

9

**What Is Cheating?**



‘There is no good in arguing with the inevitable. The only argument available with an east wind is to put on your overcoat.’

**James Russell Lowell**

I have been a scientist for over 40 years—ever since I chose to dissect rather than eat the cod that my mother bought home from the fishmonger. But I am not a trained sociologist, philosopher or politician. So it would have been easy to write about doping control from a purely scientific perspective, focusing on how scientists try to measure drugs in an athlete’s urine or blood and how athletes try to avoid detection. However, the story is not as simple as that. I want to explore the future direction of testing and the likely winners and losers in any war on performance-enhancing drugs. However, to do this—as in any war—it helps to know the objectives and the end game. For only if we know what we are fighting about can we know what tools we need to develop. Or indeed whether we should have a war at all. Perhaps as suggested by some it is elite sport itself that is the problem, and doping merely the symptom.<sup>1</sup> Maybe one cannot exist without the other?

**Why wage a war on drugs in society?**

As we have seen before the use of drugs in sport is intimately linked to their wider pharmacological and recreational use in society. So it is not surprising that many of the same arguments have been marshalled in defence of banning drugs in both sport and in the wider society.

Recreational drugs are illegal for a range of historical reasons influenced by politics, culture and religion. They can be divided into three main areas: the health of the individual concerned, the health of other individuals or the health of society at large; put crudely the personal, the political and the moral. The current political climate in debate in most secular Western countries revolves around health and crime; yet even then, it is underpinned by wider issues of morality.

The first reason for making recreational drugs illegal is paternalistic; it stresses the physical harm they can cause to an individual. The counterpoint relates to how appropriate it is to restrict liberty in the name of enhancing personal health. John Stuart Mill made the original case for individualism when he argued that an individual is sovereign over his body and that the only purpose over which power can be exercised over a member of a civilised community is to prevent harm to others.<sup>2</sup>

When it comes to the health of the individual, it might seem we have indeed chosen this path of

non-interference. For example, paternalism has no place in extreme sporting activities. The arguments against mountain climbers or round-the-world solo yachters focus on the expense of a rescue if they get into trouble, rather than the dangerous activity itself. BASE jumping from buildings and other high places is one of the most dangerous extreme sports with a 1 in 60 annual chance of death. Yet the law does not focus on the health of the participant; the main legal threat aimed at those who jump from tall structures are charges of trespass or breaking and entering.

Yet when it comes to the population at large there are many cases of society acting paternalistically. Examples are not restricted to situations where it is deemed the person (e.g. a child) is not competent to judge what is in their own interests. Legislation is enacted frequently to protect an adult individual's health by denying access to a present pleasure on the grounds that it may ultimately prove harmful to them in the future. Perhaps surprisingly, given the regular criticism of the 'nanny state', people happily accept such laws forcing them to act healthily. So whilst legislating against mobile phone use in a car is clearly designed to reduce harm to other drivers, forcing people to wear seat belts is only of health benefit to the individuals concerned; likewise with motor cyclists and crash helmets. Yet failure to wear a seat belt in a car, or a crash helmet on a bike is illegal in many countries. Despite some complaints when these laws were first introduced, these restrictions on liberty are now commonly accepted and generally obeyed.

The second argument for criminalising the use of recreational drugs relates to whether the health of society as a whole is improved by making a drug illegal. Even the most extreme libertarians do not argue that we should allow people the freedom to harm others; the famous First amendment to the US constitution protecting free speech is not an excuse for someone to falsely shout 'FIRE!' in a crowded cinema.<sup>3</sup> So a legitimate case can be made that we should not permit a freedom (taking drugs) when that freedom results in quantifiable harm to others.

This debate tends to focus on more pragmatic grounds; for example whether making recreational drugs illegal would benefit the non-drug using section of society. Most of the harm recreational drug users do to others is quantified as increases in crime. Whether legalising drugs is a public good or evil therefore sometimes becomes a rather technical argument about police resources; is the cost of attempting to enforce the legislation justified by the reduction of crimes committed by drug users? Would legalisation increase or decrease anti-social activity and crime? In the UK reclassifying cannabis to make the penalties for its use less severe was justified to the public, at least in part, as enabling the police to focus their limited resources more efficiently on 'harder' drugs.<sup>4</sup>

The third case for maintaining a ban on recreational drug relates to the morality associated with their use. While altering the fine details of a criminal penalty is sometimes couched in rather technical statistics, this is rarely the case when arguments turn to complete decriminalisation or legalisation. As recreational drug use is viewed through a moral filter, discussions frequently become heated. This should come as little surprise. Drug use can alter the human emotional and spiritual, as well as physical state. It can change what we perceive, even for a short time and has the ability to affect who we are and how we view our place in the world.

In some religions the effects of drugs on mental state are viewed as a bad thing. Muslims are generally prohibited from taking alcohol in any form due to its potentially intoxicating qualities. The temperance movement, originating predominantly in nineteenth Century Protestantism, had similar goals. Yet whether it be the use of hemp vapour by the ancient Scythians<sup>5</sup> or the 1950s mescaline-induced visions of the humanist author Aldous Huxley,<sup>6</sup> drug taking has frequently been viewed as a profoundly enlightening spiritual experience. These practices have continued into the twenty-first century. For example members of the Native American Church in the USA are exempt from federal drug legislation relating to their use of the mescaline-containing cactus peyote.<sup>7</sup>

A pragmatic utilitarian view of drug legislation is clearly going to come up against these moral issues. Drugs have strong cultural resonance. This is not just a matter of organised religion; the hippies used drugs as part of a counter-culture movement. Indeed it can be argued that the use of LSD and cannabis in the

1960s as ‘a mind detergent capable of washing away years of social programming,’<sup>8</sup> helped create much of the moral backlash that underpins the debate today in western society.

## How does science inform legislation on recreational drugs?

Abolitionists often refer to the repeal of alcohol prohibition in the US in 1933 as how society could benefit from decriminalisation. Organised crime saw a decline in profits, with only a limited increase in alcohol intake by the population.<sup>9</sup> The response from the lawmakers is that alcohol use is not the same as heroin; the nature of the drug matters. Just like sport’s anti-doping agencies, government lawmakers categorise drugs. In many countries the basic laws prohibiting drug use are old such as the USA’s Comprehensive Drug Abuse and Prevention and Control Act of 1970 and the UK’s Misuse of Drugs Act of 1971. What does change—again there are sporting parallels—is the list of drugs that fall under the act and the sanctions that are imposed for their (mis)use.

When it comes to recreational drugs politicians and the popular press seem to favour the moral argument. In the words of a 2007 report, UK law is ‘driven more by “moral panic” than by a practical desire to reduce harm’.<sup>10</sup> This inevitably has the potential to lead to conflict when politicians, scientists and doctors interact. Nowhere was this more evident than in the case of David Nutt, who chaired the UK’s Advisory Council on the Misuse of Drugs. Part of this council’s remit is to advise government ministers on the scientific evidence that underpins the classification of drugs into three classes based on harmfulness. Possessing a Class A drug (the most harmful) is punishable by a maximum of seven years in prison; you can get up to five years for a Class B and two years for a Class C (the least harmful).

Nutt’s most infamous defence of his views were in a paper<sup>11</sup> entitled ‘Equasy—An overlooked addiction with implications for the current debate on drug harms’. It compared the harm from horse riding (equasy) to that from taking a current Class A drug (ecstasy). Nutt made the point that engaging in sporting activities with a horse is a far more dangerous activity than taking ecstasy; horse riding causes 1 adverse health consequence per 350 events compared to 1 per 10,000 with the drug. The point is clear even if Nutt is overzealous in places; counting the global warming effects caused by the methane emission from the horse as a harm to society is perhaps one of these instances.

What is less clear is what it really means to say that horse riding is more dangerous than ecstasy. For Nutt was well aware of the category error in a strict link between drug use and equestrianism. He was not—of course—calling for a ban on horse riding, but rather emphasising the sort of arguments that should be marshalled when discussing the ‘harm’ that a drug could do. However, it is clear that putting the argument in these terms is anathema to politicians. According to Nutt it led to the Home Secretary phoning him and accusing him of being a ‘legaliser’.<sup>12</sup> The ensuing moral outrage coupled to similar proclamations from Nutt about the relative harm of cannabis compared to other drugs ultimately led to his removal from the Drugs Advisory Council he chaired. The feeling that this decision was informed by political, rather than scientific, judgement led to the resignation of five other scientists from the Council. The negative consequences for how UK governments access independent scientific advice are still being felt to this day.

I use this story as just one of many examples where governments, and by extension many people in society, find it difficult to act purely on scientific evidence of relative harm when it comes to drugs policy. So how do the arguments for banning drugs in sport compare to those society uses for banning recreational drugs?

## Why wage a war on drugs in sport?

Barry Houlihan has summarised the historical arguments used to ban drugs in sport.<sup>13</sup> Firstly doping harms athletes; secondly doping is unfair to the athlete’s competitors; thirdly doping undermines sport in society. Contrast this with the arguments against recreational drugs. Firstly drugs harm an individual;



secondly drugs harm those with whom an individual interacts; thirdly drugs harm the moral structure of society. There are clear parallels in the first and third arguments. Even the second has resonance. For where a heroin user steals money directly from other people, a steroid dooper steals gold medals and fame from other athletes.

Does sport have a unique nature that makes it easy to legislate without controversy? Sometimes the waters can seem just as muddy<sup>13, 14</sup>. For it doesn't need Nutt's 'equasy' example to point out the obvious; athletes consciously and continuously put their health at risk without risking the ire of the sporting authorities. In some sports such as boxing the risks may be self-evident. However, they hold for any contact sport. In fact, it is a rare sport, contact or otherwise, that is not harmful to health at the elite level. Exercise may be good for you; elite sport demonstrably isn't.

Waddington and Smith illustrate this point with numerous relevant examples.<sup>14</sup> In the US, for example, the average length of career for an American football player is under four years, with injury being one of the main reasons for this lack of longevity. Between 1997 and 2007 on average five fatalities per year were directly attributable to American football, the majority of these being high school students.<sup>15</sup> In the round ball version, professional football players in the UK run a 1,000 times higher risk of injury than other so-called high-risk jobs such as construction and mining,<sup>16</sup> although it has to be said that in football incidents are only rarely life threatening. Trampolining at the highest level comes with an eighty per cent risk of stress incontinence. A UK House of Commons report in 2007 noted that, while it was difficult to ascertain the precise number of deaths caused by anabolic steroids worldwide, for it to be anywhere near the deaths caused by contact sports it would need to be in the hundreds or even thousands a year; it was suggested this was very unlikely to be the case.<sup>17</sup>

Not only is elite sport harmful to athletes, but it is also legal to take drugs that actively increase this harm. Most notably athletes regularly take high doses of anti-inflammatory drugs. Following retirement elite English football and cricket players like Gary Lineker<sup>18</sup> and Ian Botham<sup>19</sup> noted their relief at not having to deal with the stomach complaints associated with the side effects of these drugs. Botham claimed to have had to drink antacid solutions such as Gaviscon as if it were milk to counter the side effects of the drugs that enabled him to play in the first place. An even more extreme example is the case of Peter Elliott, the British athlete who won a silver medal in the 1988 Olympic games. He was only able to achieve this feat following five pain-killing injections in the space of seven days; he returned from the games on crutches.<sup>13</sup>

Basing a ban merely on drugs being harmful to athletes would of necessity result in elite sport itself being banned. So what about the second argument? Do drugs create an unfair playing field and so harm other non drug-taking athletes? Previous chapters in this book suggest that with the right genes and training regime drugs *may not* be necessary for top performance, at least in males. But this is clearly a debateable argument and certainly not true for female athletes. A sense of fairness is a powerful argument for fans who like to know that they are observing an event that is a true test of the athletes themselves. However, emotionally attractive as it is, basing a decision to ban drugs solely to level the playing field does not really stand up to close scrutiny. There are lots of cases where sport is not 'fair'. Athletes are always after 'the edge'—knowledge that will make the difference between success and failure. There is no desire to share this information with others. In most sports key information is a well-kept secret. Witness the British team that dominated the track cycling medals at the Beijing Olympics in 2008, claiming seven of the ten gold medals on offer. As well as a well-funded and well-oiled support infrastructure, this success was made more likely due to superior, though completely legal, equipment—termed 'technological doping' by its critics.

There is no doubt that being born in the UK in the 1980s meant that you were more likely to win a cycling gold medal in the Beijing Olympics than if you had the same genes, but were born in Morocco. Is it fair that rich athletes and countries can afford the best equipment? What about motor racing? It is well known in Formula 1 that the best driver doesn't always win—the car makes a difference. This contrasts with

IndyCar racing in the USA where all the cars are of standard construction and driver skill is the key differential.

Even without such technological enhancement, professionalism has historically been considered akin to cheating. Until 2002, the Olympic Games was formally barred to athletes who were paid for their sporting performance. Sometimes even trying too hard went against the ethos of sport as a glorious amateur pursuit. Anyone who has seen the movie 'Chariots of Fire' will note the disdain that Harold Abrahams is treated with for hiring a professional coach, Sam Mussabini, to help him win the 100 m gold medal at the 1924 Olympics. Similar concerns about the ethics of pacemakers bedevilled Roger Bannister's attempts at breaking the four-minute mile.<sup>20</sup>

Technological doping gives you an inside line to success. Unlike with drugs there is nothing in the sporting rulebook that requires fairness of opportunity with regards to this side of an athlete's preparation. Take the example of a sports scientist who devises a training and nutritional regime that guarantees a winning advantage to an athlete; they then couple this to a new sort of running spike that enables their charge to run even faster. There is no obligation to make this information public. This advantage would not be obvious to the observer of the event who would be unaware how biased the race was. However, if that nutritional programme involves drugs then it is deemed unfair from the start.

Therefore the second argument—fairness—cannot be the sole reason for banning drugs. Otherwise sports would need to address a lot more than just the drugs issue to level the playing field. In some sports the playing field is levelled artificially. For example in the ancient Olympics there were no weight categories. But in the modern Olympiad many gold medals (e.g. boxing, weightlifting) are restricted to people of certain weights. And of course males and females are segregated. If fairness were the main reason drugs were banned then many sports would need to address the kinds of issues that boxing and weightlifting have already done with their weight categories. In fact making drugs freely available could be said to reduce unfairness in sport as everyone would be playing to the same rules.

What about the third argument? Does doping undermine the integrity of sport in society? Here we are in a complex ethical area. The use of drugs to enhance sports performance is a subset of the growing area of human enhancement.<sup>21</sup> This includes present realities such as choosing the sex of your baby and future possibilities such as pills for IQ (Intelligence Quotient) enhancement or cybernetic implants. Ultimately this debate goes to the heart of what it is to be human. On the one hand we have the philosopher Michael Sandel who argues that enhancements reflect a drive to mastery and 'what the drive to mastery misses, and may even destroy is an appreciation of the gifted character of human powers and achievements'.<sup>22</sup> On the other hand we have futurists like Ray Kurzweil who view the eventual merger of human intelligence with technological implants as a 'slippery slope leading towards greater promise, not down into Nietzsche's abyss'.<sup>23</sup>

A similar debate exists in the sporting context. The Canadian Olympic medallist Angela Scheider has argued that doping undermines what it means to be human and therefore the strive for perfection in sport.<sup>24</sup> The alternative, more positive, view of sports doping has been advocated by Julian Savulescu who suggests that enhancing the chemical environment is no different than optimising any other aspects of the sporting process. Attempting to ban drugs does not only cheat athletes by creating an unfair playing field between those who choose to dope and those who don't, it cheats them by preventing them from realising their full potential.<sup>25</sup> As he says 'Performance enhancement is not against the spirit of sport; it is the spirit'. Drugs should be embraced rather than feared.

This is heady stuff. As a biochemist, I have some sympathy with Savulescu's views. Sometimes I am stressed and have trouble sleeping. So I take a pill to help me sleep, rather than dealing with the root cause of my stress. I may be too lazy to confront my problems, but I don't feel the pharmaceutical aid has made me any less human. Yet all drugs are singled out as being against the spirit of sport.

We should, however, pause before we slip too eagerly into the libertarian position. What would the sporting world look like in which there was no attempt to restrict chemical and genetic enhancements? In

terms of male sport perhaps not too different, at least on the surface. But in terms of female sport widespread anabolic steroid use would affect both the spectacle of the sport and the nature of the people taking part. This causes disquiet. When questioned in a sports ethics class<sup>26</sup> an audience of students felt that the steroid use by Ben Johnson made him a 'cheat'. But female steroid users were labelled 'gender freaks'. Of course there are subliminal issues relating to sexism here—real women are not supposed to be overly muscular. Nevertheless the concern that androgenic steroids can change who you are as a person is clearly a live issue for many people. There will surely be similar areas of concern in the future. We may not like the sporting world we create by unleashing the full power of biochemistry and genomics.

## How does sport control doping?

In the introductory chapter we saw the evolution of perceptions about performance enhancing drugs. Initially viewed as useful adjuncts to performance they subsequently became as demonised as a Class A drug such as heroin or cocaine. Historically the policing of drug use in sport was in the hands of individual sporting agencies, with the International Olympic Committee (IOC) at its fore. Many international sporting bodies are secretive and unaccountable. Occasionally light gets shone on the organisation by investigative journalists—witness the corruption that has occurred when bidding for host cities for the Olympics or football World Cup. Following Salt Lake City being chosen to host the 2002 Winter Olympics, allegations of bribery led to mass resignations and expulsions from both the organising committee and the IOC. Even as recently as 2010 members of the executive committee for football's governing body—FIFA—were suspended for breaches of the code of ethical conduct with regards to the choices of venues for the 2018 and 2022 World Cups.

While journalists have uncovered structural problems with the administration of high-level sport, it is perhaps significant that only when it comes to drugs do governments themselves get directly involved. In 1998 the French government via its customs and police force intervened in the Tour de France; many key team officials were charged with the criminal offence of supplying banned drugs to a sporting event. The IOC seemed to be losing control of the anti-doping battle to national agencies. In an attempt to assert their authority and set up their own worldwide anti-doping agency, the IOC convened a conference in their headquarters in Lausanne in 1999. In their book *An Introduction to Drugs in Sport* Ivan Waddington and Andy Smith (ref. 14) describe how the IOC were ambushed by the very same organisations and politicians they had invited to get approval for their new anti-doping agency. The UK Sports Minister, Tony Banks, led the criticism of the IOC; it was backed up by representatives from the USA, Canada, Australia, New Zealand and Norway. The European Union became involved, refusing to allow pharmaceutical companies and IOC sponsors to be part of any new body.

The result was the formation of the World Anti-Doping Agency (WADA) with a mission to 'promote, coordinate and monitor the fight against doping in sport in all its forms'. WADA effectively controls what constitutes doping—and how it is policed—in the vast majority of sports. The headquarters of WADA is sited in Montreal, well away from the IOC headquarters in Lausanne. The Chair of WADA alternates between governments, and the IOC and its funding, board and executive committee have 50:50 representation from the Olympic movement and governments. Given this governance structure it is not surprising that WADA's rules and regulations reflect governmental as well as sporting attitudes to drugs.

So what does WADA consider a doping offence and why? There are three rules governing WADA's anti-doping policy, mirroring the three arguments we have discussed earlier. Doping is considered to be:

1. the use of a substance or method that represents an actual or potential health risk to the athlete;
2. the use of a substance or method—alone or in combination with other substances or methods—that has the potential to enhance or enhances sport performance;
3. the use of a substance or method that violates the spirit of sport.



WADA define ‘the spirit of sport’ as the celebration of the human spirit, body and mind, characterised by values such as: ethics, fair play and honesty; health; excellence in performance; character and education; fun and joy; teamwork; dedication and commitment; respect for rules and laws; respect for self and other participants; courage; community and solidarity. We can only count our blessings that WADA is incorporated as a Swiss, rather than American, private law foundation; otherwise motherhood and apple pie would surely have been added to that list.

It is all too easy to mock. For we are back to where we started in [Chapter 1](#) with the nineteenth century upper class Englishman and his concepts of fair play, equality and competition. However, the third rule is not just about individual integrity. Sport is a business. It needs to be marketed as an ethical competition so that people—and indeed sponsors—feel happy about being associated with it. In this context, rule 3 could be viewed as an exercise in pragmatism. It looks bad if all the athletes are perceived to be on cannabis and cocaine, ergo it is bad. Yet this is perhaps too cynical. Rule 3 is an attempt to put doping in sport in a wider moral context. Its presence forces us to think of the sort of sport we want. The absence of such a rule makes as clear a statement as its presence.

So we have three rules. Yet their implementation by WADA is somewhat surprising. Unlike baseball it is not a case of three strikes and you are out; unlike cricket one ball alone cannot lose your wicket. Breaking two rules is the magic number. So even if a drug can enhance performance it is not automatically banned. Caffeine for example is potentially performance enhancing, but is no risk to health and is assumed not to violate the spirit of sport. So it is fine to take, at least as long as it is the form of a beverage. Put in a pill, with its pharmaceutical overtones, and WADA start to get concerned ([chapter 7 ref. 14](#))—the spirit of sport is being challenged.

Perhaps more surprising is the fact that a drug does not even have to be ‘performance enhancing’ to be on the banned list. It can get its two strikes by just being harmful to an individual and against the spirit of sport. WADA’s interpretation of the latter has pretty much included any recreational drug that is illegal; hence the appearance of cannabis and heroin on the list, substances for which there is no evidence that they improve performance. Rule 3 yet again shows the link between drugs in sport and drugs in society. It seems that if a government bans something in society WADA will ban it in sport, whether or not it is performance enhancing.

While it is hard not to feel that this policy is influenced by the fifty per cent of WADA that is government run and financed, things are not that simple. For example at a House of Commons Science and Technology Select Committee in 2007 the British Minister of Sport, Richard Caborn, railed against WADA trying to police society as well as sport. <sup>12</sup> He called for WADA to look seriously at removing social drugs from their prohibited list as, in his view, WADA is there to ‘root out cheats in sport’. The clear implication from the Minister is that it is the role of society—interpreted in his case as governments not WADA—to address drugs as a social issue.

As we have seen it is possible to provide counterpoints to each of the three rules underpinning banning drugs in sport. However, just because it is possible to pick holes in an argument, it does not mean that the opposite—permitting everything—is necessarily true. I agree with Houlihan here. <sup>13</sup> In Western society we hope our governments only make things illegal if they have a good reason to do so, rather than merely on a moral whim. In contrast, sport is full of arbitrary rules and we accept these all the time. It is here that the ethics of controlling doping in sport diverges from controlling drug use in society.

Some rules are obviously inherent to the sport itself. You are cheating if you pick the ball up and run in a football (soccer) match; you cannot throw a forward pass in a rugby match; you cannot run in a walking race. Some rules, though, are subtler. Baseball pitchers are not allowed to apply any fluid—whether spit or grease—on a baseball to impart changes in the trajectory to make it difficult for batters to hit. But it is perfectly legal, indeed a key part of the game, for cricket bowlers to spit and sweat on a ball in order to create conditions amenable for swing bowling, as long as they do not actively gouge bits out of the ball:

similar sports, different rules. Sporting rules are not just arbitrary, they change with time; the spitball was not banned in baseball until 1920. Athletes break these rules relatively frequently. They are caught cheat-ing in baseball (usually by using Vaseline) and in cricket (by gouging the ball with their fingernails or rubbing it roughly in the dirt). If they are caught they are punished appropriately.

Put in this context drugs could perhaps usefully be thought of as just another rule imposed by sport. As some sports—notably rugby—seem to alter their rules every year, the annual WADA banned list could be viewed as just that; a change in the rules. Of course I am not suggesting that rules against doping are of the same moral substance as rules that say football is a game of two halves, rather than four quarters. Nor that having quarters in American football makes it morally inferior to the game played in the rest of the world. However, in their essence sporting rules are pragmatic and part of the contract the athlete enters into with the sport. Can we take a similar pragmatic approach to drug taking? Does this make the ethics of drug use in sport less fraught than drug use in society?

Hence the pragmatic approach. The law is the law, ignorance is no defence, the authorities (in this case WADA) will punish you. Society will then judge what it feels about your punishment depending on how it views the crime. At the 2010 football World Cup in South Africa the Uruguayan player Luis Suarez illegally handled the ball to save a goal. This blatant piece of cheating prevented Ghana being the first African team to reach a World Cup semi final, making Suarez a villain in most of the world (apart from Uruguay of course). He broke the rules, was punished, and then society was able to make its opinion. The situation has clarity. However, this contrasts with another famous handball in the same World Cup year. The French star, Thierry Henry, handled the ball twice in the build up to a key French goal that knocked Ireland out of the cup. Though the offence was obvious to the TV cameras—and later admitted by Henry—the primary rule breaking was not detected by the referee at the time and was unpunished, leading to an unsatisfactory outcome. What the Thierry Henry incident tells us is that even a pragmatic, not overtly moralistic view of doping requires effective detection methods. Whether doping is viewed as evil or merely as a set of sporting rules to be obeyed, WADA must follow the same route. Create a list of banned substances and make sure you can get your scientists to detect anybody using them.

However, there are alternative proposals that would alter the whole rationale behind drug testing. Waddington<sup>27</sup> and Savulescu<sup>25</sup> argue that the sole purpose of anti-doping rules should be to protect the athletes' health. This idea that the only role a drug tester should play is in nonjudgemental health checks has something in common with attempts to help drug users in society. Indeed, as noted by Waddington, in 1994 in Durham in the north of Britain sport and society's treatment of drugs coalesced.<sup>27</sup> A mobile needle replacement service designed to prevent HIV transmission in drug users attracted a preponderance (sixty per cent) of bodybuilders; the bodybuilders were after not only clean needles, but also advice about drug side effects. Subsequently DISCUS (Drugs in Sport Clinic and Users' Support) was set up specifically for this group of users. This example shows how legalising doping could be done in the context of reducing—or at least minimising—harm to athletes.

Yet would lifting a ban increase usage and therefore result in increased harm to athletes? This argument is frequently made with regards to recreational as well as performance enhancing drugs. For example it is argued that legalising cannabis would increase drug use. This is a live question in society. But in sport we know the answer; there are real statistics to support the fear that legalisation increases use. Drugs that come off the WADA banned list are put on a separate monitoring programme where they are still tested for, but no penalties accrue for a positive result. Both caffeine and pseudoephedrine levels increased dramatically in athletes following their removal from the banned list in 2004. This led to the return of pseudoephedrine to the banned list in 2010; it may yet do the same for caffeine.

There seems little doubt that removing all bans for doping would increase drug use in sport. It is also difficult to see that maintaining a paternalistic ban on doping in children, whilst freeing restrictions for adults would be practical. At the very least illicit use by children would increase in line with that in adults. It would also change the formal role of doctors and biochemists from guardians of drug-free sport to



freelance advisers to sports teams, especially those that have funding to develop and test a drug programme. Academically I might relish the challenge; ethically I would fear it.

The question for those who feel that the health of the athlete is the key ethical issue is whether, as Waddington and Savulescu argue, bringing drug use into the open would be safer. Would more transparent medical monitoring compensate for increased use? This is a moot point. Athletes would still seek an edge. As they don't reveal their training schedules, it seems even less likely they would reveal their drug regimes. There is no guarantee that a doctor, scientist or coach willing to try out experimental combinations of drugs would be best placed to judge, or even care about, their long-term safety. Sporting bodies could not be seen to be actively managing a safe programme, if that programme involved the use of drugs that were illegal in the eyes of the government.

Pre-performance health checks, while of obvious benefit, would not stop potentially dangerous abuses in training. An individualised medical regime to safeguard all athletes outside competition would be even more expensive than the current random drug-testing paradigm. While allowing a biochemical free-for-all is ethically defensible—athletes are free individuals after all and can make informed choices about their health—the effects on the health of athletes are not trivial to predict. It seems likely that removing all restrictions on doping methods would on average do more harm than good; levelling the playing field to enable all to dope likely comes at some medical cost.

Whatever concerns we may have for the health of athletes the most common argument against doping remains that it is cheating. Yet why does doping have such disproportionate penalties, compared to other forms of cheating in sport? In football, diving in the penalty area when you have not been fouled can win you a penalty. Many players have admitted to trying to do this. If they are unlucky and get caught then they are given a yellow card. If they accumulate five yellow cards they are banned for one match. Contrast this to cheating by doping where you get a two-year ban for your first offence.

Why is doping so much worse? There are probably two reasons for this—one ethical and one more pragmatic. The ethical view is that many in society and sport have moral qualms about being associated with drugs, even without taking into account that it is bad for the image and bad for the sponsors. However a subtler, second argument can be made for these apparently harsh penalties. There is a tacit assumption that it is difficult to catch people for a doping offence. So when you do catch a cheat the punishment is extreme, in part to compensate for all the times they escaped capture in the past.

## The role of the scientist

Scientists have an important role in sports doping. In the first place they advise what compounds should be on the WADA banned list. This is an analogous role to scientific committees that advise governments on the safety of recreational drugs. In sport though, the scientists must judge performance effects as well as health risks. They frequently err on the extreme side of caution. This means putting a strike against a drug if it has even the remotest chance of being performance-enhancing or detrimental to human health. This is probably wise advice in the context of WADA trying to keep the appearance of a drug-free sport.

Were a more liberal approach to be taken to drugs, the scientific role could become more challenging. For example Bostrom and Sandberg have proposed an 'Evolutionary Optimality Challenge' for any proposed performance enhancement. This asks the question 'why, if an enhancement is so good, have humans not evolved to possess it already?'<sup>28</sup> If there is no satisfactory answer then we should be cautious about proceeding. In this context the evolutionary adaptations to living at very high altitude are illuminating. The red blood cell content of native Andean Indians (Quechua) living in a village in Chile at 3,700 m was compared to those of Sherpas living in Tibet at the same altitude.<sup>29</sup> The Quechua had evolved to combat the lack of oxygen in the air by increasing the number of red blood cells. This blood thickening is as high as is seen with EPO doping and is accompanied by similar potential problems with heart attack and stroke. In contrast the red blood cell increase was lower in the Tibetan Sherpas, who seem to have evolved to

increase oxygen delivery by an alternative safer mechanism. So in this case an Evolutionary Optimality Challenge might suggest that it is inappropriate to use EPO as the means of enhancing blood oxygen delivery; there are clearly healthier biochemical and physiological ways to achieve this same goal. However, intriguing as such an approach might be to academic biochemists, it is highly unlikely that such convenient examples will exist for most performance-enhancing drugs.

Scientists have a second role in the doping process that is more high profile—developing the methods and implementing the doping tests that result in athletes being stripped of their medals and banned from competition. As we shall see in the following chapter this role comes with its own significant technical and ethical challenges.