changes how philosophers view the PES debate’s central issues. These changes will become clearer in the next chapter where we examine the philosophical literature on PESs.

Endnotes

1 One such example was Thomas Murray’s position statement on altitude tents, whereby he completely ignored the physiological mechanism and focused on the natural/artificial distinction. Scientists roundly criticized Murray for failing to accurately understand how the boosting of red blood cells via altitude and altitude tents were the same natural process and the statement was later retracted.

2 Certainly a number of substances have effects in multiple categories. For those substances, their effects in different categories will be noted.

3 One such case is that of Italian cyclist Alessandro Petacci, who was found guilty of doping after testing positive for a substance that he had a TUE to use. His test was slightly above the levels permitted by his TUE and thus he was found guilty for doping. Still, the low level he tested positive for was below levels with potential ergogenic effect and within ranges of normal therapeutic use. Thus TUEs do not resolve all the problems surrounding substances.
Chapter 4
A Critical Review of Philosophical Literature

Introduction

The first scholarly article addressing the justification for prohibiting performance-enhancing substances (PESs) in sport was published in 1980.¹ In it, W. Miller Brown questioned not whether using prohibited substances was cheating but whether the rules that prohibited such substances were justified (1980). Brown concluded that the rules were not justified by arguing that personal freedom for athletes trumps sporting organization’s concerns over health, fairness, and the spirit of sport. Sporting organizations, in his estimation, unjustifiably restricted athletes’ autonomy by prohibiting them from choosing to use PESs.

Brown did not have the last word in the doping debate, however, and for over thirty years scholars have fought over the ethics of using PESs and their bans in sport. Arguably, both the scholarly debate and the public discourse have moved little beyond the topics discussed in Brown’s prescient article. This state of affairs has prompted some scholars to conclude that the debate over PESs is a dead issue. Others have concluded that while it may not be dead, scholars now find themselves at an impasse where progress seems unlikely or even impossible.

In order to move past this impasse and advance the debate, I have engaged in a cross-disciplinary study of the PES issue that draws heavily on historical and scientific information. While other disciplines also contribute to my investigation, history and science find themselves prominently placed in my dissertation precisely because they assist in breaking the current philosophical log jam. Insights drawn from these fields and outlined in the previous three chapters shed important insights on old dichotomies and arguments in the PES debate. Although
such insights generally form a solid foundation for a philosophical examination of the bans on PESs, they also contribute a number of key points that alter the examination’s trajectory.

Following, I will outline these key points, first from the historical evidence and then from the scientific evidence.

Historical evidence, especially in the case of PESs, reveals much about past practices as well as today’s accepted narratives. First, it is quite clear that doping and performance enhancement have long histories. Thus they are not recent phenomena or a symptom of contemporary sporting culture. This undermines the narrative that the desire to use PESs is the result of modern financial greed or fame. In fact, past sporting communities viewed PESs as a way to combat the punishing fatigue and the physical toll of elite sport. Interestingly, a parallel of this mentality exists today where professional athletes, coaches and team doctors hold an instrumental view of sport. For example, the Spanish doctor Eufemiano Feuntes, who has been implicated in supplying and administering PESs to numerous athletes, maintains that his job as the team doctor was to “ensure that riders could put up with the physical demands being made of them,” and that administering PESs to athletes “ensured their health” (Cossins 2011).

Other historical evidence reveals important insights into how concerns over PESs first emerged. Indeed, when the sporting world first rejected PESs, the concern was about secondary issues such as fair gambling environments, amateurism, and morality in sport. These were not considerations about what makes a good sporting test. Additionally, concerns over drugs such as cocaine and heroin as well as alcohol stemmed from larger social movements and not sporting concerns. Thus aspects of the sporting world’s initial rejections of PESs stemmed from social views of the period and not sporting concerns from within the sporting community. In fact, historical evidence reveals that much of today’s anti-doping attitudes remain tethered to residual culture—past attitudes and beliefs that have since faded in society. These elements of residual
culture continue to shape the sporting world but are no longer dominant elements of larger society.

In fact, dominant culture is much more influenced by scientific evidence. And science certainly yields many new insights into the PES debate. As I illustrated in Chapter Three, the evidence behind PESs reveals a number of important insights about the nature of the subject matter that have previously garnered little attention in the philosophical circles. First, PESs vary in efficacy. Some produce modest changes while others produce little or no changes. Thus, it may not be appropriate to lump them together for prohibition. Additionally, PESs vary in efficacy based on the nature of the sport. Certain sporting performances, such as endurance events and strength events, are more easily alterable than others. Thus, prohibition of PESs may be appropriate in some sports but not in sports where PESs have little effect. At the same time, science shows that some PESs use mechanisms and have effects that are similar to currently permitted substances and strategies. This raises important questions about consistency.

Moreover, scientific evidence shows that some current prohibitions appear to lack rational grounding. For example, the argument that PESs constitute health risks serious enough to merit special attention is undermined by scientific evidence. Research indicates that health risks between PESs are quite varied. Most importantly, this evidence indicates that the health risks from most PESs fall within the normally accepted range of health risks in sport. Without specificity regarding the substance and its degree of potential harm, it is difficult to determine the legitimacy of arguments such as paternalistic interference. Health risks also vary socially and contextually. Medically supervised use of PESs is much safer than unsupervised use. This means that if PESs were permitted and supervised, health risks could potentially be reduced.

At the same time, removing the bans on PESs may reduce a variety of unintended harms. Such harms often involve suspending athletes for using substances that did not affect their sporting performance. For example, many athletes test positive for a substance commonly used in
asthma medicine. Although an anabolic agonist, evidence indicates that such drugs do not confer a performance benefit. Removing the bans on such substances would assist athletes treating their asthma and reduce the number of athletes wrongly charged with cheating. Additionally, the limited efficacy of certain PESs in specific sports raises questions as to the rationale for the bans. Banning anabolic steroids in sports such as archery or riflery or banning EPO in weightlifting seems to be unnecessarily redundant. Because substances have little effect on an athlete’s performance in those sports, it is unclear why sporting organizations would impose costly and cumbersome bans.

Last, scientific evidence also reshapes the very nature of the philosophical debate. As I shall outline in my literature review, many of the dichotomies used to justify and to reject the bans on PESs do not parallel the scientific understanding about the substances. For example, science tends to erase certain lines of demarcation such as between natural and unnatural, safe and unsafe, and restorative and enhancing. While dichotomies are not, ipso facto, wrong or unhelpful, these distinctions did not accurately reflect the nature of the substances or the impact of their use. By understanding the science of the various PESs, philosophers better understand their subject matter. They can rely less on unhelpful dichotomies and more accurately assess the relevant issues.

Simply knowing the science behind PESs—or their history, for that matter—does not ensure philosophical conclusions will be accurate. They may still need revisions. But such conclusions, both from science and from history, alter the context of the philosophical debate. Following, I will critique previous arguments in the doping debate in light of this cross-disciplinary research. I focus this literature review on the central question asking whether the rules prohibiting PESs are justified. I will present arguments first from those who support bans and then from those who reject them. Yet I do not take either side’s arguments at face value. Instead, following each argument, I will present the relevant criticisms that would raise doubts
about each argument’s main claim. Many of these criticisms rely on arguments outline in the previous three chapters. At the end of this chapter, I conclude that to date, neither side has provided conclusive reasons for prohibiting or for permitting PESs in sports. Therefore, the doping debate would benefit from new perspectives that venture beyond the previously traversed landscape.

**Arguments Supporting the Current Bans on PESs**

As it stands today, the majority of sporting communities prohibit PESs. Yet simply because these organizations do prohibit PESs, it does not necessarily follow that they are ethically justified in doing so. Hoberman describes, “the moral argument against doping represents a recent (and culturally conservative) response to specific scientific discoveries within the area of human biology” (1992, 102). To justify this cultural response, numerous scholars have sought to justify the bans using an array of similarly themed arguments. The result is an extensive base of scholarly literature directed at justifying sporting organization’s ban on PESs.

For purposes of giving some order to this literature, I will use a thematic approach that examines arguments by categories rather than by author. Other scholars have used similar thematic approaches. Schneider and Butcher (2000) identified four categories of arguments aimed at justifying PES bans—arguments about cheating, causing harm, perverting sport, and using unnatural aids. However, these categories or arguments failed to completely capture the debate surrounding enhancement. Miah (2004) expanded on Schneider and Butcher’s list to include a number of sub-arguments that clarify these original four. Miah’s list includes arguments against PESs as their use is unfairly coercive, unequal, risky to athlete’s health, an unnatural aid, rule breaking and disrespectful to the game, an unearned advantage, contrary to the internal goods of sport, contrary to the nature of sport, and a contract violation. While I use certain elements of
both Miah’s and Schneider and Butcher’s literature reviews as starting points, I will address yet additional arguments in support of the bans.

**The Unfairness Argument**

Perhaps the most commonly cited argument against using PESs holds that sporting organizations ought to ban PESs because they are unfair. In fact, the unfairness argument comes in two strains. At the most basic level is what I will call the rule-breaking argument. The rule-breaking argument holds that using PESs is unfair because sporting organizations prohibit their use. Since rules prohibit athletes using PESs, those who do use PESs gain an unfair advantage by intentionally breaking the anti-doping rules. This line of reasoning often figures prominently in popular discourse and is acknowledged by scholars such as Lavin (1987), Arnold (1997), Houlihan (2002), and Simon (2004) but not actually held by any of them. Others including Loland (1998), Vostenbosch (2010), Butcher and Schneider (1998), Eassom (1998), Feezell (1986), Morgan (1994) restate the rule-breaking argument by asserting that using prohibited PESs is a contract violation. Since entering sporting competitions entails a tacit agreement with one’s opponent to play under the same conditions, then using means prohibited by the agreement or contract is unethical.

However, while scholars often cite the rule-breaking argument, few actually hold this position as a justifiable reason for prohibiting PESs. This is due largely to the argument’s circularity of reasoning. Essentially, the rule-breaking argument asserts that sporting organizations ought to prohibit PESs since they offer rule breakers unfair advantages, but PESs only confer an unfair advantage since rules prohibit their use. If sporting organizations permitted PESs, then using PESs would not constitute rule breaking. Thus the rule-breaking argument does not justify having anti-doping rules in the first place. It only indicates why athletes should not
violate the anti-doping rules once the rules exist. Certainly no one doubts that an intentional violation of rules designed to prohibit certain means and produce a level playing field is cheating. Thus, the more interesting question at hand is not whether violating PES rules is unfair but whether the rules that prohibit PESs are justified.

This glaring case of question-begging is not the only argument to the effect that the use of PESs is unfair. A second strain of the unfair argument holds that even if sporting organizations permitted PESs, their use would still have various unfair consequences for either participating athletes or members of the sporting community. Authors who discuss this position include Gardner (1989), Holowchak (2002), Lavin (1987), Parry (1987), Schneider and Butcher (2000), Simon (2004) and Tamburrini (2000). These scholars address various ways in which permitted PES use might unfairly advantage some athletes over others.

However, it must be noted that performance enhancement itself is not inherently unfair or morally problematic. As argued by Tamburrini (2007) and Lenk (2007), athletes enhance their performance with the aim towards inequality all of the time. If sporting organizations banned something simply because it enhances an athlete’s performance, then they would find themselves in the awkward position of banning athletes who use better coaching and training methods since those also enhance performance. Since sporting organizations do not consider those types of performance enhancement unfair, it seems arbitrary (and thus more likely the result of unjustified bias) to focus their attention on PESs.

However, stronger arguments than the unfair advantage claim do exist. The strongest claim that PESs are unfair emerges when one considers athletes’ access to them. If PESs improve performance but not every athlete can use PESs, then permitting PESs would seem unfair. Thus sporting organizations may be justified to prohibit all athletes from using PESs if equal access cannot be reasonably assured.
There is some contingent merit to this argument. Today, a patchwork of legislation criminalizing PESs such as steroids and amphetamines means that for some athletes, using PESs is illegal for some and not for others. Not all athletes live in places with laws that make using PESs illegal. Thus, even if sporting organizations allowed their use, not all athletes would have access to them. Those athletes who lived in countries that still (at least tacitly) permit athletes to legally use PESs would have an unfair advantage over athletes who live in countries where PESs are illegal and would have to break the law if they wished to compete on a level playing field. Given this discrepancy in drug laws, it appears that unfairness would exist if sporting organizations did not also prohibit all athletes from using. Such pragmatic problems do present contingent challenges and are worthy of consideration (something that will be addressed in Chapter Six).

However, even if such laws did not exist, some still argue that unequal access would persist, thus creating unfair advantages. This argument asserts that even if PESs became completely available, not all athletes would have the same access. This unequal access would create unfair conditions. For example, some athletes would be unfairly privileged by selecting better, more powerful drugs or perhaps some athletes may simply respond better and thus gain an unfair advantage. Yet looking at other areas of sport, such advantages are rarely considered unfair. It is not unusual for some athletes to have better equipment than their opponents. For example, professional cycling teams often invest their own money in developing more aerodynamic bicycles for their riders. Few are troubled by the fact that some riders will have access to faster bicycles than others, at least not to the point of introducing legislation that requires all riders to use the same kind of bike. At other times, athletes find that their body types naturally function better with equipment. Runners who have higher or lower than average arches often struggle to find running shoes that fit their feet and thus suffer more chronic injuries. Again, it appears arbitrary to argue that PESs ought to be banned because they provide unearned
advantages when sporting organizations permit many other areas where athletes receive unequal benefits from available technologies.

Critics, however, point out that this counter argument assumes that athletes will have equal access to the PESs. If sports permitted PESs, these critics argue that the cost of PESs might price some athletes out of the competition. This is especially true if an “arms race” for better PESs ensues as athletes from wealthier countries or athletes with better funding try to develop more potent drugs in order to gain an advantage. If that were to happen, critics conclude that the wealthiest athletes would likely have an unfair advantage. Thus sporting organizations can justifiably prohibit PESs since their use would advantage athletes based on wealth rather than athletic merit.

The argument that permitting PESs unfairly advantages wealthy athletes, however, is unsatisfying for two reasons. First, wealthy athletes already have an unfair advantage, yet sporting organizations have done little to correct that imbalance. For example, such athletes can use their resources to hire better coaches, build better training facilities, or access better equipment. Their financial wealth also allows them the security to train free from financial worries that poorer athletes face. This disparity in funding for athletes has not seriously troubled any sporting organizations, at least not the point where legislation on maximum expenditures has been proposed. Since other advantages enjoyed by wealthy athletes have not come under serious scrutiny, it seems arbitrary to limit potentially costly PESs because of the advantages the resultant unequal access might confer.

Additionally, a degree of democratization now exists in sports whereby the pressures to find the best talent has led to many investments in athletes who lack the support wealthier athletes have. While sporting organizations seem justified in their desire to avoid having money decide who wins, the meritocratic nature of sport indicates that wealth and talent often find each other. It seems likely to infer that if sporting organizations permitted PESs, the most talented athletes,
whether enjoying considerable means or not, would usually find themselves on a level playing field.

Even if the above democratization did not fully mitigate advantages from wealth, it is unclear how they differ from other advantages tolerated in elite sport. The privilege to be born wealthy is no different than the privilege to be born tall or with a higher \( \dot{V}O_{2\text{max}} \). One might call it random luck that such athletes were born into wealthy families or wealthy countries, but advantages from such luck exist throughout sport. Geography can benefit athletes differently. No one appears bothered by the fact that Alpine ski racers fortunate enough to live nearer to mountains have an advantage over their flat-landed competition. Being born in a wealthy country is not significantly different. Such advantages often exist and while sporting organizations ought to limit unfair advantages wherever possible, not all advantages are controllable. If wealthier athletes had more access to PESs, this would be similar to today’s situation where wealthier athletes have access to better training facilities, coaching and equipment.

In fact, permitting PESs may actually diminish the disparity that now exists between wealthy and poor athletes. As it stands now, wealthy athletes spend their money on expensive (but permitted) ways to enhance their performance. In an effort “to put in what God left out,” wealthy athletes can afford to experiment with every available means to enhance performance. For example, the running shoe company Nike pays for their elite runners to live in a house that artificially simulates living at high altitude. This permits the runners to easily follow the live high/train low approach which, as previously argued, boosts the runners’ hematocrit by roughly five percent while allowing them to continue training effectively.\(^3\)

Essentially, wealthy athletes who can afford such altitude training have found a way around the anti-doping rules that ban blood boosting substances such as EPO. Compared to altitude houses, PESs present a much more cost-effective way for athletes to enhance their
performance in the same way. A few doses of the PES erythropoietin (EPO) can have the exact same benefit as altitude training but at a fraction of the cost. By permitting EPO or other similar PESs, sporting organizations could mitigate the advantages that wealthier athletes already enjoy. In other words, bans on PESs may actually unfairly advantage wealthier athletes who can afford to circumvent the anti-doping rules.

Additionally, if sporting organizations removed the bans on PESs, they might improve fairness in other ways. Currently, an unknown number of athletes cheat by intentionally using prohibited PESs in competition. Sporting organizations know that, despite their best efforts, a fraction of athletes who cheat by using PESs remain undetected. The result is that those athletes have an unfair advantage over the athletes who are following the rules and not using. If sporting organizations permitted all athletes to use PESs (and no laws prohibited their use), then fairer competitions would result since no athletes would be unfairly benefiting from using banned PESs.

Despite worries that PESs will create unfairness due to unequal access, it does not necessarily follow that sporting organizations are justified in banning their use. While critics point to numerous ways in which PESs may unequally benefit athletes, it is hard to see why using such drugs falls outside the normally accepted range of inequality among athletes. Thus to ban PESs and ignore other forms of unequal benefits would appear inconsistent. If the goal is to justify the bans on PESs, such inconsistency is unsatisfying. Additionally, permitting PESs potentially removes certain undesirable advantages. Those benefits may at least balance out any inequality caused by permitting PESs. For those reasons, sporting organizations are not justified in prohibiting PESs based solely on the assumption that they will be unfairly distributed.
The Health Argument

Another often cited argument supporting the ban on PESs has to do with the claim that they are unhealthy. More specifically, supporters of the ban on PESs argue that the PESs that athletes use carry a risk for both short and long term health problems. Such critics deem these risks unnecessary and undesirable. By permitting PESs, sporting organizations would be sanctioning circumstances where athletes unnecessarily took higher health risks. As they do by instituting other safety measures, sporting organization can justifiably pass rules that protect athletes from unnecessary harm. Numerous scholars outline the health argument including Møller (2009), McNamee (2008), Pound (2006), Brown (1995), Holowchak (2000), Lavin (1987), Parry (1987), Schneider and Butcher (2000), Simon (2004), and Tamburrini (2000). Many sporting organizations as well as the political legislatures supporting them cite health concerns as their primary basis for banning PESs (Commission. 2001; WADA 2009).

As persuasive—and pervasive—as the health argument is, a number of scholars have raised objections. First, an increasing amount of evidence has caused scholars to question the assumption that PESs are inherently unhealthy. Admittedly, PESs carry unhealthy side-effects, but many substances including diet and training do as well. Taken in excess, even water carries certain health risks. Simply having side effects, however, is not a reason to specifically single out PESs for prohibition since so many other aspects of sport do so as well. Additionally, athletes can often minimize a PES’s side-effects if the PESs are taken in moderate, supervised doses. Critics who argue that athletes would not stop at recommended dose need not worry either, since evidence indicates that the vast majority of these drugs have performance-decreasing effects when taken at such high doses. For example, the benefit from amphetamines’ stimulant properties gradually decreases as its diuretic effect increases and the benefit from blood doping decreases when hematocrit levels exceed 52% as the increased blood viscosity inhibits muscle
Thus with most PESs, athletes would rarely have reason to take super-physiological doses since those doses would often decrease performance.

Additionally, even if PESs proved unhealthy, it is unclear that such harm justifies their ban. Philosophers frequently cite John Stuart Mill’s “harm principle,” which holds that one cannot infringe on another individual’s freedom to act unless that individual’s actions would harm others (1961). Infringing on another’s personal liberty out of concern for their health constitutes an unjustifiable form of paternalism. In the case of PESs, although they may harm the user, scholars such as Simon (2004) and Brown (2001) argue that it is unclear how such action harms others. Without such action harming others, sporting organizations are acting in an unjustifiably paternalistic manner.

Last, many point out that sport carries inherent health risks that participants willingly accept. Many people are drawn towards sports with far greater risks than those posed by PESs. As Brown argues, “in many sports, the activities of the sport themselves are far more dangerous than the use of any of the performance drugs… Deaths and injuries due to the use of performance drugs are rare… But deaths and serious injuries due to the sports themselves number in the hundreds in sports like football, boxing, mountain climbing, hockey, cycling, and skiing” (2001, 146).

Turning to the practices of serious sport, Møller argues that it is a modern myth that sport is supposed to be a healthy practice (2008). Simply put, the strains from diet, training, fatigue and maintaining low or high body weight—which are all often requirements for elite athletes—can cause both long and short term health effects. Møller warns against making health into a holy grail since health and human flourishing often conflict with one another (2008). To draw the line for unhealthy practices at PESs—PESs which also may mitigate some of these other negative health effects of elite sport—seems arbitrary and unjustified. Instead, sporting organizations
ought to acknowledge that athletes often pursue excellence beyond the boundaries of healthy sport and permit them to use substances that allow them to perform better.

Given these criticisms, the case that PESs are unhealthy does not convincingly show that sporting organizations are justified in prohibiting them. Although popular with the general public and with political organizations, the unhealthy side-effects of PESs may be undesirable in sport but they do not provide solid reasons for banning athletes from using them.

**The Coercion Argument**

The use of Mill’s harm principle may have convinced many scholars that health concerns alone were not enough to justify banning PESs, but many still felt that health concerns were relevant to the debate. One reason they remained relevant, scholars contended, was that Mill’s harm principle relied on any risk being freely chosen. Yet a number of scholars argued that the nature of sport meant that if sporting organizations permitted PESs, other athletes would be unfairly coerced into also using them (Murray 1983; Murray 1984; Lavin 1987; Gardner 1989; Tamburrini 2000; Simon 2004; McNamee 2008). This became known as the coercion argument. Since an athlete’s decision to use PESs would usually be made under duress, it cannot be said to be freely chosen. If it is not freely chosen, then sporting organizations could justifiably prohibit drugs in order to protect athletes from being put into situations where the other athlete’s choices coerce them into harming themselves.

However, critics of the coercion argument dispute the persuasiveness of such coercive pressures. If sporting organizations decided to permit PESs, athletes would face the choice to use or not use. But they would also face the choice to participate or not participate. Athletes usually are free to choose whether they will play. Since they are free to make such a choice, it is unclear that they are unfairly coerced into using. Rather, the coercion athletes would face is similar to the
coercion that athletes face when it comes to extreme forms of training or any other means that would promote superior performances. One could argue that an ambitious athlete who trains religiously coerces their opponents into training. Yet this type of coercion seems fair given the nature of sport. It seems inconsistent to argue for that coercion to train harder or sacrifice more is acceptable while coercion to use PESs is not. Given evidence questioning health concerns cited in Chapter Three over PESs, a growing number of critics dismiss the idea that PESs are unfairly coercive to athletes. Such doubts undermine sporting organizations claim that prohibiting PESs prevents unfair coercion on other athletes.

The Argument that PESs are Unnatural or Artificial

Other critics of PESs focus on a different aspect of the debate. According to certain critics, PESs are unnatural and, for this reason, they are unethical. Sporting performances are valued as natural performances thus, bringing in artificial enhancements corrupts the nature of sport. As sport philosopher Gunnar Breivik explains, “in modern sport the key element in the various definitions of doping has been the notion of artificial improvement of performance” (2005). Those who have further clarified such arguments include Hoberman (1992), Houlihan (2002), Lavin (1987), Perry (1988), Schneider and Butcher (2000), and Tamburrini (2000).

Despite the intuitive appearance that PESs are artificial or unnatural, such depictions do not stand up to further scrutiny. First, scholars advocating this position have yet to define “artificial” or “unnatural” in a way that clearly delineates PESs from other practices in sports. For example, testosterone is banned, but it is a natural hormone. Additionally, sporting organizations ban blood transfusions of an athlete’s own blood. At the same time, Gatorade and Powerbars are permitted despite being artificial in nature. Glasses and contact lenses are also artificial forms of
permitted enhancement. Thus some prohibited PESs may be unnatural, but may, in fact, not be any more unnatural than some permitted enhancements.

Moreover, as Loland argues, sports frequently incorporate unnatural performance enhancing technology into sports such that it becomes hard to see where an athlete’s “natural” body starts and stops (2009, 154). Shoes are not natural but become an extension of an athlete. In the same way, what an athlete ingests is no less a natural part of the athlete’s performance than running shoes or tennis rackets. They all become part of an athlete’s performance. Given such troublesome distinctions between natural and unnatural, advocates of anti-doping prohibitions may still want a stronger argument defending the bans.

The Treatment-Enhancement Argument

In the previously mentioned argument against PESs being unnatural or artificial, scholars defending current bans on PESs asserted that a clear line existed between natural enhancements, which are permissible, and unnatural ones, which are not. Although this argument struggles to draw a clear line between what substances sports ought to ban and permit, a similar argument emerged in the philosophical literature designed to clarify the issue. This argument, known as the treatment-enhancement argument, asserted that it was permissible to use substances that treated or restored the athlete to a natural baseline, but not substances that enhanced them beyond what is natural. Philosophers such as Fost (1986) and the editor of the Journal of Medical Ethics (1991) argued that athletes use treatments to return to or to maintain base level health was acceptable. Thus taking an antibiotic to cure an infection or drinking water to rehydrate would not count as problematic enhancements. On the other hand, when healthy athletes use testosterone to gain strength, it counts as an enhancement since testosterone permits an athlete to perform beyond their normal limits.
Despite such clear-cut examples, critics of the treatment-enhancement distinction are skeptical that a line exists that can clearly delineate between treatments and enhancements. Often this is due to the normal genetic variations that exist in the human population. For example, athletes can have testosterone to epitestosterone ratios (T/E) ranging from 1/1 to 6/1. These are naturally occurring differences, but clearly the athlete with a T/T of 6/1 has more testosterone and thus more of an advantage. This raises the question of whether using testosterone to supplement athletes with low T/Es would count as enhancement or treatment. Yet sporting organizations have no trouble enhancing athletes to normal baselines in other areas. For instance, the golfer Tiger Woods had Lasik eye surgery which restored his eye sight to 20/15 (5 points better than normal). How is using Lasik’s (or glasses or contact lenses) to correct poor eye sight different than using testosterone to correct one’s T/E ratio? Without a clear distinction, prohibiting one and permitting another undermines any sense that the treatment-enhancement argument justifies banning PESs.

Moreover, society accepts many forms of enhancements that make life better. For example, vaccinations, which do not “treat” any disease, enhance one’s immune system to prevent catching a disease. Critics also argue that there is not a clear line between athletes’ behaviors such as carbo-loading, protein shakes, weight training, massage, and the use of PESs. Thus it is inconsistent to object to PESs as enhancement when athletes can acceptably enhance themselves in other ways. In the end, the treatment-enhancement distinction cannot enable one to draw a bright line between acceptable treatments and unacceptable enhancements and thus provides no useful justification for prohibiting PESs in sport.

The “Shortcut” Argument

Critics of PESS have also defended current bans by claiming that the bans provide athletes with shortcuts to better. Rather than spending years training and building muscle, athletes
who used PESs would achieve the same results in less time or with less effort. Such critics usually point out that part of sport’s general value is the meeting and overcoming of challenges along the way. Such a conception of sport often relies heavily on the idea that sport is about the process toward perfection and the challenges along the way. Scholars such as Carr (1999) conclude that PESs allow athletes to avoid such challenges and thus, ought to be prohibited.

While it is true that PESs such as steroids can help an athlete quickly gain strength, it does not follow that their use counts as a shortcut. First, such drugs tend to only enhance the effects of training. As previously discussed, steroids do not build muscle for people who do not train. It is misleading to conclude that simply taking PESs would allow an average person to hit baseballs like Barry Bonds or ride bicycles like Lance Armstrong. PESs may improve an elite athlete’s performance but only by degrees. They may also improve a recreational athlete’s performance by only a few degrees as well. In fact, evidence cited in Chapter Three indicates that with certain PESs such as anabolic steroids or EPO, the recreational athlete who is training less would receive less benefit from the drugs than the athlete who is training more. Thus scholars have little reason to object to PESs because they are shortcuts.

Moreover, as previously argued, PESs can actually reward athletes who work harder. Rewarding hard work is something that many see as central to sport. Rather than acting as a shortcut, they allow athletes to get the most out of their hard work. At elite levels, PESs often allow athletes who have already reached their maximum exercise capacity to train longer and harder while recovering quicker. Such intense training is rare except at elite levels, but at such levels anabolic steroids or EPO actually reward those athletes who are willing to truly put in the time to train. Something that rewards hard work, then, is anything but a shortcut and by permitting PESs, sporting organizations would appear to be justifying the idea that sport really is about rewarding hard work.
The Human Agency Argument

Scholars have argued that current bans on PESs are justified since they infringe on personal agency. Often times, these arguments assume that sports is about demonstrating natural human talent. Sporting achievements made possible by PESs erode the line between native talent and manufactured talent. These arguments often point to PES use taken to the extreme would turn athletes into something like cyborg robots or genetically altered mutants. Scholars such as Culbertson (2007), Morgan (2009) Sandel (2007), Loland (2002) and Simon (2003; 2004) have outlined the agency argument.

The evidence behind PESs points to just the opposite being the case. At the physiological level, PESs such as EPO or blood doping simply provide more of the body’s natural hemoglobin to transport oxygen to working muscles. The fears of cyborg athletes and mutant humans usually indicate that scholars fail to fully understand how different PESs operate or that they are engaging in hypothetical science fiction. While the latter is sometimes useful as a thought experiment, neither of those possibilities ought to form the basis for banning current PESs.

Moreover, as Loland has explained, many sports involve varying combinations of technology and people working together to overcome artificial and natural problems (2009). For example, a bicycle makes possible the sport of bicycle racing. One would not say such technologies undermine human agency, either. The bicycle does not remove human agency. Nor do technologies such as skis, tennis rackets or baseball bats. All are required and accepted parts of a sport. Certainly racing motorcycles instead of bicycles alters the sport, but even in motorcycle racing no one concludes that the sport is void of human agency. Thus it is unclear that sporting organizations are justified to defend bans on PESs out of concerns that they may limit human agency.
The Argument that PES Contradict Fundamental Elements of Sport

A completely different approach than the human agency argument is the argument that PESs contradict fundamental elements of sport. This line of argument holds that sports have internal goods or an internal ethos known as the spirit of sport. Schneider and Butcher (1994) outlined the internal goods argument by asserting that PESs prevent the attainment of internal goods. Internal goods are goods that can only be gained by participating in an activity. Examples of these internal goods are the enjoyment found in resolving an artificial problem. These are considered testing goods. Other internal goods come from the competition between opponents. These are known as contesting goods. For supporters of the ban, it appears likely that permitting PESs prevents athletes from obtaining these internal goods and does not offer any new internal goods in place of the ones that they removed. Since internal goods are only available if a sport is free of PESs, sporting organizations are justified to prohibit PESs.

The spirit of sport argument holds that sport has an internal essence or assumed ethos. While often hard to define, the spirit of sport generally relates to attributes that make sport sensical such as the lusory attitude or aspects of sport that are worth preserving such as hard work and striving. This is the line of reason taken by the World Anti-Doping Agency in their Code (2009) and the European Commission (2001) as well as discussed by Simon (2004), Houlihan (2002) and Schneider and Butcher (2000). Many have accepted Simon’s notion that sport inherently involves the “mutual questing for excellence” (2004). For advocates of the spirit of sport position, PESs contradict the sport’s ethos and thus sporting organizations can justifiably prohibit their use. For some, this is because PESs provide short cuts. For others, this is because sport is about healthy striving for self-improvement. Yet since PESs contradict these aspects of sport, sporting communities can justifiably prohibit PESs because they violate the fundamental nature of the spirit of sport.
Although penned into WADA’s *Code*, the spirit of sport suffers a number of devastating criticisms. First, it is unclear what the spirit of sport is exactly. Many people seek to define it differently. WADA does not even attempt to define it, instead only offering a list of eleven characteristics:

1. Ethics, fair play, honest.
4. Character and education.
5. Fun and joy.
6. Teamwork.
7. Dedication and commitment.
8. Respect for rules and laws.
9. Respect for self and other participants.
11. Community and solidarity.

(WADA 2009)

Despite the list’s length, it does not resolve the problem. As illustrated by WADA’s *Code*, critics of the spirit of sport argument point out that many commonly assumed characteristics of sport seem to have no relation to whether or not athletes use PESs (such as 5, 6, 9, 10, 11). It is hard to see how PESs affect teamwork, especially in individual sports. Additionally, critics point out that PESs may actually *enhance* certain characteristics enumerated in WADA’s *Code* (such as 3, and 7 and possibly 2). For example, if sport is about striving for excellence, and PESs help athletes to be better, then it is hard to say that PESs contradict the spirit of sport. Last, the remaining characteristics only matter if sporting organizations already ban PESs (such as 1, 4, 8). If sporting organizations permitted PESs, then their use would not violate the laws of the game or fair play.
Thus those who say PESs contradict the spirit of sport appear to be making more of statement about their general disposition towards athletes using PESs than actually stating a normative claim that others ought to accept. It remains unclear how PESs necessarily contradict the spirit of sport or exactly whose spirit of sport PESs contradict. Despite its nostalgic appeal, in practice the spirit of sport argument does not satisfactorily justify sporting organizations’ prohibition on PESs.

The Conservative Case Against PESs

Taking into account the previous arguments, the conservative case acknowledges that many of the arguments supporting prohibitions on PESs are incomplete but still persuasive. Scholars who support the conservative argument include Simon (2004), Lavin (1987) and the editor of the journal Philosophy (2006). Such scholars tend to take a “lumping” or “piling” approach whereby they gather enough partial reasons supporting the ban that they believe sporting organizations ought to continue prohibiting PESs. Additionally, the conservative case points to the tradition of banning (at least in recent history) PESs from sport. With the tradition of banning PESs and many partial arguments against PESs, the conservative case concludes that unless there is overwhelming reason to reverse the bans, sporting organizations are justified in upholding them.

The conservative case often appeals to intuition, such as that by the editor of Philosophy, who argued that, despite failing to articulate why doping is wrong, “we simply know that it is.” This belief that—despite not being able to clearly articulate it—PESs do not belong in sport resonates with many people. Given this intuition and without overwhelming reasons for permitting PESs, sporting organizations ought to keep bans in place.
While perhaps the most measured of the arguments supporting the current ban, the conservative argument fails for a number of reasons. First, it has not always been the case that sporting organizations prohibited PESs (as evidenced by Chapter 1). Second, many sports such as cycling and baseball at least tacitly tolerated PESs well into recent years. While they may have policies that stated opposition to PESs, in practice their use was widespread and widely known. This undermines the conservative claim about preserving the status quo. Additionally, advocates for the conservative approach may simply be reflecting biases and unexamined mores rather than any rational argument supporting the ban. Last, the conservative argument relies on lumping together a number of refuted claims. For example, it relies on the belief that PESs are unhealthy despite the fact that such argument is inadequate. Stacking together partial arguments does not appear to satisfactorily create a new, more complete argument in favor of supporting prohibitions. Thus the conservative approach, while advocating for the status quo, does not justify maintaining it.

**Summary Review of Arguments for the Bans on PESs**

Although the conservative approach placed many of the arguments against PESs in their best light, it remains but one of the many incomplete arguments in favor of prohibiting athletes from using such substances. The arguments about harm and unfairness proved inconsistent while the spirit of sport remained elusive. The distinction between treatments and enhancements and between natural and unnatural aids did not conclusively discriminate between banned PESs and ordinary sporting behaviors. Consequently, the arguments intended to justify banning PESs leave too many questions unanswered. If such bans are to be defended, they will need stronger arguments than currently exist.
Arguments against the current bans on PESs

Although the arguments against PESs fail to conclusively justify anti-doping bans, it does not necessarily follow that sporting organizations ought to liberalize their use. Rather, opponents of the anti-doping bans must show why sporting organizations ought to reverse their current position. Arguments against the current bans face a higher burden of proof than those in favor of the bans. This is because banning PESs is the current status quo and that with the bans, sports remain enjoyable for the vast majority of people. Given the current popularity of many sports that ban PESs, sporting organizations must have very good reasons for changing those rules.

However, the higher burden of proof has not prevented a number of scholars from arguing against the current bans. For them, permitting PESs is simply better than maintaining unjustified bans. Such scholars—considered rebels in certain quarters—have developed arguments intended to justify overturning the ban on PESs. Unconvinced by the aforementioned arguments against permitting PESs, scholars who support permitting athletes to use PES usually argue that PES bans are unethically restrictive and that without the bans, sporting competitions may be improved.

Yet I will argue that these claims also are inconclusive. Considering that the contemporary sporting complex is flourishing with the bans on PESs firmly in place, advocates for permitting PESs need convincing arguments for overturning the established practice. Unfortunately, as I will argue, the arguments in favor of PESs may persuasively raise doubts about the current bans they fail to reach the requisite higher standard that justifies overturning current anti-doping rules.
The Inconsistency Argument

Perhaps the most convincing argument holds that the reasoning behind banning PESs is inconsistent. The inconsistency argument parallels many other arguments found in the philosophical literature debating a whole host of ethical and political issues. Scholars typically argue that X is banned, but such a ban is a prejudice since X is similar or only slightly different from Y, which is permitted. For example, even if one accepts that such PESs carried health risks, it does not follow that such characteristics are necessarily any different than other health risks regularly accepted in sport. In fact, critics may argue, professional football players face less health risk from using steroids during their career than they face from repeated head trauma or orthopedic injuries. The sport of football tolerates the latter risk thus it should also tolerate the former. Even more, such critics assert that the diets and training regimes that offensive linemen use to reach their massive size carry health risks that are no different than the prohibited PESs. For such critics, these examples indicate that sporting organizations appear inconsistent in applying the bans to PESs and not to other behavior that appears equally risky and equally unnecessary.

While appealing, the inconsistency argument does not satisfactorily show why sporting organizations ought to permit PESs. The bans on PESs may be inconsistent, but that does not necessarily mean that sports should not have them. Additionally, the fact that sports tolerate risks does not mean that the risks should be allowed. Football is making efforts to prevent head injuries and punish players for violent plays. Perhaps other sports, as they become more aware of dangers, will also act to ensure the safety of its players. Thus the inconsistent argument does not convincingly show that sporting organizations ought to permit PESs. Without answering this claim, it is unclear why sporting organizations are unjustified to ban PESs.
The Compatibility Thesis

While the inconsistency argument may show that sporting organizations are inconsistent in banning PESs, it does not show why sporting organizations ought to permit them. The compatibility thesis, on the other hand, aims to address the latter. While many scholars have argued that the rules prohibiting PESs are not justified since the rationale behind the bans does not hold up to scrutiny, advocates of the compatibility thesis go one step farther by arguing that, in fact, the nature of sport is such that PESs ought to be used in training for and competing in sporting competitions. Known as the compatibility thesis, this argument holds that PESs are compatible with the desirable parts of sport. Scholars who outline this position include Tamburrini (2007), Jones (2010), Savulescu (2008), Singer (2007) Hoberman (1986; 1992; 1995; 2005) Møller (2008; 2010), Miah (2004; 2005) and even an editorial in the journal Nature (2007). Their rationale often points to the fact that certain PESs may permit athletes to train longer and harder, which are admirable qualities that sport wishes to reward. Others point to the fact that elite sport is about questing for records and pursuing ultimate performances. Since PESs usually help athletes to jump higher, run faster and generally perform better, PESs fit with the norms of elite sport.

While compelling, the compatibility thesis ignores another central component of sport. Sport inherently involves using inefficient means to overcome either natural or artificially established problems. To argue that athletes should use PESs since sport is about the ultimate performances ignores the fact that athletes always have limits placed on the means whereby they can achieve such performances. To assert that PESs would aid athletes to go faster or jump higher is true. But automobiles and jetpacks would also do the same. The point isn’t just record performances, but record performances within a carefully designed set of constraints. It is far from clear why bans on PESs could not be considered part of those constraints. It appears equally
plausible that a sport could prohibit PESs using the same reasoning that it uses to prohibit athletes from taking shortcuts or using technology to improve at a sporting test.

Additionally, even if scholars take the compatibility argument sympathetically, such claims seem to only work for elite sport. At lower levels where participation is valued over performance, it is unclear that PESs are compatible with the aims of such competition. In fact, permitting PESs may have the unwanted side-effect of discouraging people from participating because they feel compelled to use or cannot afford to use. In such a situation, PESs would be contradictory, not compatible, with the purpose of sport.

**The Improvement of Sport Argument**

Those favoring PESs respond to concerns over compatibility by pointing to their potential for improving sporting tests. I call this the “improvement thesis.” Voiced by Holochak (2002), the improvement thesis holds that performance-enhancing technologies often improve an athlete’s sporting experience. For example, running shoes are clearly performance enhancers as they allow runners—especially those born without good biomechanics—to run farther and longer while preventing injuries. Certainly running sports could still exist without running shoes, but fewer would participate and the enjoyment level would likely decrease. Thus permitting running shoes improves sport. Advocates of the improvement thesis argue that PESs could be employed in ways similar to running shoes or oversized tennis rackets. Their use in sport may improve athletes’ sporting experiences by allowing them to train longer or perform at higher levels. Like other performance-enhancing technology, sport could exist without PESs, but that PESs have the potential to improve sport and thus should not be prohibited. For example, running shoes enhance performance and allow runners to perform at higher levels, play longer, and recover faster from injuries. Perhaps PESs will act more like running shoes and enhance the sporting experience.
But the proponents of the improvement thesis may be overly optimistic. Despite the promise PESs hold, sporting organizations have valid reasons to question such thinking. This is because the improvement thesis makes two assumptions. First, the improvement thesis assumes that PESs improve performance only by an acceptable degree—like running shoes do for runners—and not by an unacceptable degree—like using a motorcycle instead of a bicycle. However, if PESs became more effective in the future, then PESs may cross that line. They would provide too much enhancement. The greater enhancements may threaten the integrity of sporting tests. If that were to occur, sporting organizations would have to prohibit PESs or otherwise risk making their sporting tests irrelevant. Additionally, it may be unclear whether PESs improve a test or harm a test. Sporting communities may be split, which would only cause further problems for the sporting community as a whole.

While the risk of “enhanced” PESs throws some doubt onto the improvement thesis, critics point out that even modest PESs may also jeopardize sports. For example, they may reduce certain elements of a test or inhibit excellent athletes from demonstrating their superiority. More generally, PESs may bring unintended and unforeseen consequences that harm sports in other ways. Since sports without PESs meet people’s needs for enjoyable athletic contests, sporting organizations ought to preserve the bans.

Additionally, cultural views towards PESs may influence how people view sports that sanction drug use. Despite PESs potentially improving sports, they may harm larger social issues like meaning and movement. Perhaps most worrisome is that not all athletes can or will use PESs. If a number of athletes choose not to use, sporting organizations either create tiered competition levels of sports with enhanced players at one level and unenhanced players at another. Such levels may undesirably affect sport collectively. Moreover, perhaps PESs would not be fairly distributed thus privileging some athletes and making sport generally unfair (a strong claim, but not without criticism as I mentioned earlier).
The Network Effect

Others have pointed out that such improvements need not be one dimensional. As ethicist Allen Buchanan explains, much of the enhancement debate takes place under a framing assumption that believes enhancements, while offering personal benefits, will harm society at large (2008, 2). Such an assumption is false for Buchanan since, as he points out, many enhancements have network effects. In the case of enhancements with network effects, the value of an enhancement to the individual increases as others gain access to it (Buchanan 2008, 10). In other words, the more people who have the enhancement, the greater its value is for each individual. The paradigm example for Buchanan is vaccination from disease. While a vaccination may help prevent one individual from catching a virus, its greatest value occurs for that individual when an entire community becomes vaccinated as it decreases their individual chances of becoming ill. Thus some enhancements become more valuable as more people have access to them.

While the effects of widespread use of PESs or other enhancements remain speculative, Buchanan’s point reveals the potential for such enhancements in sport to improve sporting contests for all participants. As everyone becomes enhanced, we may all benefit as the enhancements could improve old sporting tests or invent new ones. Such an example may be equaling people’s height in sports such as basketball or volleyball. As Sigmund Loland argues, the arbitrary height advantage found in such sports is an undesirable byproduct of the sport, not a central component the sport wished to test (2002). Currently, the average height of an elite basketball player (6’6”) falls above the 97th percentile in height. If wide-spread enhancements could mollify such unearned genetic advantages and open up upper-levels of sport to a wider population, then sports like basketball could potentially improve as unearned advantages are removed.
While persuasive, the network effect has a number of small problems. First, the nature of sport calls into question how readily people would spread performance enhancers. Perhaps in an effort to gain a positional advantage, certain groups would try to monopolize the best PESs. Thus it is unclear how readily people in sport would take to advancing everyone.

Assuming that problem could be addressed, there also is reason to doubt whether such enhancements would turn out to be only positive. Perhaps PESs help athletes to become too good or perhaps the need for constant administration of PESs takes away from the aesthetic experiences of sport. Since it is hard to anticipate unintended consequences, sporting organizations may benefit by being conservative towards enhancements until the extent of their effects is better known. Nonetheless, the potential of enhancements to generally improve tests provides compelling reason for at least considering opening sport to PESs in the future (such possibilities will be discussed in Chapter 5).

The Argument that PESs Remove Unearned (Genetic) Inequality

Although more of an intellectual exercise than an actual position, certain scholars argue that sporting organizations could use PESs to mitigate unearned genetic advantages. Such scholars include Miah (2004) and Lenk (2007). Their thinking follows from the premise that many athletes are born with genetic advantages. These lucky athletes have advantages over their competitors that they did not earn. Thus, banning PESs unjustifiably privileges a select percentage of the population born with exceptional genetics and unfairly denies a vast majority of others from access to elite sport. Sporting organizations ought to mitigate such unearned advantages whenever possible in order to create a level playing field for all athletes. Thus sporting organizations could use PESs (or potentially genetic modification) to boost all athletes to the same level which in turn would create fairer sport.
As desirable as such a proposition sounds, there are problems with this position. Primarily, the problem lies in the details. Scholars who argue such a position fail to explain how PESs would actually mitigate such unfairness. Moreover, even if the science developed to where sporting organizations could enhance athletes to exactly the same level, doing so would likely impact the relevant earned advantages that certain athletes accumulated through training. For example, athletes present a wide range of testosterone levels, and hematocrit profiles, but studies indicate that athletes can also alter these through training. By permitting athletes to use PESs to catch up to athletes who are training, sporting organizations would be removing one of the elements central to sports. Thus such a solution actually makes the situation worse since removing these earned advantages from sport is less desirable than permitting some that are unearned.

Additionally, genetic differences often contribute to good sporting tests. Differences among athletes can improve the complexity of sports. Athletes with different ratios of fast-twitch and slow-twitch muscle fibers—ratios that are often genetically determined—may enter a 1500-meter race with different tactics. The athlete with fast-twitch fibers may try to wait until the final stretch and unleash a strong sprint while an athlete with slow-twitch fibers may push the pace hard from the start hoping to tire their opponents. Such genetic differences could one day be removed through PESs, but it is unclear that the results are desirable. Scholars may discover that such genetic variations are as likely to improve athletic contests and that those philosophers who wish to see them mitigated may not realize what they are missing until it is gone. Limiting diversity may actually harm sport. Taken together with previously mentioned challenges, using PESs to increase fairness does not present a conclusive reason for permitting PESs in sport.
The Doper’s Dilemma Argument

The “doper’s dilemma” is an argument in favor of removing the ban on PESs which relies on a modification of the “prisoner’s dilemma.” The “prisoner’s dilemma” analyzes the benefits of two prisoners’ choices when confronted with the choice to either cooperate or defect. Translated by Breivik into doping, athletes who face the doper’s dilemma must choose between using and not using (1987; 1992). Based on the benefit of using, athletes who choose not to dope face the worst of four possible outcomes. However, by using PESs, athletes avoid the worst outcome and potentially face the best outcome. Based on such results, rational prudence argues for using PESs. Thus the “doper’s dilemma” indicates that sporting organizations would benefit by removing doping bans and thus preventing athletes who follow the rules from facing the worst possible outcome.

Although pragmatically compelling, this argument remains unsatisfactory. First, the doper’s dilemma assumes that some amount of users will not be caught. While it is impossible to know the exact number of undetected athletes today, it does not follow that sporting organizations will never catch all users. Evidence indicates that tests will only increase in their reliability. If all users were caught, then the doper’s dilemma does not provide good reason for removing the bans.

Additionally, simply because a given rule is hard to enforce does not mean that sporting organizations ought to do away with the rule. Having the rule may improve the sport whereas removing the rule may have dire consequences. For example, association football (soccer) frequently struggles with athletes simulating fouls (diving). Such simulations can be very hard for officials to detect during the course of the match and certainly some athletes benefit from simulating fouls. Yet it does not follow that soccer should remove the rules that prohibit fouling simply because athletes occasionally get away with diving. The same logic applies to PESs. Simply because some athletes occasionally get away with using PESs, it does not follow that
sporting organizations ought to permit their use. Thus despite the doper’s dilemma’s practical appeal, it avoids addressing the more complex problem and thus does not justify permitting PESs.

Last, Simon has argued that the prisoner’s dilemma shows that the best choice is not using. This choice allows athletes to play fairly and remain safer (Simon 2010). In Breivik’s argument, the perceived safety of PESs does not factor into his decision to use PESs. However, prudent athletes may argue that the best choice is for everyone to not use PESs and that the second best choice is for prudent athletes to abstain while their competitors defect. With that choice, athletes who abstain still have the chance to win their sporting contest, as PESs only provide a degree of benefit, but also they will remain healthy. Consequently, enough doubt about the merits of the doper’s dilemma exists as to question its persuasiveness for overturning the bans.

The Human Freedom Argument

The human freedom argument holds that fundamentally, humans are autonomous individuals whose liberty cannot be infringed upon without justifiable reasons. Since most anti-doping advocates point to health concerns as reasons to prohibit PESS, critics of the ban conclude that rules prohibiting PESs constitute an unjustifiable form of paternalism. Even if PESs were unhealthy, sporting organizations do not have the authority to prohibit humans from freely choosing to take the risks since taking PESs do not meet the demands of the harm principle. Derived from John Stuart Mill, the harm principle states that limiting someone’s freedom against their will can only occur when that person’s actions will cause harm to others (2009). Additionally, those who are either misinformed or whose actions are not free may be exempt from the harm principle. Otherwise, infringements on an individual’s actions out of concern for their safety are not justified on the grounds that limit a person’s freedom.
In sport, scholars have used the harm principle to assert that sporting organizations cannot justifiably limit an athlete’s freedom to use PESs. Since an athlete’s choice to use PESs does not necessarily harm other athletes and athletes are free adults who can knowingly accept the health risks involved with PESs, it follows according to these scholars that athletes should not be restricted from freely choosing to use PESs. Many scholars have advocated the importance of freedom. Many scholars argue that such freedom permits athletes to choose to use PESs (Brown 1980; Brown 1990; Brown 1995; Tamburrini 2000; Sherwin 2007; Brown 2009). Any rules limiting these freedoms are unjustifiably restrictive and violate the rights of fundamental human freedom.

The human freedom argument has a number of critics. First, as mentioned earlier, many scholars have pointed out that permitting PESs may prove unfairly coercive. While coercion is not conclusive, it provides reasons for questioning a completely libertarian approach to PESs. If sporting organizations removed all restraints on PESS, then potentially some athletes would pressure others into using. Such pressure may prove unwanted and undesirable and thus sporting organizations might justifiably ban PESs so as to prevent athletes from facing such choices.

Second, the human freedom’s argument relies on a heavily independent picture of the human person. Given the interconnection between people, it is unclear that such autonomy is justified. Very rarely can a person act without affecting others. In the case of sport, it is easy to imagine how one athlete’s choice to take PESs may negatively impact others. For example, a steroid-enhanced football player may tackle harder and thus injure other players. Thus choosing to use a PES such as steroids in sport likely affects other people who play. If PESs do affect other people, then one cannot say that sporting organizations are, ipso facto, unjustifiably limiting human freedom since placing limits on human freedom is justified if the action affects others.

Last, the human freedom argument paints an odd picture of sport. Sport inherently involves rules that limit an athlete’s freedom so as to create an artificial problem. One cannot use
a car to complete a marathon or a trampoline in the high jump. Such limits on efficiency help create a sport’s artificial problems. Moreover, athletes voluntarily agree to forgo such efficiencies in order to make the game possible. For example, golfers could use their hands to get their golf balls into a hole, but that would defeat the purpose of golf. To claim that the rules of golf limit an athlete’s freedom since they forbid using one’s hands to put the ball in the whole is absurd. The same applies to PESs. The rules that prohibit PESs help define a sport’s problems and arguing that those rules limit an athlete’s freedom appears use PESs is similar to saying that the other rules that sporting organizations use to define the sport’s artificial problems.

**Summary Review of Arguments Against the Bans on PESs**

Despite their popularity with certain scholars, the arguments against the current bans on PESs contain fail to convincingly persuade critics that anti-doping rules ought to change. Given that banning PESs is the current status quo, opponents of the bans have not shown why sporting organizations ought to reverse their current policies towards PESs. Yet the arguments offered could not clearly prove why sporting organizations ought to permit athletes to use PESs. Although some of the arguments have shown good reason to question the usual anti-doping narrative, they have not met their higher burden of proof. Instead, it appears that despite much ink, scholars have struggled to convincingly argue why PESs belong in sport.

**Conclusion**

Although thirty years has elapsed since Brown first questioned the justification for banning PESs, scholars seem no closer to resolving the PES debate. Certainly a number of novel arguments exist for both sides. Yet neither side has convincingly demonstrated that sports are
justified to prohibit or permit PESs. Without such a “knock down” argument, it is evident why the debate over PESs in sport has reached an impasse. Both side’s arguments fail to convincingly resolve the issue. Even lumping or piling the myriad arguments from either side together does not resolve the debate, as both sides appear able to counter with persuasive arguments of their own. In the end, the central question regarding the justification for bans on PESs feels unsatisfactorily resolved.

Yet the fact that scholars still find themselves at loggerheads should not cause one to conclude that the PES debate is dead or that no progress can be made. There may be ways to potentially break the philosophical logjam. Perhaps by finding a “third side” to a “two-sided debate,” scholars and sporting organizations may better understand the issues central to the debate over PESs.

Following, I will attempt to show areas for such progress by revaluating the meaning behind the terms “doping” and “performance enhancement.” By considering the debate from a cross-disciplinary perspective, new arguments presently absent from the PES debate emerge. These new arguments will not resolve the debate (in these sense that they will conclude whether sporting organizations ought to ban or permit PESs), but they will show the relevant questions at stake. In this way, I hope such arguments illustrate the issues that sporting organizations must consider when determining if the current bans on PESs are justifiable.

Endnotes

1 As far as I can tell, no scholarly article exists debating the justification for PES bans prior to Brown’s article.

2 Only certain power lifting and body building competitions tacitly permit PESs since they have no rules that explicitly prohibit PESs and refuse to use any drug testing system to monitor their use.

3 See Chapter 3 for the scientific evidence behind this claim.
Although by no means do all of these scholars agree that the health argument convincingly justifies banning PESs.

See Chapter Three for further discussion of these effects.

As long as that person is a fully informed adult and is free from any mitigating circumstances.

See Chapter Three for further discussion of the science behind PESs.

While Buchanan does not directly address PESs, his argument clearly applies to sport and is useful for illustrating how PESs may improve sporting contests.
Chapter 5

Loaded Guns: “Dueling” the Doping Debate

Introduction

The preceding literature review indicates that the doping debate may benefit from fresh perspectives informed by cross-disciplinary research. At best, the current arguments may be persuasive but are still inconclusive. More importantly, historical and scientific considerations reveal that past arguments have labored under conflated meanings and confused assumptions. Historically, anti-doping ideology emerged from cultural debates that shaped sport rather than debates about the lusory or prelusory goals of sport. At the same time, scientific literature reviewing PESs challenges the assumption that sport can treat all PESs equally. Past philosophical arguments in the doping debate have largely ignored this information, information that alters the shape of the issues at stake. Given this new perspective, the PES debate could benefit from some conceptual “brush clearing.”

One area needing such brush clearing is the very language scholars use to discuss performance-enhancement issues. Clarifying the language used to discuss doping issues will result in clearer conceptual thinking and visa versa. I will argue that the current debate over PESs actually masks two different yet equally relevant questions. The first—what I call the “performance-enhancement question”—asks about the lusory balance between improving one’s performance and preserving a sport’s testing and contesting problems. The other—what I call the “doping question”—speaks to the social and individual meanings attached to using PESs to perform better at a sport. The doping question, I will argue, emerges from a loaded framework
that assumes doping is morally problematic and harmful to historicized norms about sport’s larger social purpose. These connotations related to doping inhibit objective debates about PESs. The performance-enhancement question, on the other hand, sidesteps the loaded framework of doping and examines PESs as morally neutral performance enhancing technologies. Scholars, I argue, ought to determine which question they are investigating and use the language appropriate to that purpose. By recognizing and making this conceptual distinction, scholars may make more progress on some of the debates more vexing philosophical issues.

I have broken my argument into three parts. In the first part I will argue that the rhetoric surrounding “doping” has become too loaded, a fact that hinders objective philosophical discussion. I further suggest that by conflating the doping and the performance-enhancement questions, scholars limit their ability to satisfactorily address the questions’ respective subject matter. To deconflate these two questions, I will define these separate debates and provide reasons justifying my specific criteria of meaning. Such reasons will draw upon the conclusions from the preceding four chapters. In parts two and three I examine the conceptual subject matter of the doping and performance-enhancement questions, respectively. I conclude that, even with answers hard to come by, separating these two questions will help scholars avoid the conceptual pitfalls of past discussions of doping and thereby create more productive discourse.

**The Loaded Rhetoric**

The French existentialist Jean-Paul Sartre once claimed that “words are loaded pistols.” Nowhere is this truer than in the debate over doping and performance enhancement in sport. The rhetoric surrounding an athlete’s use of ergogenic aids for performance enhancement currently leaves little room for rational discussion. I will argue that scholars and people in sport need to distinguish between the terms “doping” and “performance enhancement” as these two
descriptions connote distinct differences and thus address different conceptual issues in the debate over the ethics of performance enhancement. Appreciation of this distinction will improve the dialogue surrounding performance-enhancement questions in sport and, I hope, resolve some of the ethical dilemmas generated by this rhetoric.

Based on Wittgenstein’s conception of “meaning as use,” I treat the meaning of words as human creations that largely derive from their use in ordinary language. Wittgenstein argues that, “For a large class of cases — though not for all — in which we employ the word ‘meaning’ it can be defined thus: the meaning of a word is its use in the language” (1968, 48). Humans assign meaning to a category based on the features that distinguish it from others, but also on the associations, values, and other ideas we have about it. We then attach some of that meaning to the term that names the category. So when we use the word cat, we conjure up a mixture of images, concepts, feelings, and so on.

Second, a word’s meaning is far more complex than can be captured by formal definition. Formal definitions of words often provide only enough criteria such that a user can distinguish one word from other words. These definitions do not account for the complexity of meaning behind the word. For example, the American Heritage dictionary defines patriot as “one who loves, supports, and defends one's country” (2006). Such a definition, however, cannot explain whether someone who burns a country’s flag in protest of a government’s actions is a patriot.

To resolve the issue of meaning, scholars must heed Wittgenstein’s famous advice for investigating meaning: “Don’t think but look!” (1968, 66). And such looking is done not through generalizations but through particular cases. In finding the meaning of a word, scholars should replace definitional generalizations with descriptions of a word’s usage.

In sport, most use the word doping in a certain context. Few use doping in an amoral context or outside of the assumption that it ought to be banned by sporting organizations. Over time, doping has so frequently been portrayed as evil, dirty, cheating or taking short cuts that one
can hardly imagine permitting athletes to dope.\textsuperscript{5} Since Knud Jensen’s Olympic demise in 1960, notes the scholar Verner Møller, doping has increasingly carried negative connotations. Møller notes that the result is a loaded rhetoric that fuels the current attitude of “anti-doping fundamentalism,” a mentality that pursues a “fight against doping” with a crusade-like fervor (Møller 2008). Indeed, anti-doping sentiments have always contained certain elements of moralization followed by demonization of those who flouted the anti-doping code. This pattern of viewing doping results in unqualified claims like the following: “doping is an evil—it is morally wrong, physically dangerous, socially degenerate and legally indefensible” (I.O.C. 1965). Such claims leave little room for rational discourse.

In such an environment, rationally and objectively debating the ethics of using PESs or justifying their ban becomes difficult. This is so because in most cases the general public tends to be persuaded by such language. Sociologists Severine and Tankard explain through their term “agenda building” that such statements made by officials of political or sporting organizations significantly shape the media (1992, 222). In turn, the media and authoritative individuals frame issues and code words in ways that significantly shape cultural perception. In regards to doping, the sociologist Bryan Denham notes that such previously mentioned loaded rhetoric has elevated the public’s perception of doping into a serious moral problem and “a severe health threat” (1999, 5). A study in Switzerland confirms that anti-doping rhetoric, and not actual changes in behavior by athletes, has caused the public to perceive doping as a larger problem and to more strongly oppose it (Stamm, Lamprecht et al. 2008). Anti-doping rhetoric, in other words, shapes the general public’s views more than actual events. The general public now assumes that doping constitutes a serious moral problem, even before it can articulate in any precise way why it deserves to be identified that way. The result of such views is that few question the justification for the bans created by sporting bureaucracies or the punishments used to enforce them.
Equally worrisome is the fact that such loaded rhetoric also influences academic research. Scholars have shown that they are not immune to biases caused by doping’s loaded connotations. For example, Giselher Spitzer and Elk Franke begin their discussion of doping by asserting that doping is “regarded as cheating, and thus as a serious violation of the moral precepts of sport” (2010). Spitzer and Franke do not explain why doping ought to be against the rules nor do they show why doping, as opposed to employing an intentional foul, is a “serious violation” of sport’s moral precepts. Unfortunately, examples such as Spitzer and Franke are rife in philosophical literature. Moreover, many unquestioningly accept such claims as neutral observations of facts since the claims conform to the dominant cultural narrative. This prevents (or at least delays) scholars from objectively examining the deeper question: why are PESs even prohibited?

But the problem of language is not simply one for the humanities; the same loaded rhetoric has also shaped the supposedly objective research of scientific communities. In the preface to their work Doping in Sport: Biochemical Principles, Effects and Analysis, authors Detlef Thieme and Peter Hemmersbach write that “although the definition of doping has been modified over the years, its meaning may be pharmacologically understood as attempts to enhance performance (mainly strength and endurance) in sport by illegal administration of pharmaceuticals or application of prohibited methods” (2009). I fail to see how pharmacological research can lead to the conclusion that enhancing performance drugs are illegal. It would appear that Thieme and Hemmersbach are venturing beyond their “pharmacologically understood” scope. Such mistakes are not insignificant. The historian Berndt Lopez has shown in his article “The Invention of a Drug of Mass Destruction,” that scientific research into performance enhancing drugs can easily reflect dominant social or cultural feelings rather than objective evidence (Lopez 2011).

But the doping discussion does carry certain specific connotations. Clearly, doping is the word of choice for those who oppose the use of PESs in sport. There is the World Anti-Doping
Agency and political organizations traditionally discuss their business as a fight against doping. However, those using this phrase typically import assumptions beyond simply that PESs ought to be banned. Those who discuss doping tend to also assert that doping violates health values and commitments that are inherent in sport. Additionally, the doping debate typically assumes that using PESs is unnatural and provides a shortcut to athletic success. Rather than asking certain questions about the justification of the bans, those who use the term doping are confident that doping is cheating, illegal, unfair, and unnatural.

As I shall discuss later, this side of the debate is not without some weight. In certain cases, it does contain a degree of truth. It is also the term dominant in popular culture. More importantly, the term doping speaks to certain cultural narratives that popular culture finds meaningful. These narratives, I will argue, deserve some consideration when attempting to determine the role of PESs in sport because they are indicative of a peoples’ aspirations.

Nonetheless, the pejorative connotations of doping are widespread and often pass unnoticed. Those seeking a value-neutral discussion of the justification for the bans on PESs find themselves without a convenient language for such a conversation. How does one question the ethics of banning “the greatest evil of our time” or a “drug of mass destruction”? But this does not necessarily mean scholars must abandon the phrase. Indeed, doping can serve a useful purpose in academic literature. For example, Loland has argued that the term “‘doping’ refers to a banned practice and [one’s] use of the term would indicate that [one] agrees to the illegal and immoral status of such practices before this has been fully examined” (2002, 155). In that sense, scholars who use the phrase doping are using a loaded phrase, but one that, if correctly used, can indicate an explicit set of assumed premises that carry specific normative and perhaps even legal connotations. Thus to talk about doping is to assume that: A) the use of certain performance-enhancing methods or substances is wrong and B) sporting organizations are right to have rules that prohibit their use.
These explicit connotations, however, make doping a phrase that can also be misused. Those who use the term casually or outside of its specific context risk confusing others or even themselves about their intended subject matter. Given these loaded meanings, scholars need to be parsimonious and otherwise careful about how they use the term doping. Yet such judicious use of doping may help scholars make headway on debates that have proven otherwise difficult to resolve.

**Clarifying the Performance Enhancement Debate**

Sport scholars have a vested interest in minimizing biases when asking whether sporting organizations should prohibit PESs. Fewer biases permit more rational discussions of the issues at stake. The expression “doping” obscures an important part of the debate. By focusing on doping, it makes the issue appear to be unlike other sporting issues that affect the integrity of this enterprise. It prevents researchers from seeing how enhancement is related to a host of other moral problems that are common to high performance sport. Scholars, therefore, need an expression that situates the PES issue *back within* the ordinary issues of sport. They need an expression that is morally neutral but not ambiguous or vague, one that captures a sense of the issues at stake without importing cultural biases. Performance-enhancement, I argue, is such an expression.

The phrase “performance-enhancement,” when applied to PESs, signifies a conversation over the ethics of improving one’s performance. It treats PESs as different from other performance enhancers only by degree, not by kind. It lacks a morally-loaded connotation but remains clear enough to use unambiguously. Unlike doping, it does not assume that certain PESs are inherently wrong or that their ban is necessarily justifiable. Although a more objective discussion about performance-enhancement may end up supporting a ban, it helps to avoid
conversations that start with a negative conclusion already in place. By putting PESs in the same category as other enhancers, including equipment, diet, new strategies, the use of sport psychologists and the like, scholars can discuss substances in a much different albeit equally important way. Indeed, rather than discussing the supposed immorality of doping, performance-enhancement shifts the discussion to a determination of the acceptable methods for overcoming a game’s artificial challenges.

The importance of a game’s artificial challenges was first introduced by Bernard Suits. Suits argued that good games—sport being a subset of games—establish challenges that are neither too hard nor too easy (2005). If a challenge is too easy, boredom quickly sets in. The same is true if a test is too hard since repeated failure causes players to lose interest. Game players desire challenges that are “just right.” Well-balanced artificial problems constitute a first step in building games that people will enjoy playing.

To produce well-balanced artificial problems, Suits explains that gamewrights use rules that prescribe or proscribe certain actions. But as most children learn on the playground, rule-setting—and gamewrighting in general—is hard. Balancing a test’s challenges and allowances often requires adjusting the rules. Gamewrights must loosen or tighten certain rules so as to match the natural and artificial challenges with the game-player’s abilities. They might prohibit certain equipment or actions that makes a test easier or require certain equipment or actions that make a test more challenging.

However, as is often the case, players will invent or discover new methods for enhancing their performance. For example, Dick Fosbury, who introduced the Fosbury flop in high jumping, found a performance enhancing technique that allowed people to jump higher. Cyclists now use carbon fiber disc wheels and aerodynamic handlebars which allow them to “cheat” the air by reducing its drag. Performance-enhancers can be as simple as running shoes that protect a runner’s feet or as complex as space-age micro-fiber uniforms that cool athletes more efficiently.
All of these performance-enhancing technologies are designed to allow athletes to perform better and, in varying degrees, they have had this effect.

Rule makers can also limit tests to prevent undesired performance enhancement. For example, a sport like soccer prevents athletes from using their hands to score a goal. Hand use is certainly a performance enhancer. By prohibiting hands, the sport establishes its challenges. It is up to rule makers for each game to determine which performance enhancers ought to be permitted and which potential enhancers to proscribe. This can be done formally at the level of national and international organizations, or informally among neighborhood friends who adjust “official” rules to suit their gaming purposes.

New performance-enhancing methods or technologies can affect a game significantly by altering peoples’ relationships to a sport’s testing and contesting problems. Performance enhancers can reduce a test’s difficulty or even more fundamentally change the way a sport is played. For example, tennis rackets made from light weight composite materials including carbon fiber and titanium impart much more pace to the ball. Their tensile strength allows modern rackets to be lighter and thus move faster while at the same time being at least an inch wider across the face than the traditional models. This width allows for a larger sweet spot. Players do not have to strike the ball as precisely on the composite racket as they did with smaller-faced wooden rackets.

This performance enhancing technology altered the difficulty of tennis’s artificial challenge (hitting the ball over a net and into a defined space). It became slightly easier for players to hit good shots, but not so much easier that tennis became too easy. The balance between the artificial problem and available problem-solving methods remained intact. Yet one could easily imagine how a performance-enhancing technology could ruin an artificial challenge. Imagine if rackets became self-correcting, ensuring that a recreational player could strike every ball with precise topspin and blistering pace with no technical proficiency. Even more, imagine
that no amount of training could improve play beyond the racket’s own self-correcting technology. Such a performance-enhancing technology would amount to a proverbial “silver bullet” and would clearly make tennis’s artificial challenge too easy.

Thus one issue—perhaps the most fundamental issue—in the performance-enhancement debate is whether PESs would harm well-balanced artificial problems by making them too easy or otherwise changing them in undesirable ways. If PESs acted more like composite rackets (slightly improving a player’s shot) they would leave the test intact. On the other hand, if PESs acted like a self-correcting racket (removing any need for training) they would ruin the integrity of the test. This provides a degree of conceptual clarity on how bans on PESs might be adjudicated.

It does not, however, provide easy solutions in specific cases. That is so because each sport will need to examine this question on a case-by-case basis. Yet such a debate is worth having (see Chapter 6). This important debate would probably never get off the ground if one starts by using the “doping” expression, where PESs are assumed to be banned. By using the performance enhancement expression, scholars can begin exploring whether sporting organizations are justified to ban PESs in the first place.

A second question created by performance-enhancing technology that sporting organizations must address deals with the nature of well-balanced challenges. Simply designing a well-built artificial challenge is not usually enough for creating a good sport. Good sports also include durable testing and contesting problems. Kretchmar explains that games can be put to two uses—testing and contesting (1975). Testing problems, Kretchmar explains, are the artificial challenges game players must overcome such as running 26.2 miles in a marathon. Contesting problems emerge when competitors undertake the same test in an effort to do better than one another, such as running 26.2 miles faster than their opponent. If the test is compromised by technology in the direction of facility, it is more difficult to show meaningful differences in performance. Everyone does well. The ability to discriminate better from worse is diminished
because the range of performance differences is narrowed. Luck and random chance rather than skill and strategy play an increased role in determining the winner. Furthermore, the tension inherent in a good contest is diminished or lost. Without genuine testing in place, notable failures and successes become less likely. Late game reversals occur less often to the extent that continued success becomes a foregone conclusion. For these reasons and others good contesting, on Kretchmar’s account, is parasitic on good testing.

Both testing and contesting problems are important aspects of good sporting experiences. Good sport tests tend to offer complex and durable sporting challenges. Contesting challenges can add aesthetic pleasure to sports through the sweet tension of the fray while testing challenges can provide sensuous problems that players desire to repeatedly solve. Sports with poorly designed contesting problems, such as the children’s game “Chutes and Ladders,” often determine winners by luck rather than skill or strategy. Poor testing problems, such as most interlocking ring games, also lack durability; once individuals solve the problem, they have little reason to play again.

When introducing a performance-enhancing technology such as composite rackets, it is important to consider how the performance enhancer improves a sport’s testing and contesting problems. With the composite racket, moderate players found the rackets more forgiving of their mistakes. They could hit better shots than with wooden rackets, making their game more like that of the professionals. Did such a technology threaten the professional game?

At first, it may have been thought to do so. Historically, the dominant form of tennis involved a serve-and-volley game, arguably perfected by John McEnroe. McEnroe dominated men’s professional tennis until the mid-1980s when the introduction of composite rackets (which McEnroe’s classic game could never adapt to with much success) and emerging players such as Ivan Lendl (and eventually perfected by Roger Federer) developed a power-baseline style of play that took full advantage of the new technology. To be sure, the technology did not make the serve-and-volley style obsolete; it simply punished players with one dimensional games. Players
now needed to win points from the baseline on balls that could be hit with greater pace because of
the amount of topspin now permitted by skillful use of the new technology. The blend of pace and
topspin also allowed professional players to hit shots at radical angles off of groundstrokes,
mainly because of the speed with which heavy topspin makes the ball dip and land without going wide. Top players could bring the ball down fast and shallow enough to exploit many of the same angles once only possible using the serve-and-volley style. In that sense, composite rackets had at least two positive effects on the game test. It increased the range of skills needed to play well, and it allowed more of the court—literally and figuratively—to come into play. It arguably had an equally positive effect on contesting problems because it increased the grounds on which tennis skill and strategy comparisons could be made.

Thus a second issue with performance enhancement debate involves whether PESs will harm or improve a sport’s testing and contesting problems. Composite tennis rackets made tennis easier for beginnings but also rewarded those who worked hard to master its skills. Moreover, composite rackets allowed players to demonstrate more of their athleticism, creativity, grace and overall excellence. All of these appear to have affected tennis for the better. Would PESs such as steroids have similar effects in making tennis easier for beginners while also rewarding those who trained harder?

I will avoid speculation here regarding PESs, but sporting organizations will need to address the question of whether or not PESs may improve sports in general, or particular sports more specifically. For example, they might lengthen careers or improve the playing experience by delaying the onset of fatigue. Like composite rackets, PESs such as steroids may open new possibilities for players with varying skill levels. However, PESs such as steroids could also remove desirable attributes from sports. Imagine if tennis players, armed with high-tech rackets, became so powerful that the speed of their serves outpaced their opponent’s reaction time. If both players could hit serves with that speed, matches would turn into serving slugfests. Many skills
needed in today’s tennis would become irrelevant, invariably diminishing the game by turning it into a one dimensional activity.

Additionally, debating PESs may open questions about a sport’s desired level of determinacy. Determinacy refers to the degree of freedom players (or teams) have for resolving a game’s testing problems. All games have a certain degree of determinacy as they must establish a test by preventing certain means or creating certain problems. Thus no game is ever undetermined. Certainly games can vary in the degree of freedom they permit the players. Games that are underdetermined allow players more freedom for solving testing problems. Underdetermined tests often permit players to choose from a variety of strategies, playing styles, or equipment. Athletes can select they ways that the most advantageous methods in order to be successful at a game’s contest. An example of an underdetermined game is American football, where teams have many plays for offense and defense, many positions for players, and divergent tactics. More determined games tend to provide players with less freedom. An example of such a game is the 100-meter dash, where players have few options for exercising strategic choices in how the run the 100 meters. These games thrive by requiring all players to play under the exact (as much as possible) conditions.

A game’s degree of determinacy does not necessarily indicate whether it is a good test. Good games range across the determinacy spectrum. For example, golf is an underdetermined test while the 100-meter dash is a more determined test. Underdetermined tests can add degrees of freedom for players to express tactical choices or it can add deeper layers of complexity as players choose how to take the test. Both of these qualities are important for good tests. However, determined tests also prove quite durable and their constraints provide for easy comparisons between athletes. Running, throwing, jumping and lifting sports often have very determined tests yet are among the most durable sports.
A game’s determinacy is established by its rules. Rules establish which options are open to players through allowances, proscriptions, and prescriptions. However, determinacy is not simply a matter of having fewer rules. Rules that place limits on players often create more choices for players. For example, the rule in golf that limits a player to fourteen clubs creates more degrees of freedom as players must choose which fourteen to put in their bag. Choosing between a 2-iron and a lob wedge allows players freedom to be creative and make tactical decisions.

 Debates over performance enhancements can also examine how PESs alter a sport’s determinacy. Permitting athletes to use PESs can increase a sport’s underdeterminacy by offering athletes more freedom to make tactical decisions. For example, a tennis player may choose to use steroids to increase her lean muscle mass knowing that they may also reduce her quickness or endurance. However, prohibiting athletes from using PESs may increase a game’s testing continuity or allow easier testing comparisons. Since good tests can be highly determined, it is not necessarily clear that PESs’ decrease in determinacy always improves a sport. Nonetheless, by debating performance-enhancement, sporting organizations can consider the role of determinacy in their sports and the way that PESs affect it.

 The upshot of the foregoing discussion is this. An objective performance-enhancement debate can allow scholars to consider whether PESs improve a sport, harm it, or simply have a negligible effect. Those that harm a sport ought to be prohibited such as superfast swim suits or square grooved golf clubs. Other performance enhancers make a test even more enjoyable such as side cut alpine skis or composite tennis rackets. By putting PESs in the same category as other enhancers, scholars can discuss drugs in a much different albeit equally important way.

 More importantly, as historian Bernat Lopez argues, performance enhancing techniques and substances are best viewed as morally neutral forms of technology. “What is morally qualifiable” for Lopez, “is the use that human beings make of it [technology]” (2010, 2). By
viewing PESs as biomedical technology in the same vein as other performance enhancing technology, scholars move into a morally neutral discourse. The PESs themselves are not a moral issue; it is simply how humans use the PESs (or rather the effects of how humans use PESs) that morally matters. And for purposes here, the use in question is one that impacts the integrity of the testing and contesting activities that athletes share.

In this way, it becomes clear that a discussion over PESs actually falls under the larger umbrella of the possible (in that there are no necessary objections) means for athletes to enhance their performance. Viewing the issue of drug use as a question about performance enhancement in general not only removes much of the morally-loaded rhetoric surrounding doping but reframes the debate in a way that more clearly articulates the important issues at stake when it comes to performance enhancement in sport.

Additional points of conceptual confusion clarified by using performance-enhancement rather than doping. One such debate is the issue over what substances ought to count as doping. Past scholarship debating the ethics of doping has often struggled to clearly delineate between which substances are acceptable and which substances ought to be banned as “doping.” This has led to sporting communities continually shifting its bans on substances such as pseudoephedrine and caffeine, sometimes banning the substances and sometimes permitting them. The debate over what counts as “blood doping” has brought the use of altitude chambers into question, as they “artificially” boost red blood cells.

Although the logic of banning altitude chambers was questionable, the struggle to determine what counts as doping appears to occasionally lead sporting organizations down unproductive lines of reasoning. Yet shifting the debate to rational questions about performance enhancement and not what fits the definition of doping may help sporting organizations more clearly and accurately navigate issues over banning PESs. For example, if a new PES is developed, a sporting organization can focus on the PES’s effects on their test rather than whether
it fits a certain definition of doping. By debating performance enhancement, the sporting organization can exercise their role as gamewrights and decide to prohibit the PES in order to preserve their sport’s tests or permit the PESs because its effects are positive. More importantly, the question shifts from “what counts as doping”—a question typically hard to answer—to “how the substance affects performance.”

The answer to the latter question is based on lusory logic and is typically a decision sporting organizations make rather well. Indeed, sporting organizations make such lusory decisions on performance-enhancing technologies and novel strategies all the time. When they come to a conclusion that a certain technology or strategy harms the integrity of the test, they have reason to prohibit it and add that prohibition to the rulebook. The decision to ban a substance would fall under that same logic and would, in principle, be no more difficult to accept than the prohibition of, say, a magical tennis racket or square-grooved golf clubs. And if sporting organizations rationally determine the bans on substances in the same manner that they determine bans on other performance-enhancing technology, then their actions would be consistent with the other choices sporting organizations often make. For example, sporting organizations can stipulate what size golf ball or the type of swimsuit athletes can use. Similarly, it seems reasonable that sporting organizations could stipulate which substances are banned and which are permitted.

Additionally, shifting to the performance enhancement term can direct scholars to consider PESs in new ways. Rather than seeking to define doping or evaluate whether a substance fits that definition, scholars can begin considering how different PESs affect different sports in different ways. This should indicate to scholars that rather than seeking universal claims, debates about performance enhancement must occur on a sport by sport basis. Thus it is up to participants in each sport to determine whether certain types of enhancements improve or harm a sport. Each sport will likely have its own reason for determining which, if any PESs to regulate as each sport
may evaluate the effects of PESs differently. Some sports may find that certain PESs enhance the sporting experience by allowing athletes to play longer without fatiguing. Other sports may find that the same PES harms their sport as it removes the element of fatigue.

Additionally, performance-enhancement debates can focus on sporting communities preserving or improving their sport’s central excellences. This form of arbitration is based on Russell’s determination of broad internalism. Broad internalism holds that sporting communities can deliberate over rule changes so as to preserve or improve what they perceive as the central excellences required to solve a sport’s test. In that light, it makes sense that a community can discuss how the use of PESs can alter its test without needing to resort to the intensely moralistic rhetoric used today. A sport can rule that performance enhancing drugs do or do not enhance their test and thus determine what methods of performance enhancement athletes can and cannot use to overcome its test’s artificial barriers. The substance itself is no longer the issue. Rather sporting communities can examine how the performance enhancement affects the test itself. If a sport concludes that such a technology detracts from the sports tests, then it can justifiably create rules that prohibit its use.

Critics may reject such a distinction between the terms performance enhancement and doping by arguing that I am making a stipulative dichotomy. Rather than identifying any real distinction in terms, I have only stipulated a new distinction. Because my distinction is stipulative, my critics would assert, I have introduced nothing new.

I offer two counter arguments to such concerns. First, I believe that the ordinary usage of these two terms justifies my proposed distinction. If one accepts that a word’s ordinary usage shapes its meaning, then clearly the ordinary usage of doping and performance enhancement show these two terms evoke different clusters of meanings. The common usage of the expression doping clearly shows that many believe it is an undesirable sporting problem. Sporting organizations have created a World Anti-Doping Agency and an “Anti-Doping Code (WADA
2009). Many uncritically assume that doping is cheating and illegal despite the circularity of that logic. Popular discourse often labels doped athletes as “dirty” and non-doped ones as “clean.” Many express sentiments that doping is taking a shortcut, violating the “spirit of sport,” breaking tradition, or acting like a poor role model. On the other hand, rarely do people use the expression doping outside of sporting contexts. No one argues that musicians who take Beta-blockers to steady their nerves or professors who use drugs to help focus are doping, nor does society label those who use steroids to improve their physical or sex appeal “dopers.” In such cases, society often refers to issues of performance enhancement, but not doping. Thus the ordinary usage of these two expressions shows a distinction already exists in today’s world of discourse.

Second, I would argue that even if my distinction is stipulative, it has utility. The two sets of problems—those of doping, on the one hand, and performance enhancement, on the other—as I will argue in the following sections, are best addressed separately. Their past conflation into a single issue is partially responsible for much of today’s conceptual confusion. This conceptual confusion can be mitigated by assigning clear terms that prevent conflation. By assigning clearly defined terms to different conceptual issues, I have made these phenomenon’s differences more apparent. Thus even if such terms appear artificially stipulative, they do produce real work.

If words are loaded pistols, then perhaps scholars ought to realize that what they have is not a singular doping debate, but “dueling” debates where two sides are using loaded language to resolve two different issues. By seeing the doping debate as involving conceptually separate issues—one over performance enhancement and the other over what it means to dope—scholars can engage in a clearer and more productive debate.
The Pragmatics of the Doping Term

By using more conceptually accurate language in the doping debate, scholars will likely change how they see the general issues at stake. As previously argued, the doping expression connotes a specific set of loaded assumptions. Loaded assumptions often hinder rational discourse when they go unnoticed. However, when used correctly they can provide useful shorthand for scholars wishing to bypass certain issues. In fact, allowing doping to be a loaded term actually provides scholars with a useful term for debating a number of issues surrounding PESs.

First, the word doping allows scholars to discuss issues associated with current efforts to ban PESs such as fair testing procedures and punishments without having to always first examine whether such bans are justified. Indeed, to use the expression doping is to indicate one already knows the character of the debate. To illustrate this point, let me retell a joke used by Peter Singer about a man who asks a woman if she would have sex with him for a million dollars? The woman reflects for a few moments and then answers “Yes, I would.”

“So,” the man says, “would you have sex with me for $50?”

Indignantly, the woman exclaims, “What kind of a woman do you think I am?”

He replies: “We’ve already established that. Now we’re just haggling about the price.”

While in the joke, the man implies that he already knows the woman’s character, it is safe to assume that scholars already know the established “character” of doping. Scholars using the expression doping ought to remember that the expression signifies one accepts certain positions and any subsequent debate is simply “haggling about the price.” By assuming the established framework—that doping is prohibited—scholars can address specific issues that a strict analysis of performance enhancement would miss or that scholars may reject because they do not believe that PESs ought to be prohibited.
Yet “haggling about the price” in doping involves negotiating many serious moral issues. For example, what is the appropriate price for a doping violation? Intellectual consistency might force some scholars who object to doping bans to also object to athletes having to pay prices for violating anti-doping rules. Yet, as I have argued elsewhere (Gleaves 2010; Gleaves 2011), punishments for anti-doping infractions raise additional moral issues. Other similar issues include which substances ought to be prohibited, defining the substance testing policies, an athlete’s right to privacy, legal recourse for sporting infractions, and social expectations for athletes to act as role models. Each of these only becomes an issue once PESs are prohibited.

Once scholars accept that the expression doping conceptually differs from performance enhancement, they will likely benefit by being able to discuss certain issues without engaging the underlying justification for doping bans. For example, someone may accept that sporting organizations ought to ban certain PESs but disagree with WADA’s decision to ban platelet-rich plasma therapy. Others may disagree with the general decision to ban doping because of health concerns since illicitly using PESs has far more serious health consequences than medically supervised use. Those individuals may wish to discuss supervised doping in an effort to create healthier sporting conditions but not reject the idea that—as anti-paternalists would—sporting organizations can enforce rules designed to protect athletes’ health. By separating the philosophical debate over performance enhancing drugs from the philosophical debate over doping, scholars can more clearly discuss the ethical issues found within the current anti-doping framework.

Second, if scholars use these conceptual terms more accurately, they may find that the argument that an athlete’s use of PESs is cheating resolves itself. For example, when a scholar discusses the issue of whether doping is cheating, they are conflating the doping debate—one that assumes PESs should be banned—with the debate over the general ethics of performance enhancement—one which does not make that assumption. If we realize the distinction between
the two terms, we realize that asking if doping is cheating mistakes the performance enhancement debate for the doping debate. To be sure, in a conversation about doping, where certain substances are banned, the use of those banned substances clearly constitutes cheating. However, as noted, critics often correctly point out the circularity of this argument. Doping is only cheating because it is against the rules. If doping were not against the rules, it would not be cheating.

Scholars arrive at such circular arguments, however, by conflating one set of questions (in this case doping) with another set of questions (performance enhancement). What is most often being asked in the “is doping cheating” question is not whether doping is cheating but whether using ergogenic aids is inherently wrong. The better question to ask is whether using certain PESs for performance enhancement ought to be prohibited. This question avoids the doping expression’s assumption that PESs are clearly wrong or that their use is cheating since one does not assume there ought to be rules prohibiting their use. Moreover, there is no longer the circularity that existed in the discussion over doping. The term performance enhancement does not assume that the use of these drugs is wrong. In this context, scholars can discuss both the philosophical and ethical issues at stake when athletes use performance enhancing substances of various sorts.

Lastly, and perhaps most fundamentally, I argue that the term doping reflects a loaded cultural view that, while not completely justified, is not completely irrelevant. Scholars typically attempt to avoid loaded terms. Given doping’s pejorative connotations, I can imagine scholars choosing to completely avoid using such a term. Yet such a move would also ignore the many people who see doping as something that does not belong in sport. For these individuals, sport reflects a certain set of values, values that would be seriously undermined if athletes were suddenly permitted to use PESs. Removing anti-doping rules would remove a desirable aspect of sport. While other individuals may disagree with such judgments about the nature of sport, these beliefs have become embedded in today’s sporting world. Anti-doping discourse is certainly the
dominant narrative and those who abstain from doping are labeled “clean” and “pure.” Indeed, most people assume that doping is wrong even if they cannot explain why. Such sentiments cannot be completely ignored and are relevant to any consideration of PESs.

Conclusion

In conclusion, distinguishing between “doping” and “performance-enhancement” is not only conceptually more accurate but also provides a new paradigm for viewing the debate over the use of PESs in sport. Although often used as synonyms, scholars should realize that these two expressions are conceptually different. They share a similar subject matter, yet they indicate very different views on the issue.

The fact that both debates address PESs may partially explains why scholars have conflated these two terms. This conflation also explains why so little progress towards resolving the fundamental issues over performance enhancement and drug use seem to be taking place. Thus scholars should be conscious of the distinction between these two expressions when discussing the issues surrounding athletes’ use of drugs to enhance performance. The debate over doping and performance enhancement needs to begin reflecting the fact that conceptual differences are loaded into these two terms. Distinguishing between “doping” and “performance enhancement” is not only conceptually more accurate but also provides a clearer paradigm for viewing the debate over the use of performance enhancing drugs in sport. If scholars accept the duality in this debate, they will find that their rhetoric is moving in the right direction, their words are much more likely to hit their target.

While certain contemporary rhetoric surrounding “doping” leaves little room for a discussion of the ethics of “performance enhancement,” both terms provide important considerations for further discussion. Doping, with its historicized norms about how individuals
ought to play sports, reflects certain social values and traditions. Performance enhancement falls under a different lens, where gamewrights and athletic aficionados discuss what constitutes a good sport test.

However, combining these two conversations, without an awareness that this is being done, results in conceptual confusion and ultimately, a lack of progress in the so-called doping debate. Thus scholars would do well to acknowledge the differences in these terms.

Distinguishing between using drugs for “doping” and for “performance enhancement” is not only conceptually more accurate but also provides a clearer paradigm for viewing the debate over the use of performance enhancing drugs in sport. If scholars accept the duality in this debate, they will find that their rhetoric takes them in the right direction and their words are much more likely to hit their target.

Endnotes

1 The historical considerations were discussed in Chapter One and Chapter Two while the scientific considerations were discussed in Chapter 3.

2 For more on the lack of justification, see the literature review in Chapter 3.

3 Certainly doping is not the only word to become loaded with meaning. Examples of other words include murder, liberty, and patriot. With these words, their negative or positive association is built right into the word. Therefore, it is impossible to discuss the ethics of murder as murder is defined as unethical or it is impossible to argue against liberty since liberty is assumed to be a fundamental good.

4 My call for differentiating between the debating “doping” and for “performance enhancement” has precedent. Loland, Miah and Waddington have all suggested that doping carries certain connotations that performance enhancement does not. Yet amongst these scholars, there still exist vague, incomplete, and at times contradictory, definitions for these two terms. Miah simply explains that there is a difference between doping and performance enhancement, but does not explain the difference Miah, "Legalization of Performance-Enhancing Drugs," Lancet (2005). Waddington, believes that the term doping should only apply to the forced or unfairly coercive use of performance enhancing drugs, like in the case of the GDR swimmers, while performance enhancement applies to those athletes who choose to use drugs to make themselves better Waddington and Smith, An Introduction to Drugs in Sport : Addicted to Winning? (London ; New York: Routledge, 2009).
This shift in expressions is similar to other shifts scholars often make in order to avoid loaded language. For example, scholars often differentiate between the expressions “cheating” and “rule breaking.” Cheating, like doping, carries very negative connotations. On the other hand, rule breaking, whether intentional or unintentional, does not necessarily connote wrong action. An athlete may intentionally violate a rule to make an “intentional foul” or accidentally violate a rule through the normal course of play. When discussing rule breaking, scholars may or may not conclude that a given violation is unjustifiable or ought to be prohibited. At least at the start of a conversation, the term connotes openness to different conclusions.

See Chapter One for the discussion of anti-doping as a dominant cultural narrative.

See Chapter Three for a wider discussion of performance enhancement that includes strategy, technique, equipment, and training methods.

Although Lopez is attempting to situate “doping” as a performance enhancing technology, he has simply not differentiated between the two concepts. I read this as further evidence for the need to conceptually differentiate between the terms doping and performance enhancement so as to avoid having to reshape the morally loaded term “doping.”

Platelet-rich plasma therapy is an experimental therapy that removes an individual’s own blood, separates out platelets from red blood cells and injects the platelets into an injured site with the intention of stimulating quicker healing.
Chapter 6

Inefficient Means and Artificial Barriers: Performance Enhancement as Technology

Preface to Chapter 6

Note: This chapter has been written as a free-standing article, one that will be submitted to the journal *Sports, Ethics and Philosophy (SEP)*. Because this chapter will later stand on its own, some of the content may be redundant. For instance, my examination of certain thematic arguments for and against PESs repeat some arguments and conclusions put forward in Chapter 4 and my discussion of a test-relevant approach outlined in Chapter 5. Nonetheless, this chapter aims to fully explore the implications of a test-relevant approach to determining the legitimacy of PESs.

As I argued in my fourth chapter, past investigations have focused primarily on metaphysical or naturalistic claims about PESs. Yet these claims have not conclusively determined whether bans are justified. By taking what I will call a *test-relevant approach*, I examine how PESs—like other technologies—affect a given sport’s testing and contesting challenges. In this way, I will argue that viewing PESs as a technology directs the debate towards a more philosophically productive question: How do different PESs affect sporting tests and contests—whether that affect is for the better, worse or turns out to be inconsequential.

Introduction

In the late spring of 2010, Fabian Cancellara dominated cycling’s preeminent one-day classic races the Tour of Flanders and Paris-Roubaix. One would naturally suspect that, in a sport
tainted by many doping scandals Cancellara’s commanding performance would raise questions about doping. He had, in fact, motored past the rest of the world’s best cyclists like they stood still. But this time, the rumors that swirled around Cancellara were different. As things turned out, the metaphor of motoring past his competition was more fitting than many suspected. Spurred on by a viral internet video, many in the cycling world speculated that Cancellara’s triumphs resulted from a relatively new but still undetectable technique referred to as mechanical doping.

In cycling, mechanical doping involves riders benefiting from small battery-powered motors hidden inside the frames of their bicycles. The practice is clearly prohibited by the Union Cycliste Internationale’s (U.C.I.) rules, yet experts surmise that a team mechanic could insert a motor and its battery through the hollow tubing of a bicycle so that the apparatus remained invisible to the naked eye. Unlike motors on motorcycles, however, these little engines do not power the wheels on the bicycle. Instead, they boost a rider’s efforts by applying more power to the pedals. Reports estimate that such machines, which must be small enough to fit inside a bicycle’s tubular frame, could boost a cyclist’s total power output by one hundred watts for about twenty minutes. With the average professional cyclist capable of sustaining power outputs between four hundred to five hundred and fifty watts for over an hour, these machines could not turn a weekend club rider into a Tour de France champion (or someone who could challenge the likes of Cancellara) but would certainly make a difference between equally-matched opponents. In other words, the motors increase speed enough that if they were permitted, everyone would have to use them to stay competitive. Otherwise they leave the sport unchanged (Austen 2010).

Did Cancellara, in fact, cheat by using mechanical doping? I very much doubt it. Yet most people appear to agree that the U.C.I. is clearly justified in prohibiting such performance-enhancing technology, whether its effect is great or small. Given the debate over performance-enhancing substances (PESs), I find myself wondering what makes the prohibition of mechanical doping such a straightforward issue, especially when the doping bans on PESs prove so difficult
to justify. Circumstantial evidence shows that no scholars or cycling fans seem to object to the bans on mechanical doping, yet bans on PESs have provoked numerous critics. No cadre of intellectuals has come to defend cycling’s ban as they most clearly have with PESs. Indeed, Peter Singer and Michael Sandel, who have both commented at length on PESs, appear to have found little of interest in the prohibition of tiny cycling motors. Is there something about the two methods of enhancement that explains the apparent disparity between the two issues? In other words, if using a machine which only marginally increases an athlete’s speed is clearly wrong, why is it not equally obvious that using steroids, amphetamines, or erythropoietin (EPO), which may have even greater effects, is also wrong? What about the former case differs from the latter?

These questions, I contend, cut right to the heart of the debate over performance enhancement. Indeed, when we compare the “unproblematic” issue of mechanical doping with the more problematic issue of PESs, we see that the primary question for both is not a concern about health, fairness, what is natural or unnatural, what counts as restoration in contrast to enhancement, or the preservation of something called the spirit of sport. Those considerations, in fact, seem to be secondary issues. Rather, I will argue that the primary issue is the enhancement’s effects on the nature and integrity of the test. This will lead to my test-relevant defense, which argues that new performance-enhancers ought to show that they improve a test or that banning them harms a test if they are to be permitted. I will then argue that in the case of mechanical doping, the use of such machines would not improve the sport. Given that they do not make the sport better, I conclude that such an enhancement can be justifiably banned. With PESs, however, their effects on the test are much less certain. Sporting organizations may decide that PESs harm their sporting tests and ban them or that PESs improve their sporting tests and choose to permit them. Thus the uncertainty in the PES debate stems from their ambiguous effects on sporting tests. Given these uncertainties, I conclude that sporting organizations may have contingent reasons for prohibiting PESs but that such reasons are insufficient to justify a universal ban on all
PESs for all sport. Thus applying the test-relevant approach to both mechanical doping and PESs reveals exactly why mechanical doping is intuitively less problematic than PESs and, more importantly, what issues bear most heavily on the PES debate.

**Mechanical Doping and Using PESs—Like Cases?**

To understand specifically why the prohibition decisions about mechanical doping are different from PESs, I must first explain the similarities of the two. For many, the ethics of banning mechanical doping appear to have nothing to do with the ethics of banning PESs. Mechanical doping presents a straightforward case of cheating unlike PESs where a positive test can result in a ban even where no cheating took place. Few individuals question the legitimacy of the rules that prohibit mechanical doping while the ethics of banning PESs have provoked controversy, raising concerns about personal liberty, medical freedom, privacy, and autonomy. Additionally, the World Anti-Doping Agency, which is one of the designated agencies designed to prevent athletes from using PESs, has a twenty-six million dollar annual budget. Mechanical doping has no agency and only caused cycling officials to pause a few minutes longer while inspecting a cyclist’s machine. Thus I expect that, at first glance, the ethics of mechanical doping and the ethics of PESs may appear to be, so to speak, apples and oranges.

Yet these two issues have more in common than many suppose. Both the (alleged) use of mechanical doping and the use of PESs violate the rules of cycling. Both also can improve an athlete’s performance in competition. But these are rather straightforward similarities. Indeed, a deeper probe of both practices reveals that their ethical challenges emerge from the union of the necessary constraints that create certain sporting challenges, on the one hand, and the desire to more efficiently overcome those challenges in the pursuit of better performance and success, on the other. It is this combination, this tension, that breeds such paradoxical experimentation, and it
is this experimentation that drives athletes to introduce new performance-enhancing techniques. Whether with PESs or motors or any other performance-enhancing technique, athletes will continue to seek ways to perform better at a sporting test while, at the same time, understanding that the integrity of those very tests is presupposed by their being practiced. Efforts to show excellence cannot come at the cost of invalidating the tests on which such excellence rests.

In other words, these technological innovations share a similar lineage, a similar DNA, which means that they both share the same genetic defect—they may allow athletes to more easily overcome challenges to the point that those very challenges are fatally compromised or, where technologies are powerful enough, disappear altogether.

Yet beyond this core similarity, mechanical doping and PESs fortuitously share other characteristics that will allow us later to draw important conclusions. For instance, in these cases neither mechanical doping nor the use of today’s PESs removes the quality of an athlete’s performance from the equation. In other words, neither necessarily diminishes human agency. In cycling, the small motor does not drive the bicycle but simply enhances a rider’s performance. And to date, no PESs can turn a sandlot player into a major league slugger, let alone guarantee success for all struggling, current major leaguers. They are not magic bullets or panacea technologies that threaten to dissolve a sport’s problems. They are not like Boris Onischenko’s “sword that scored” or a fictitious laser-guided golf ball that always finds its way into the hole. Those technologies remove performance from the equation since they dissolve the test; they eliminate human agency because they remove opportunities for the demonstration of the skills and virtues needed in the face of genuine challenges. But in this case, both performance enhancers—small motors and certain PESs—allow athletes to perform better without necessarily removing central game challenges. The best cyclists will still win the most races. Training, effort, and sacrifice are still required. Human agency as well as the skills and virtues needed to overcome challenges remain intact both with PESs and mechanical doping.
However, critics of such a comparison may assert that one obvious difference between PESs and mechanical doping remains. Mechanical doping uses an outside energy source to promote enhanced performance while PESs become part of an athlete’s internal resources. I agree with critics that mechanical doping and the use of PESs have differences, yet this does not mean that the two cases are not analogous. First, outside energy sources do not present anything inherently objectionable in sport. Many sports use outside energy sources to assist competitors. For example, the Olympic sport of sailing relies on wind to power the craft while all equestrian events rely on horses to do the majority of the work. Shooting sports require combustion to fire the bullet towards a target while gravity plays a large role in many sports. Even cycling currently permits battery-powered energy to shift gears on a bicycle.

Given these many examples, it is inconsistent for critics to assert that outside energy is the reason why mechanical doping is different from PESs since many instances of outside energy are acceptably used in sport. Outside energy does not diminish the necessity for riders to create their own power nor does it present anything inherently objectionable to sport. Moreover, it is unclear how a PES avoids also qualifying as being outside energy. PESs are certainly not made inside the body. It seems inconsistent, then, to assert that just because an athlete swallows, injects or otherwise ingests an outside substance, the substance does not count as an outside energy source. How is an amphetamine pill and a glass of water less of an outside energy source than a battery? Indeed, such a line between internal and external energy sources becomes quite blurry when we examine the details of the practices in question. Rather, adding a motor is only or using a PES are not substantially different debates as both have similar effects on performance.

Consequently, the differences between PESs and mechanical doping are mostly cosmetic. In other respects, they are quite similar. The two enhancement methodologies appear to be similar regarding precedent (the consistency argument) and effect (the unfairness or harm to sport argument). If anything, PESs enhancements might appear to be more easily prohibited since they
at least cause some risk to individual health. Thus the similarities between mechanical doping and PESs are at least strong enough to cause us to pause and consider why the two have been viewed so differently.

If we pause long enough to consider the similarities, we may go one step further and consider whether the myriad arguments of the PES debate can shed any light on the seemingly easier decision to ban mechanical doping. Do the arguments used against PESs work even better with mechanical doping? Unfortunately, they do not. The most common arguments against PESs assert that they are unfair and harmful to an athlete’s health and that they contradict some intrinsic aspect of sport. Yet mechanical doping—like the use of PESs—would not be unfair if everyone used them nor does mechanical doping carry any additional health risks. Moreover, it is unclear what intrinsic aspect of sport mechanical doping contradicts, as many scholars have called into question the very notion that any sport has an intrinsic aspect. Some might argue that cycling is a non-motor sport, and that using a motor contradicts the sport’s spirit, but such assumptions are both stipulative (that cycling is, by definition, a non-motor sport) and essentialistic (since cycling is a non-motor sport, it cannot ever become a motor sport). Thus, despite the two technologies’ similar parentage, what makes banning mechanical doping so obvious are not the reasons typically used to justify banning PESs.

At the same time, the arguments used by critics of PES bans appear downright absurd when applied to mechanical doping. It is hard to see how libertarian arguments against paternalism, such as those by Tamburini, would apply to a motor on a bicycle. That is because we do not presuppose that athletes have the freedom to disregard the rules of the contest. Additionally, critics such as Miah and Gardner, who argue PESs are compatible with elite sport, would struggle to substitute mechanical doping into their argument. Not everything that enhances performance is compatible with sport. In fact, all arguments against banning PESs and mechanical doping run into a similar problem—a game’s rules can be essentially arbitrary.
Gamewrights establish tests and contests by creating rules that limit certain efficiencies. While certainly the rules can be modified, the apparent arbitrariness of some of a game’s rules that limit certain efficiencies is not enough to justify changing the rules. Although arbitrary, such rules are not inconsistent given that gamewrights establish good tests built around proscriptions of certain efficiencies. Those who criticize the bans cannot appeal to inconsistency or arbitrariness of the rules as *all rules are consistently arbitrary*.

Therefore, neither the arguments for nor against the bans on PESs shed light on the apparent ease with which the mechanical doping issue has been addressed. Yet if PESs are similar to mechanical doping, we would expect to find something about one of the performance enhancers that explains the difference in reactions. As I have argued, however, the differences in reactions do not relate to the arguments typically asserted in the PES debate. In other words, the reason our intuition suggests that banning mechanical doping is the more obvious case of the two does not relate to it being more harmful, more unfair or more unnatural. Instead, those concerns do not appear to be the primary reason why sporting communities choose to ban this technology; rather, they seem to be only second-order concerns that enter the debate once more fundamental concerns have been addressed. Thus, it appears that the characteristics that make banning mechanical doping so obvious and banning PESs so complex still remain unarticulated in the larger PES debate.

**The Test Relevant Approach**

To recap thus far, I have attempted to show that mechanical doping and PESs share a common lineage and have inferred from this common lineage that justifying their bans presents similar challenges. I have also argued that the failure of arguments in the PESs debate to justify banning mechanical doping reveal that those arguments do not address the most relevant issues.
In this next section, I will outline what I perceive as the fundamental issue of performance enhancement. I contend that when determining whether a performance enhancing technology—whether mechanical doping or PESs—ought to be permitted in a sport, the first question ought to be how such an enhancement would alter the test. I call this the test-relevant approach. This strategy, I will argue, offers reasons for banning both PESs and mechanical doping as well as indicating why decisions to ban the latter are less troublesome than those that would prohibit the former.

The test-relevant approach first examines the ways that introducing a performance enhancer into a sport affects a sport’s tests. In principle, enhancers can have one of three effects. They can help, harm, or have no effect on the current test. If the effects of the performance enhancer alter the test in undesirable ways, sporting organizations can justifiably prohibit it. For example, if a technology renders a sport’s central challenge irrelevant, as would be the case when using a GPS-guided golf ball, then a sport can decide to ban it in favor of preserving the test—in this case, the golfing test that requires the exercise of skill in getting the ball to the hole.

Additionally, a sporting organization can decide to ban an enhancement if allowing it does not add anything to the test. This second reason works much like an “Occam’s Razor” for sport in that when faced with two equally appealing tests—one with the enhancer and one without—sporting organizations ought to err on the side of simplicity and ban the enhancement. Sports ought to err on the side of simplicity because undesirable complexity can detract from an athlete’s experience. For example, if an enhancer does not make the test any better but simply adds cost, provides another opportunity for a game to go awry, decreases the time available for playing the sport, or adds undesirable redundancy to the test, sporting communities would have good reason to prefer the simpler version.

While the test-relevant approach provides justification for banning a performance enhancer, it also can justify permitting it. In cases where permitting an enhancement or
technology improves a test, sporting communities can—and usually do—embrace such changes. Such changes can come in the form of improved equipment, rule modifications, performance-enhancing technology such as PESs or even genetic engineering. Equipment that functions better or allows players to more fully demonstrate excellence or creativity can improve tests when compared to their older versions. Rules can be changed to allow new equipment or strategies, enhance challenges, make the sport more enjoyable, or to close undesirable loopholes. In those instances, sports can certainly embrace such rule changes because the improved game test is more enjoyable than the one it replaced.

Another factor to consider is that occasionally introducing new elements to a sport does not improve a test. They warrant a ban. But trying to enforce the ban proves problematic. In those cases, where a rule change does not enhance a sport but enforcing the bans clearly harms the sport, a sport can justifiably decide to change its rule and relax a previous prohibition. For example, the rules surrounding amateurism in many Olympic sports during the mid-twentieth century proved very hard to enforce and led to “shamateurism.” Although sporting organizations may not have felt that a sport benefited by allowing paid athletes to compete, enforcing amateur bans in the face of lucrative payments proved detrimental to all parties involved. The oversight cures, in a sense, proved more harmful than the competitive disease. Thus changing the rules to permit payments may not have improved sport, but it avoided the negative effects of the ban.

While the test-relevant approach provides a useful set of criteria for arbitrating performance enhancement, it also differs from many of the previous approaches. Importantly, the test-relevant approach does not depend on sports having any internal goods or essences that need preserving, something frequently cited in previous PES debates. Instead, this argument simply looks at what makes a test enjoyable from the perspective of problem solving and playability. In that sense, all sports are open for adjustment if such adjustments can improve the sport’s appeal. If a test is enhanced in some demonstrable way, a change can be justified.
harmed, the change is not. There is no appeal to a metaphysical or naturalistic claim about the essence of sports or about what counts as enhanced and what counts as natural. The appeal is a more pragmatic one. It is related to the kinds of challenges that people find enjoyable. While people can disagree on what features should be preserved, enhanced, de-emphasized, or eliminated, it is also possible for those who play these games to establish a rough consensus on how the game should be played or, in cases where judgments are uncertain, support a degree of experimentation and further assessment.

At the same time, the test-relevant approach presupposes—and subsequently benefits from—a philosophically established conception of sport. As Suits argues, games are “voluntary attempts to overcome unnecessary obstacles” by inefficient means. Good games, Suits contends, involve well-balanced tests where the means and the challenges are neither too difficult nor too easy (2005, 52). All sports are games that rely on varying levels of physical performance to voluntarily overcome obstacles but good sports will have rules that outline challenges with desirable degrees of difficulty. If a sporting community alters its rules and accidentally makes its challenge too difficult, the sport will not endure. Players will become frustrated by a seemingly-impossible test. At the same time, if a sport alters its rules and makes the challenge too easy, perhaps by permitting a type of performance enhancing technology, it will also not endure. The game will become “child’s play” and hold little appeal for those seeking a durable game. The time spent playing may decrease or it may test different characteristics that the sporting community does not wish to test. By making the test too easy, sporting communities may lose many of the characteristics of a good test.

Additionally, the test-relevant approach incorporates Kretchmar’s explanation that games can be put to two uses—testing and contesting (Kretchmar 1975). Testing problems, Kretchmar explains, are the artificial challenges game players must overcome, while contesting problems emerge when competitors undertake the same test in an effort to perform better than one another.
Both testing and contesting problems are important components of sport. In sports, testing problems can be durable challenges such as skiing quickly down an icy slope or shooting a ball through a ten-foot high hoop. Contesting problems enter when we attempt to negotiate a testing problem better than an opponent. To extend the examples, this would mean attempting to ski down an icy slope faster than someone else or to put a ball through a ten-foot high hoop more often than an opponent in a set amount of time. The comparative project introduces new strategies (when or how to make a move) and new behaviors (taking unusual risks in order to take the lead).

When sporting communities use the test-relevant approach, they can examine how such changes affect the sport’s testing and contesting problems. A change to a game’s rules may affect the difficulty of either or both, and, once again, they can affect them for better, worse, or in no appreciable way. For example, a PES such as EPO may make a testing problem easier by increasing an athlete’s ability endurance. A PES can also make a contesting problem easier, if, for example, a PES could steady an athlete’s nerves in face of competitive challenges. Thus a test-relevant debate over a rule change should consider what affects the change has on both sets of problems Kretchmar identified.

The test-relevant approach also conforms to Russell’s conception of broad internalism as a justifiable explanation for rule changes (1999). Broad internalism describes how game-communities can alter their rules without harming the integrity of the game. Sporting organizations typically modify their rules for many reasons but with the end result of preventing harm to their sport or making the sport better. A sporting organization might modify rules to prevent previously unthought-of actions such as using ones’ hat to catch a baseball or to improve a sport such as introducing the forward pass into football. When new technology arises that allows players to perform better in a sport, people may debate whether the rules ought to permit or prohibit such technology. In fact, the sport of cycling is currently debating whether riders ought to be allowed to use radios during the race. This technology allows a team to better
coordinate its strategy, but removes certain tactical challenges from the race. All of these deliberations point to sporting organizations’ capacity to successfully navigate the challenges of performance enhancing technologies like mechanical doping or PESs.

While the test-relevant approach benefits from its philosophical consistency, it also reframes the perennial doping question as one over a less emotionally-charged issue. Rather than debating the ethics of doping, the test-relevant approach considers all issues as they relate to the relationship between a sport’s means and its ends. Any change in the permitted means can modify athletes’ performances. Debating whether such modifications are an improvement avoids the problematic assumption that plagues the doping debate, which is the assumption that doping is inherently wrong. This is true both with mechanical doping and with PESs. When setting out to examine both issues, the performance enhancement debate starts by asking whether the improved performance affects the integrity of the test, not whether the technology itself is morally problematic for sport. What matters is not whether the enhancement comes in the form of a pill, a motor, a new material for a racket or even a new coaching strategy. Indeed, the test-relevant approach concerns itself only with such technology’s effects on the athletic test. It avoids attempting to pass naturalistic or metaphysical claims about certain substances or practices and instead examines how introducing such substances or practices affects the sport. When examining substances such as steroids or EPO, it can be tempting to unintentionally permit loaded bias to influence decisions. Yet the test-relevant approach treats both hot issues such as PESs and more obvious issues such as mechanical doping with equally cool, rational detachment.

Evaluating Mechanical Doping (And PESs) Through a Test-Relevant Approach

While the test-relevant approach provides a useful avenue for examining PESs, it has remained largely absent from the debate. Nonetheless, I will show that applying the test-relevant
approach to mechanical doping (and subsequently PESs) reveals two reasons why mechanical doping is intuitively undesirable and why PESs are more problematic. First, mechanical doping leaves the cycling test largely unimproved but with undesirably layers of complexity. Thus the cycling community may want to prohibit it. Second, mechanical doping opens a slippery slope to more dramatic changes that may harm the test in the future. With PESs, one the other hand, the existence of these two concerns—the undesirable effects and the slippery slope—are much less clear. PESs may improve a test and it is less clear that they open the door to future harmful innovations. Thus, I contend that these two test-relevant concerns, applied both to mechanical doping and PESs, reveal the primary concerns at stake in the performance enhancement debates.

First, when considering the issue of mechanical doping, the cycling community should consider whether permitting riders to use mechanical devices to increase speeds actually results in more gratifying testing or contesting problems. If permitting everyone to mechanically dope their bicycles would improve the sport, make the sport more enjoyable for the riders or the audience, make it a fairer competition, or allow athletes to express more tactical or skillful excellences, the technology could be considered a step forward and would be accepted into the sport. Yet, in the case of mechanical doping, none of those improvements are readily apparent. The sport remains the same, except that athletes go slightly faster. Since few, if any, benefits seem likely, prohibiting the technology makes sense. It makes sense because the cycling community could show that permitting the motors does not improve the sport in any meaningful way while adding extra costs and undesirable complications that distract from the main focus of cycling. In this case, the simpler, motor-free, version of the sport presents the same tests as the mechanically doped version but with less costs and fewer distractions. Additionally, sporting communities ought to be conservative about modifying established, durable sporting contests such as cycling. Certainly motor-free cycling has proven itself enjoyable, even when motors were available. There is no need to risk harming a sport by introducing or experimenting with a technology that has no
clear benefits. Thus in a bid for simplicity, continuity, and conservation of a good test, the cycling community could justifiably take a pass on mechanical doping.

While the test-relevant approach reveals how sporting tests may be directly affected by performance enhancing technologies, it also reveals that such technologies provide slippery slopes towards eroding the tests. For instance, the cycling community can argue against mechanical doping, not because the small motor currently harms the test, but because future motors push the sport in a direction that connoisseurs of cycling do not wish the sport to go. Although this motor may be benign, it sets a precedent for using a motor. Once such a precedent is set, one may ask why not use larger engines? As engines grow bigger, cycling’s tests change. Rather than pedaling a bicycle, the sport focuses on other excellences such as producing faster motors or navigating a course at higher speeds. In conclusion, adding the small motor does not add anything to the test and opens a slippery slope for harming the test in the future. Given those effects on the test, connoisseurs of cycling are justified to prohibit the motor.

Thus the test-relevant approach reveals two things about mechanical doping. First, for connoisseurs, mechanical doping does not add anything to the test of cycling. Second, it opens the door to the sport of cycling becoming about challenges that those who know the sport do not wish to test. For those two reasons, the sport of cycling can justifiably ban mechanical doping.

However, critics may sense that in such a conservative argument about a sport’s test, a type of essentialism lurks. Essentialism is a theory that holds that sports have certain inviolable or essential components. Violating these components means that one is no longer playing the sport. In short, the essential components of a sport define that sport. Critics of essentialism such as Simon point out that rule violations—and rule changes—frequently occur in sports without ruining their integrity (Simon 2004). Moreover, critics have shown that it is difficult to determine what counts as a central component of a sport and what does not. Thus my appeal to preserve a
sport’s test may strike some as an unjustified appeal for the preservation of a sport’s essential characteristics.

I harbor no such essentialist perceptions of sport. My defense of sporting tests against bans on mechanical doping avoids essentialism by asserting that sports can change if the change presents better or improved sporting tests. If the aficionados of a sport conclude that introducing such a technology improves the sport, even if it alters its central tests, the sporting community can adopt such a change. Yet if the technology introduces no perceived benefits, the sporting community can retain its well-built sporting tests as they are precisely because the old tests speak to that community. Rather than being essentialistic, the test-relevant approach proves flexible in the face of change.

Yet this flexibility reveals why PESs prove more vexing than mechanical doping. For many, it is unclear whether PESs harm sporting tests or improve them. In many ways, they appear to enhance sport as they allow humans to train harder, go farther, jump higher and run faster. For example, a PES that prevents fatiguing could allow athletes to play longer. Such substances could also open new skills, new strategies and new levels of complexity that all improve the test. Thus PESs may prove to allow people to train harder, participate more skillfully, and play longer. In other words, PESs do not squeeze out human agency and virtue, but actually give them more room in which to operate.

But PESs may also harm sport. Critics of PESs could argue that they, like mechanical doping, leave the sport relatively unchanged, but drive up costs and add undesirable layers of complexity. People would now have to get prescriptions for drugs and pay for them in order to be competitive at any level. PESs could also increase opportunities for games to be decided by undesirable characteristics. PESs may cause someone to lose or to win, even when they did not demonstrate superior skills. PESs may alter the balance of testing problems. As I have argued elsewhere (Gleaves 2010), sporting communities can justifiably ban PESs if they appear to harm
the sporting test by disrupting the balance between athletic performance and testing problems. For example, one could imagine a substance that makes marathons too easy to run or home runs too easy to hit. Moreover, as I have argued previously, sporting communities ought to be conservative about modifying established, durable sporting contests. If a sport has already proven itself enjoyable without PESs and the benefits of permitting PESs are uncertain, then it makes sense to maintain the bans rather than risk unexpectedly harming the sport through unanticipated changes. Such harm indicate that PESs may not improve sport, thus banning PESs may be appropriate.

At the same time, the bans on PESs have a number of unintended harms. Unlike with mechanical doping where enhanced machines are easily caught, anti-doping tests have proven frustratingly imprecise. Not all athletes are tested and many athletes have admitted to beating the tests. Innocent athletes have also been found guilty of anti-doping bans despite all parties acknowledging the athlete had no intention of cheating. At the same time, all great athletic performances now fall under the suspicion of being products of illicit enhancements. If PESs were permitted, the many problems posed by their bans would dissolve.

However, these arguments are not conclusive. As I previously argued, critics could make the case that PESs would improve certain sports. Yet the inconclusiveness of this debate reflects the general inconclusiveness over PESs. Although the majority of the sporting world may be set against the bans, the reason the bans remain hard to justify is that it is unclear whether such bans are preserving good sporting tests or preventing better ones. The only way to resolve such a question is to examine the effects of athletes using specific PESs such as steroids or EPO or stimulants in specific sports. In other words, the test-relevant approach indicates that if sporting organizations are going to justifiably ban PESs, they must determine the bans on a case-by-case basis. Certain sporting communities such as power lifting or cycling may determine that their
sports benefit by permitting athletes to use certain substances. Other sporting communities may conclude the opposite.

Therefore, while connoisseurs of cycling concluded that mechanical doping added nothing to the sport’s tests and created an undesirable slippery slope, PESs have far less obvious test-relevant implications. Some knowledgeable about a sport could argue that certain PESs benefit the sporting test while others do not view the changes as improvements. Moreover, it is unclear if permitting PESs would create slippery slopes in other sports that ultimately undermine their tests. Thus, the test-relevant approach reveals both why banning mechanical doping is clear-cut and why banning PESs is much less so. While second-order concerns about health may influence the debate, sporting communities have yet to address the test-relevant questions. The test-relevant questions remain largely unasked while communities focus on less central questions of health, naturalness, and agency.

Ultimately, the only way to answer such unasked questions is for a sport’s connoisseurs to specifically consider a substance’s effects on their sport’s tests. What matters is how specific sporting communities, communities that understand their sport well enough to determine whether a technology improves or harms a sport, view the relevant effects of a specific PES on their sport’s tests. In that sense, a universal prohibited substance list that applies for all sports will ultimately prove ineffective because different sports will have different attitudes about certain PESs. Those sports that determine a PES improves its tests ought to be permitted to sanction its use. Therefore, a test-relevant ban on a PES is fundamentally a contingent ban as sporting communities may later decide that a PES improves its test and reverse its decision to prohibit the substance.
Conclusion

While the issue of mechanical doping proved to be as morally unproblematic as it first appeared, it crystallized the fundamental issues at stake over PESs in a number of ways. First, investigating the ethics of mechanical doping allowed for a critical investigation of PESs without the negative connotations that typically make the debate so murky. Thus mechanical doping proved to be a useful device as it allowed for a debate beyond the traditional naturalistic or essentialist arguments typically used in the PES debate.

Second, by examining mechanical doping, it became apparent that for both mechanical doping and PESs, the central issue is not fairness or cheating. In both cases, it is clearly wrong to enhance one’s performance by means directly proscribed by the rules. Although debates over strategic fouling have shown that intentional rule violations are not always unethical, the intentional deceptive violation of rules in order to gain an advantage over opponents who do not violate the rules is wrong. Both with mechanical doping and PESs, once sporting organizations prohibit their use, any effort to deceptively use such technology to enhance ones performance is wrong.

At the same time, those who question the justification for current bans have often mistaken the issues at stake. When debating whether a sport is justified to have passed that rule in the first place, the fundamental question is not of liberty or freedom. Instead, the fundamental question is how a rule alters a sport’s testing or contesting problems. If such technology cannot be said to improve the sporting test, or if prohibiting such technology appears to harm the sport, then a sport is justified in permitting it. If a sport is harmed by incorporating such technology or by prohibiting the technology the sport is made better, then it can be said that a sport is justified to prohibit it.
Additionally, the test relevant approach shows that there is not an absolute answer to the PES question since there is not an absolute decision on whether a given PES improves or harms a specific sport. Future decisions to either permit or prohibit PESs will always rely on changing conceptions of what makes a sport desirable. Moreover, PESs appear to fit with some sports better than others. Certain sports, such as cycling or baseball, may be better suited to permit PESs as athletes in those sports have used PESs so often. Other sports, especially less technologically dependent sports such as running, may desire to keep PESs out so as to fit within the sport’s traditional characteristics. Either way, the future of PES bans will likely not be universal but specific to each sport, with different sports permitting different PESs.

Having argued that no philosophical claim has yet shown conclusively that sport and PESs conflict, I, too, reject the idea that there is anything inherent in the nature of sport or in PESs that prevent the two from coming together. In other words, it is conceivable that sports could one day permit athletes to use a PES. However, this position does not dismiss finding reasons for prohibiting PESs in certain sports. If such reasons existed, they would arise because introducing PESs made a sport worse than it was prior to PESs. Therefore, contingent reasons may exist for specific sporting communities to prohibit athletes from using PESs but they should remain open to the possibility that PESs or other technologies improve a sport. Certainly sporting communities would consult second-order concerns such as a technology’s cost, availability, cultural fit or unintended consequences. But if no mitigating factors arise, a sporting community would be ethically justified to permit such technology in sport. Thus the debate over mechanical doping in cycling reveals that contingent reasons that may justify banning PESs. However, because this prohibitionist rationale has only a contingent relationship to specific enhancements and to specific sports, sporting organizations ought to remain open to permitting such substances if they appear to improve a given sport.\textsuperscript{7}
Endnotes

1 Here my notion of cheating involves the notion of intent. Cheating necessarily means that one intended to break a rule to gain an advantage. Without intent, a rule violation may have occurred, but we would not call it cheating.

2 Boris Onischenko, while competing in the fencing events of the 1976 Olympics’ Modern Pentathlon, was found to have wired his sword so that he could trigger the electronic scoring system with his hand and register a hit at will. When Jim Fox, Onischenko’s opponent, protested vehemently that his opponent was managing to score without hitting him, officials examined Onischenko’s sword and disqualified him.

To date, no laser guided golf ball exists, although hypothesizing its potential existence has provided philosophers with much philosophical speculation and enjoyment.

3 I do admit that cycling likely has a good reason to permit battery-assisted shifting and prohibited mechanical doping. This is primarily because the two uses of power are different. The mechanical part of shifting is not a skill nor is it an endurance issue. But applying force to the pedals to make the bicycle move faster is. Thus the two are different by degree, but the difference in degree is enough that one ought to be prohibited and once can acceptably be permitted.

4 The under-the-table payment of amateur athletes led to a practice called “shamateurism,” where athletes pretended to be amateurs although receiving payment. In this example, the sporting organizations could not stop such payments and the enforcements had negative consequences for both innocent and offending athletes.

5 Many things contribute to a sport’s enjoyability such as good challenges, sensuousness of the sport, playability, durability and more. Altering such characteristics alter a test’s enjoyability. Performance enhancers can certainly affect the characteristics that make tests enjoyable thus what matters is how performance enhancers affect a test’s enjoyability via characteristics such as durability, playability, etc.

6 Such detachment is necessary in light of the loaded nature of the doping debate I outlined in Chapter Five.

7 Remaining open to permitting PESs should not be confused with permitting PESs. In the former—and what I advocate—remaining open to PESs means not dismissing their use out of hand. It means simply considering what permitting them would entail. Certainly if a PES presented serious costs or grave health risks, a sporting community could decide not to permit a PES that improves a sport. But to realize such second-order concerns, a sporting community would have to first be open to considering such a substance in a way that most sporting communities are not today.
Epilogue

Thus far, the thrust of my argument in this dissertation has been to disabuse anti-enhancement advocates of some of the myths and misinformation that typically characterizes prohibition arguments. In place of the myths, I have put forward a rational criterion for determining whether sports ought to prohibit or permit PESs—the test-relevant approach. I cautiously concluded that the test-relevant approach provides sporting organizations with contingent reasons for upholding the bans on PESs, but that the test-relevant approach does not close the door on PESs altogether like it does with mechanical doping. That is because PESs may not always harm a sport’s tests—and may, in fact, improve the sport—while at the same time the bans on PESs introduce unintended side-effects that damage certain aspects of sport.

Reasons for permitting PESs aside, the bans on PESs still reveal partial truths worthy of consideration. Sporting communities still perceive PESs as harmful to sport. Critics of PESs using the test-relevant approach could certainly worry that PESs may make a sport too easy, too costly, or send the sport down a slippery slope that will ultimately lead to the sport’s demise. Those would all be good reasons for upholding the bans.

Unfortunately, those are not the reasons most often cited for prohibiting PESs in sport. The reasons commonly cited for banning PESs include health concerns, fair play, legal issues, athletes as role models and the belief that PESs contradict the intrinsic nature of sport. Variants of these arguments appear in the World Anti-Doping Agency’s (WADA) Code and the International Olympic Committee’s Charter as well as the United Nation’s Education, Scientific and Cultural Organization’s (UNESCO) International Convention Against Doping, and Major League Baseball’s Mitchell Report. To be sure, these arguments do not hold water insofar as health, fairness, and the spirit of sport do not provide justification for the bans on PESs. As I argued in Chapter Four, the belief that doping is unfair, illegal or makes for poor role models is circular. As
for the pervasive fear that PESs are unhealthy, as I argued in Chapter Three, the health concerns are much less than typically assumed and, in fact, for many PESs they increase only when used unsupervised.

But despite the failings of such rationale, the anti-doping narratives (as there are more than one) put forward by these organizations continue to captivate the popular imagination. In fact, the anti-doping narrative has become so pervasive in sport that a recent study by the United States Anti-Doping Agency titled *What Sports Means in America: A Study of Sport’s Role in Society*, concluded that out of 9,000 respondents, the majority perceived PESs as the greatest threat to sport today (U.S.A.D.A 2011). A similar study shows the same pattern in Switzerland, where between 1995 and 2004, Swiss citizens became increasingly concerned with doping among top-level athletes and increasingly rejected the ideas of doping in sport (Stamm, Lamprecht et al. 2008). Yet these concerns of accelerated doping practices do not match the evidence. Of all of WADA’s 2009 drug tests (over 277,000 samples), less than 1% came back positive for a PES (Agency 2010). And despite the high profile media reports of certain doping scandals, there was not one confirmed case of a PES-related death of an elite athlete in 2010.

Thus with unpersuasive moral arguments against PESs and a lack of empirical evidence to support such perceptions, current anti-doping attitudes do not rest on an informed or rational foundation. Given this lack of rational support of anti-doping bans and the potential promise that PESs offer, the thrust of my argument has been to show that it is worth considering whether PESs may one day have a place in sport. That day, however, does not appear to be too soon. Clearly the vast majority of the sporting world does not want PESs in sport. And as irrational as their views may be, those who ignore cultural values do so at their own peril. So what should sporting communities do in the mean time?
First, I urge any change towards permitting PESs be done cautiously. Such caution is needed because many people still view PES, in one way or another, as contradictory to sport. Even a rational appeal about the relative safety of PESs or their historical ties to non-sporting concerns is unlikely to persuade the general public to accept PESs in sport any time soon. That is because anti-doping attitudes emerge from the belief that the desire to excel should not conflict with deeper meaningful narratives about healthy sport or sport’s fundamental value. People perceive PESs as a threat to sport because they fear that PESs are unhealthy, that they provide a shortcut to success, that athletes using PESs send a poor message to children. Others believe that PESs symbolize excessive devotion to performance, technology, efficiency, artificiality, inhumaness and many other characteristics that conflict with the meaning people derive from sport. ²

Certainly such beliefs selectively ignore other facts about sport. In serious competitive sport, for example, character development is often set aside in pursuit of victory. Training and competition at such levels often leave athletes playing through injuries. The time demands, even for certain high school and college-level sports, force athletes to neglect other important areas of their lives such as time with friends or family, academics, or developing skills necessary for later careers. Certainly there is little balance or health promoted at such levels of sport. The training, diet, coaching and performances that consume elite athletes’ lifestyles are clearly not natural. Moreover, the belief in sport as a meritocracy that fairly rewards hardworking and talented individuals overlooks the cold reality that sport rewards individuals who, through any number of “unfair” advantages such as wealth, genetics, opportunity or plain luck, succeed when others fail. ³

Yet despite these obvious inconsistencies in the anti-doping narrative, such beliefs persist. They persist, in part, because bureaucratic organizations such as WADA have a vested interest in maintaining anti-doping attitudes and, because of this, have promoted them. Yet they
also persist because they speak to the meaning that many people derive from sport. And this meaning will likely not be changed simply through rational argument.

Thus despite the allure of permitting athletes to use PESs, policy makers must respect the current cultural attitudes towards PES and any move towards their acceptance must be gradual. Indeed, sporting communities have no pressing reason to reverse the bans—PES-free sports are certainly popular. Additionally, the test-relevant approach produces ambiguous conclusions on PES use. It is unclear whether banning them or permitting them is the best option. Given the cultural and pragmatic reasons for maintaining the bans on PESs, people ought to be cautious towards wholesale reversal of the bans.

Along with caution, I also argue that sporting communities ought to reconsider their anti-doping policies, including the current testing policies, prosecution of offenders and punishments. Although today’s sporting world is decidedly more “anti-doping” than ever before, I suspect that the move towards severe doping policies is not the result of a coherent position supported by reasoned judgment. Instead, the majority of the sporting world’s views are shaped by reactionary policies that emerge on the heels of doping scandals. At the same time, bureaucratic organizations such as WADA, whose existence depends on the perceived threat from doping, continue to bang the anti-doping drums in order to ensure the entrenchment of anti-doping policies and secure their multi-million dollar budgets. Indeed, since WADA’s inception in 1999, anti-doping policies continue to favor sporting bureaucracies over the rights of athletes. Punishments have become more severe while athletes’ have fewer means for defending themselves from accusation.

Yet this pattern is both ill-advised and uniformed. As the doping scholar Verner Møller warns, “the greatest danger to sport are the many people of good will who do not seem to understand that their helping hands have sport in a stranglehold that will eventually choke the life out of it” (2008, 192). Although such people believe they are preserving sport from outside
harm, their unchecked drive towards harsher and harsher anti-doping policies may actually contribute to sport’s undoing.

These severe policies are dangerous because they are not supported with equally strong justification. Without good arguments, it is hard to justify why going to great lengths is necessary to prevent doping. Considering that PESs have been a part of sport since the beginning, we cannot really say that sport is under threat from doping. Other arguments, as I have argued, are at best based on contingent or partial truths. I am skeptical that contingent justification can support severe sanctions. Given the questionable necessity of banning PESs, sporting organizations ought to reconsider their draconian approach to enforcement. Anti-doping rules, like other contingent rules of sport, ought to reflect limited punishments equal to the seriousness of the infraction.

But caution and restrained policies—my first two suggestions—are really only about what sports should not do. In other words, they argue that sporting communities should not move too quickly and they should not create punishments that are too harsh. My last suggestion involves something that sports should do, which is experiment. I contend that sporting organizations ought to experiment with PESs to examine what effects PESs actually have on sport. This period of experimentation would go a long way towards replacing the myths and assumptions with facts and evidence. Primarily, a period of careful experimentation with new policies that permit athletes to use PESs would allow sporting organizations to objectively determine whether PESs really improve sporting tests, harm them, or produce no significant effect. After experimentation, a sporting community would have more objective reasons for deciding to alter the rules banning PESs. They may decide that PESs harmed their test or that the test is better without PESs or that PESs presented other unforeseen consequences. Certainly then deciding to ban PESs would be justified.

On the other hand, such open experimentation may push the sporting community in the other direction. After a period of competition with PESs, a sporting community may decide that
Their use is beneficial. Athletes and coaches may find that supervised PESs use allows players to recover from strenuous matches or workouts quicker. Players may enjoy the increased feeling of strength or being able to play longer without fatigue. Fans may find matches are more exciting, faster-paced, and played with less need for breaks. Additionally, a period of open experimentation with PESs may also cause cultural changes. Seeing athletes who use PESs may erode many people’s negative perception of the substances and the people who use them. Simply seeing how hard athletes have to work when PESs are available would dispel the myth that PESs are shortcuts or provide unfair advantages. Certainly allowing PESs to be openly used would allow scientists and medical personnel to more accurately understand the side effects of such substances. This information may lessen some of the cultural fear caused simply by the unknown effects of PESs.

In either case, a period of experimentation could provide sporting communities with objective, test-relevant justification to decide what role, if any, PESs ought to play in their particular sport.

The idea of experimentation in sport is certainly not new. Experimenting with PESs is similar to other types of experimentation sporting organizations have used when considering a rule change. For example, soccer’s governing body FIFA is currently experimenting with goal-line technology that can help determine whether a ball crossed fully into the goal. Other sports, including baseball, basketball, hockey and football have all experimented with using video replay on controversial calls before deciding to what extent video replay ought to be used. The fact that each sport decided to use video replay differently shows that experimentation can help specific sports determine for themselves to what degree they will embrace a change.

In fact, the sporting world has already entered this period of experimentation with PESs. Athletes have long experimented with testosterone, steroids, and blood-boosting substances. Although use of the substances was prohibited, the sporting world already has a rough idea of how an enhanced athlete performs. For example, we can look to baseball’s “steroid era” to see
how the game of baseball changed when many athletes used steroids. Thus we already have some
data on how PESs may affect certain sports.

Given that PES use will likely not completely destroy sport it is possible that more open
experimentation could occur. Like with video replay, sporting organizations can permit certain
PESs with an eye towards how they affect the game. After a period of experimentation, different
sporting communities may decide to permit different PESs. For instance, a sport such as Formula
1 auto racing might discover that cognitive enhancers like Modafinil or Adderall decrease the
number of crashes. Cycling might find that controlled use of EPO created fairer and more
exciting contests, especially in Grand Tours such as the Tour de France. Other sports could just as
easily choose to ban all PESs altogether. Swimming may decide that PESs have effects that are
similar to the ultra-fast swimsuits that they already banned. Since the swimming community has
asserted that preserving continuity in records and performances is an important part of their sport,
they may decide to ban PESs in order to keep their records comparable.

What is important here is that a period of experimentation helps sporting communities
determine for themselves what role PESs should play in their sport. This same approach of
experimentation followed by policy changes was used by the International Olympic Committee
(IOC) in the twentieth century as they shifted from all-amateur sport to sport that included
professional athletes. The IOC allowed each sporting federation to set their own policies based on
how professional sport fit into their vision of sport and the Olympic Games. This allowed
individual sports such as track and field or basketball to navigate the transition from amateur-
dominated sport to professional-dominated sport.

In fact, the transition from amateur sport to professional sport is a useful analogy for
today’s view towards PESs. That is because for much of twentieth century sport, the idea that
professional athletes would compete in high profile sports such as the Olympic Games or capture
the public imagination would have sounded as farfetched as the idea that athletes could ever
openly use PESs such as steroids. Amateurism was viewed by the vast majority of the sporting community as the best way to play sport. Amateur ideologues argued that true athletes would never compete for pay, that money degraded sport, and that past sporting communities such as the Greeks had competed simply for pride and not payment. It turned out that none of these were true. The Greeks had, in fact, paid their athletes. Additionally, critics discovered that having paid athletes was better than the period of under-the-table “shamateurism” that preceded it. Paid athletes could focus solely on their sport, and thus perform better for spectators. Finally, sport became more of a meritocracy by supporting athletes with athletic talent regardless rather than only those who had enough personal wealth to seriously pursue leisure activities.

The result of this cultural shift from amateurism to professional was both enormously significant and at the same time rather inconsequential. As the sporting world moved towards professional sport, organizations such as the International Olympic Committee, the Amateur Athletic Union and the National Collegiate Athletic Association dug in their heels. They feared what professional sport would look like—that seeing paid athletes compete would ruin sport’s appeal. But as sports gradually experimented with compensating athletes, these organizations and the public realized that little actually changed—the winners still won, fans still cheered, the drama of sport was still interesting, older meanings associated with amateur sport were replaced with different meanings. Eventually, the sporting world adopted the “professional” mindset. Little League baseball players and youth soccer players aspire to be professional athletes. Indeed, amateur athletes such as those in American universities are now expected to act like professionals—doing interviews, signing autographs, and dealing with negative press—although they are still viewed as amateurs. In fact, the term amateur has taken on pejorative connotations, indicating a dabbler or a dilettante rather than a committed athlete.

Could twenty-first century anti-doping sentiments go the same way as the twentieth century’s love of amateurism? I think so. Although philosophers are not in the business of
predicting the future, I do not think today’s anti-doping attitudes are permanent. First, absent at least some experimentation, anti-doping attitudes lack durable justification. The current justifications for anti-doping policies, as mentioned earlier, generally do not hold up to scrutiny. Second, people’s negative perceptions of PESs are likely to shift as they become more comfortable with pharmaceuticals playing a wider role in daily living. Thus like amateurism, future generations may view those who abstain from doping as dabblers not fully committed to excellence. They may find meaning in using all available technology to enhance athletes to their absolute maximum. Such a revised meaningful narrative is not a logical impossibility. Thus the anti-doping narrative, like the narrative of amateurism, is subject to revision. The more society becomes accustomed to “better living through modern medicine,” the less they will fear PESs playing a role in sports. Last, current anti-doping attitudes are largely tethered to today’s PESs. Once new PESs emerge—PESs that may be more culturally acceptable—anti-doping attitudes may also change. New substances might usher in new, more permissible sentiments.

Thus as was the case with amateurism, the public may come to see anti-doping attitudes as relics of a bygone era, symbols of values that no longer speak to them. Certainly today most people continue to at least partially believe the Victorian notion that sport is healthy, wholesome competition that builds character and is part of balanced life. With such views, many will feel that doping ought to play no role in any sporting endeavor. Yet these culturally-tethered objections are subject to revision. If sporting culture changes such that it no longer objects to PESs, sporting organizations will likely struggle to justify prohibiting PESs. As the popular support disappears, the foundation for today’s anti-doping principles will gradually erode. Once that occurs, sporting communities will likely begin the gradual process of permitting athletes to use certain PESs.

In conclusion, when I first contemplated writing a dissertation on doping, I feared creating an overly theoretical critique whose empty ideas in no way impacted pragmatically-oriented, real-world decisions. I feared the work could become a philosophical flight of fancy, an
academic game where arguments are moved like prescribed chess pieces leading to a philosophical checkmate—intellectually entertaining but practically useless. To guard against these temptations, I grounded the work in historical context and scientific evidence. I used such research to inform the questions I asked and the conclusions I reached. The result, I hope, provides not only original insights but practically relevant ones too.

Drawing upon established works in the field, I put forward and defended my theoretical assumptions about the nature and value of sport in contemporary society. I then argued that, in fact, the debate over doping in sport involved two different issues: the acceptable means to enhance performance and the issue of doping in sport. Subsequently, I attempted to flesh out these two issues in order to provide a clearer picture of the “PES topography” that scholars and sporting organizations must navigate. On the one hand, sporting organizations must remain open to the idea that performance-enhancing substances may improve, harm, or have no effect on well-established sporting tests. On the other, sports allow its participants to shape narratives about themselves. How we play sport matters. Altering the pharmacological landscape threatens the narratives that provide many people with sources of meaning.

At the same time, this work shows the benefits of engaging in cross-disciplinary, problem-based investigations. This work examined the ethics of banning PESs by using historical and scientific evidence to inform its philosophical arguments. At the same time, philosophical arguments, such as the limited effect of health concerns or the supposed assumption that PESs contradict a mythic spirit of sport informed historical research and scientific investigations. Placing these diverse fields next to each other allowed their conclusions to inform efforts to determine whether bans on PESs are justified. The result was a series of contingent conclusions that are consistent with the latest scientific evidence and conform to what historians have revealed about past sporting practices.
This does not mean that the doping debate is resolved. In fact, the most significant point that one can draw from this dissertation is that the PES debate will likely continue well into the future. This dissertation does not close the PES debate but rather shows where the PES debate needs to go. I have not resolved the issue but stripped the issue down. I have, at points, provided cursory suggestions for where the issue may go, but ultimately I have argued that the decision to ban or permit PESs rests with specific sporting communities making decisions about real PESs. In other words, I want more debate on the PES issue, not less.

Moving forward, sporting communities will benefit by understanding what, exactly, justifies anti-doping bans and what does not. As historian Thomas Hunt explains, “for many years, substantive reforms were rarely undertaken outside times of crisis” (2011, 135). The result, Hunt argues, were reactionary policies driven in larger part by political interests and built upon ad-hoc decisions. Rational reflection on the effects that PESs pose to sporting tests will yield improved policies. At the same time, attitudes towards PESs may change. More informed sporting organizations will likely prove more responsive to adjusting its policies towards enhancing technologies. Given the justifications for banning PESs in sport, it is clear that sporting communities ought to remain open to changing their current policies as future values and new technologies may alter the sporting landscape, but such organizations should also not ignore the contingent reasons to support today’s prohibitions on PESs.

Endnotes

1 Interestingly, in the latter study, the shift in public perception was directly linked to Swiss authorities’ increased anti-doping efforts.

2 To be sure, I am not arguing that doping is unhealthy, inhuman, artificial or any of the other characteristics; I am only asserting that people perceive doping as being those things. These perceptions are what drive the rejection of doping, which is a point I will return to later.
Certainly such unearned advantages are not based on merit but on uncontrollable factors. In that sense, it is hard to assert that wealth or genetics are fairly distributed.


For example, the punishment for doping has increased from a 14 day suspension to a two year suspension. Additionally, calls for increase suspensions of four years to lifetime bans as well as the removal of B sample testing further indicate this trend.
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