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Doping and Drugs in Sport is Volume 364 in the ‘Issues in Society’ series of educational resource books. The aim of this series is to offer current, diverse information about important issues in our world, from an Australian perspective.

**KEY ISSUES IN THIS TOPIC**

The use of illegal performance-enhancing drugs in elite sport, known as ‘doping’, is hidden in nature and increasingly widespread. Recent local and international doping scandals involving professional cyclists and football players have brought the issue of drugs in sport under greater scrutiny.

Catching drug cheats is essential if sports are to be conducted fairly and if harmful health effects from drug abuse are to be avoided. A number of sports are plagued by suspicions that many top athletes resort to drug-taking to enhance their performance through the use of such substances as anabolic steroids, human growth hormone, erythropoietin (EPO), beta-blockers, stimulants and diuretics.

This book examines anti-doping regulation in Australia and globally, and presents a range of opinions on the ethics of drugs in sport. Elite sports people are always seeking a competitive edge, to break records and win, sometimes at an ethical cost. What substances and methods are considered doping, and how can regulation and testing ensure all athletes have a sporting chance? Should drug cheats continue to be punished for doping, or should doping be made legal?

**SOURCES OF INFORMATION**

Titles in the ‘Issues in Society’ series are individual resource books which provide an overview on a specific subject comprised of facts and opinions.

The information in this resource book is not from any single author, publication or organisation. The unique value of the ‘Issues in Society’ series lies in its diversity of content and perspectives.

**The content comes from a wide variety of sources and includes:**

- Newspaper reports and opinion pieces
- Website fact sheets
- Magazine and journal articles
- Statistics and surveys
- Government reports
- Literature from special interest groups

**CRITICAL EVALUATION**

As the information reproduced in this book is from a number of different sources, readers should always be aware of the origin of the text and whether or not the source is likely to be expressing a particular bias or agenda.

It is hoped that, as you read about the many aspects of the issues explored in this book, you will critically evaluate the information presented. In some cases, it is important that you decide whether you are being presented with facts or opinions. Does the writer give a biased or an unbiased report? If an opinion is being expressed, do you agree with the writer?

**EXPLORING ISSUES**

The ‘Exploring issues’ section at the back of this book features a range of ready-to-use worksheets relating to the articles and issues raised in this book. The activities and exercises in these worksheets are suitable for use by students at middle secondary school level and beyond.

**FURTHER RESEARCH**

This title offers a useful starting point for those who need convenient access to information about the issues involved. However, it is only a starting point. The 'Web links' section at the back of this book contains a list of useful websites which you can access for more reading on the topic.
Doping in sport: the science of cheating

Why do some athletes cheat, and how can current anti-doping procedures be improved?

As another doping scandal hits the Tour de France, Rhiannon Elston from SBS World News talks to two experts about the science and the psychology behind doping in elite sports. Following is a Q&A with anti-doping expert Dr Alison Heather from the University of Technology, Sydney, and former Australian triathlete and former Olympic psychologist Gayelene Clews.

How does doping work to enhance performance in endurance sports such as cycling?
[Dr Alison Heather] Doping is used to boost muscle growth and repair and/or the body’s capacity to carry oxygen to the exercising muscles. Both increase the ability of the athlete to go faster, stronger and for longer.

What kind of adverse effects can doping cause to the body in the long term?
[AH] This really depends on what substance is taken but like any drug they all have adverse side effects. The worst case scenario is often premature heart disease.

How hard is it for athletes to tell the difference between banned substances and legal ones?
[AH] It can be extremely hard for athletes to tell the difference. This is because of the nutraceutical market. Nutraceuticals are sold as steroid-free, for example, but we often find that they contain quite potent steroids that would test positive in a drug test.

There is no grey area as such because there is a distinct list, however it is when these banned substances are disguised in nutraceuticals that athletes can run into trouble.

[Gayelene Clews] I think it would be extremely difficult because a lot of over-the-counter medication could also be on the banned list.

The Australian Sports Anti-Doping Authority has a website providing information that’s available to coaches and athletes.

There are also helplines where people can call in and make enquiries. The main thing is, if anyone’s getting a subscription or buying supplements, they need to go through the process of checking that they’re okay.

Are there any current trends for particular substances that are emerging at the moment?
[AH] Yes, they are constantly changing. They change as fast as we can detect them. The current detection methods require the structure to be known. If the structure gets modified then it can no longer be easily detected.

Doping is used to boost muscle growth and repair and/or the body’s capacity to carry oxygen to the exercising muscles.

There are organisations out there researching changes to avoid detection. The nature of substances like androgens is that they have complicated structures that can chemically be changed such that they avoid current detection methods.
Why do you think we’re seeing so many doping allegations within cycling and other sports at the moment?

[AH] There is always a drive to be faster and stronger and therefore there is a huge market for supplements that promote to athletes this will give you the edge. There is also the sporting culture that you need to be number one. Ask yourself, who came second in the Tour de France last year?

[GC] I think we’ve gotten better at testing. It would be a mistake to say that the incidents in sports have increased. The protocols we’re using for testing are getting better. The reasons for the ban are mainly the alleged health risks of performance-enhancing drugs, the equality of opportunity for athletes, and the alleged exemplary effect of ‘clean’ (‘doping-free’) sports for the public.

Given the severity of punishments and known adverse health effects, why do so many athletes take the risk?

[AH] Being number one earns you the glory but it also gets you the sponsorship deals. This is what brings in the money. You need to be at the top to be able to be a professional sports person or you simply cannot afford to live, train and keep up with the necessary equipment.

[GC] There are probably a whole lot of psychological, social and emotional reasons as to why athletes take that risk. You’d have some people coming from countries that see sport as a way of getting out of poverty. The doors that get opened to them can provide an opportunity that they would not be able to get any other way. Others may be highly narcissistic, and go through a process of rationalising in their head.

How effective are current anti-doping measures? Do they need improving?

[GC] Sometimes the question comes up whether we should just let it go or whether we should continue [testing for banned substances].

Certainly you start thinking, if these substances are helping recovery, it may not be so bad, but on the other hand, you’ve got all these young people coming into sport. The reason we can’t stop with the testing and let people do what they want is that it would be completely unreasonable if the only way an athlete can compete [at an elite level] is if they’re putting their body at risk. It does have to be tested, be managed and be monitored. I do think the idea of urinal or blood samples held for a period of time for retrospective testing would be a big deterrent for athletes.
Is there a limit to athletic performance?

A ceiling to human performance still seems a long way off, observes Kate Murphy

We once thought no one could run a mile in less than four minutes – and yet the current world record stands at three minutes, 43 seconds. So will records keep tumbling as people get fitter and technology takes off? Or is there a limit to human performance?

For physiologists, human performance is limited by the processes involved in energy production and muscle contraction. Performance in a 100m sprint depends on many processes, including the rate at which energy can be produced and used, the speed at which electrical signals can reach muscles, and the rate at which calcium can initiate muscle contraction and relaxation.

By comparison, marathon performance is dependent on the ability to use oxygen, store and use fat and glycogen for energy, and to keep muscle calcium levels high to maintain contractions. In hot conditions, the ability to sweat is also important for endurance performance.

Based on current knowledge, there should be a limit to these processes, and therefore a limit to human performance. But athletic performance does not depend solely on physiological processes, and improvements in other factors have helped us to far exceed the limits previously placed on human performance.

Causes of athletic improvement

Other factors contributing to athletic performance include psychology, nutrition, training methods and technology. Over the past few decades, leaps and bounds in each of these areas have advanced athletic performance. Technology is constantly evolving. In swimming, there have been major advances in the design of Olympic swimming pools, reducing turbulence and improving performance. Olympic pools are now deeper, have ten lanes instead of eight, and anti-wave lane ropes.

But it was the advent of ‘super suits’ in 2008 that caused the greatest improvements in performance. The super suits used polyurethane material to reduce drag and improve buoyancy: 255 world records were broken during the two years they were deemed legal.

The suits enabled swimmers to sit in a higher and more streamlined position in the water, and took away the advantage held by swimmers such as Michael Phelps, who naturally sat higher in the water. The suits were finally banned in 2009; but world records set by athletes using super suits have been allowed to remain. As a result, world records since the super-suit era have been, and will continue to be, few and far between.

Doping and performance-enhancing drugs have been obvious contributors to improvements in athletic performance. As our knowledge of the human body and the processes limiting athletic performance increases, so does the ability to illegally alter these processes to enhance performance.

Gene therapy is now being used to treat diseases associated with muscle wasting and weakness, but it may also be exploited to enhance athletic performance.

Constant improvement

Whether a ceiling to athletic performance will ever be reached depends on many variables, discussed below:

1. The first of these is the type of event. In sprint events – where physiological factors are the main determinant of performance – it’s possible we’ll one day reach a ceiling of human performance. But this is based on what we currently understand about the limits of physiological and biomechanical performance. There’s a lot about the human body that we still don’t understand, and improvements in our knowledge may reveal new limits to athletic performance.

Performance in endurance events doesn’t just rely on physiology and biomechanics. Because other variables are continuously evolving, it’s likely to take longer for a ceiling to be reached on endurance performance. We may never get there.

2. The answer also involves technology and the limits that are placed on technological advancements. In sports that rely heavily on technology – such as swimming and cycling – a ceiling might not be reached if limits are not placed on the magnitude of performance enhancement that new technology can bring.

3. A third variable involves doping and other illegal performance-enhancing practices. The success of the fight against doping depends on scientists’ ability to come up with tests to detect doping. This can be problematic when the doping involves manipulating proteins that are normally present in the human body. As long as the authorities remain one step behind those developing the latest doping technologies, it will be difficult for a ceiling on human performance to ever be reached. Usain Bolt has broken numerous world records since 2008.

4. Finally there are athletes, such as Usain Bolt, who have a physique and running technique we have never seen before, and all of the ceilings that we put on normal physical ability are simply thrown out the window. There is no doubt improvements in athletic performance have slowed down; but with athletes such as Bolt, and advancements in technology and our understanding of the human body, a ceiling to human performance still seems a long way off.

Kate Murphy is NHMRC Career Development Fellow at the University of Melbourne.


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Doping and Drugs in Sport

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The word *doping* is probably derived from the Dutch word *dop*, the name of an alcoholic beverage made of grape skins used by Zulu warriors in order to enhance their prowess in battle. The term became current around the turn of the 20th century, originally referring to illegal drugging of racehorses. The practice of enhancing performance through foreign substances or other artificial means, however, is as old as competitive sport itself.

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**Early years of doping**

Ancient Greek athletes are known to have used special diets and stimulating potions to fortify themselves. Strychnine, caffeine, cocaine, and alcohol were often used by cyclists and other endurance athletes in the 19th century. Thomas Hicks ran to victory in the marathon at the 1904 Olympic Games, in Saint Louis, with the help of raw egg, injections of strychnine and doses of brandy administered to him during the race ...

By the 1920s it had become evident that restrictions regarding drug use in sports were necessary.

**First attempts**

In 1928 the IAAF (athletics) became the first International Sport Federation (IF) to ban doping (use of stimulating substances). Many other IFs followed suit, but restrictions remained ineffective as no tests were performed. Meanwhile the problem was made worse by synthetic hormones, invented in the 1930s and in growing use for doping purposes since the 1950s. The death of
Danish cyclist Knud Enemark Jensen during competition at the Olympic Games in Rome 1960 (the autopsy revealed traces of amphetamine) increased the pressure for sports authorities to introduce drug testing.

In 1966 UCI (cycling) and FIFA (football) were among the first IFs to introduce doping tests in their respective World Championships. In the next year the International Olympic Committee (IOC) instituted its Medical Commission and set up its first list of prohibited substances. Drug tests were first introduced at the Olympic Winter Games in Grenoble and at the Olympic Games in Mexico in 1968. In the year before, the urgency of anti-doping work had been highlighted by another tragic death, that of cyclist Tom Simpson during the Tour de France.

**Tests begin to work**

Most IFs introduced drug testing by the 1970s, however, the use of anabolic steroids was becoming widespread, especially in strength events, as there was no way of detecting them yet. A reliable testing method was finally introduced in 1974 and the IOC added anabolic steroids to its list of prohibited substances in 1976. This resulted in a marked increase in the number of doping-related disqualifications in the late 1970s, notably in strength-related sports such as throwing events and weightlifting.

An EPO detection test (approved by WADA) was first implemented at the Sydney Olympic Games in 2000.

**United efforts**

In 1998 a large number of prohibited medical substances were found by police in a raid during the Tour de France. The scandal led to a major reappraisal of the role of public authorities in anti-doping affairs. As early as 1963, France had been the first country to enact anti-doping legislation. Other countries followed suit, but international cooperation in anti-doping affairs was long restricted to the Council of Europe. In the 1980s there was a marked increase in cooperation between international sports authorities and various governmental agencies. Before 1998 debate was still taking place in several discrete forums (IOC, Sports Federations, individual governments), resulting in differing definitions, policies, and sanctions. One result of this confusion was that doping sanctions were often disputed and sometimes overruled in civil courts.

The Tour de France scandal highlighted the need for an independent international agency, which would set unified standards for anti-doping work and coordinate the efforts of sports organisations and public authorities. The IOC took the initiative and convened the First World Conference on Doping in Sport in Lausanne in February 1999. Following the proposal of the Conference, the World Anti-Doping Agency (WADA) was established on November 10, 1999.
Types of performance-enhancing drugs

Performance-enhancing drugs are substances used by athletes to improve their performances. This brief overview on drugs in sport is courtesy of Wikipedia.

Although the phrase performance-enhancing drugs is popularly used in reference to anabolic steroids or their precursors (hence the colloquial term steroids’), world anti-doping organisations apply the term broadly.2

Stimulants stimulate the body and mind to perform optimally by enhancing focus, energy, and aggression. The phrase has been used to refer to several distinct classes of drugs:

➤ Lean mass builders drive or amplify the growth of muscle and lean body mass; sometimes they’re used to reduce body fat. This class of drugs includes anabolic steroids, xenoandrogens, beta-2 agonists, selective androgen receptor modulators (SARMs), and various human hormones, most notably human growth hormone, as well as some of their precursors.3 Performance-enhancing drugs are also found in animals as synthetic growth hormone.

➤ Stimulants stimulate the body and mind to perform optimally by enhancing focus, energy, and aggression. Some examples are caffeine, amphetamine, and methamphetamine.4

➤ Painkillers mask athletes’ pain so they can continue to compete and perform beyond their usual pain thresholds. Blood pressure is increased causing the cells in the muscles to be better supplied with vital oxygen. Painkillers used by athletes range from common over-the-counter medicines such as NSAIDs (e.g. ibuprofen) to powerful prescription narcotics.

➤ Sedatives are sometimes used by athletes in sports like archery which require steady hands and accurate aim, and also by athletes attempting to overcome excessive nervousness or discomfort. Alcohol, diazepam, propranolol, and marijuana are examples.

➤ Diuretics expel water from athletes’ bodies. They are often used by athletes such as wrestlers, who need to meet weight restrictions. Many stimulants also have secondary diuretic effect. (Also used as a masking drug)

Diuretics expel water from athletes’ bodies. They are often used by athletes who need to meet weight restrictions.

➤ Blood boosters increase the oxygen-carrying capacity of blood

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beyond the individual’s natural capacity. Their misuse is centered on endurance sports like cycling and nordic skiing. EPO is the most publicly known drug in this class.

The classifications of substances as performance-enhancing drugs are not entirely clear-cut and objective.

Masking drugs are used to prevent the detection of other classes of drugs. These evolve as quickly as do testing methods – which is very quick indeed – although a time-tested classic example is the use of epitestosterone, a drug with no performance-enhancing effects, to restore the testosterone/epitestosterone ratio (a common criterion in steroid testing) to normal levels after anabolic steroid supplementation.

Definition
The classifications of substances as performance-enhancing drugs are not entirely clear-cut and objective. As in other types of categorisation, certain prototype performance enhancers are universally classified as such (like anabolic steroids), whereas other substances (like vitamins and protein supplements) are virtually never classified as performance enhancers despite their significant effects on athletes’ performance.

This is because athletes can get the correct amount of protein and supplements their body needs by having a proper diet. As is usual with categorisation, there are borderline cases; caffeine, for example, is considered a performance enhancer by some athletic authorities but not others.

REFERENCES
DANGERS OF DOPING: GET THE FACTS
SAFETY ADVICE FOR YOUNG PEOPLE FROM THE WORLD ANTI-DOPING AGENCY

WHAT’S THE BIG DEAL?
Most medication on the Prohibited List can be bought at a pharmacy – so they must be safe to use, right?

No! Medications are for people with specific health issues – not for healthy athletes. They were not approved to be used by healthy people, in higher doses and in combination with other substances.

WHAT ABOUT DIETARY OR NUTRITIONAL SUPPLEMENTS?
“All-natural. Pure. Fast results.” Beware!

Supplement companies are not highly regulated – meaning you never know what you are taking. There could be a banned substance in your ‘all-natural’ supplement.

WHAT’S AT RISK?
All medications have side effects – but taking them when your body doesn’t need them can cause serious damage to your body and destroy your athletic career.

All medications have side effects – but taking them when your body doesn’t need them can cause serious damage to your body and destroy your athletic career.

WHAT ELSE SHOULD YOU KNOW?
Methods
There are also methods of administering substances or manipulating your physiology that are banned. These methods can also have negative effects on your body.

For example:
Blood doping, including having blood transfusions to change the way your blood carries oxygen to the rest of your body, may result in:
➤ An increased risk of heart failure, stroke, kidney damage and high blood pressure
➤ Problems with your blood – like infections, poisoning, overloading of your white cells, and reduction of platelet count
➤ Problems with our circulatory system.

HIV/AIDS
As with any injectable drug, using a syringe to dope puts you at a higher risk for contracting infectious diseases such as HIV/AIDS and hepatitis.

WHAT HAPPENS TO AN ATHLETE WHO USES?
Steroids
Steroids may make your muscles big and strong, BUT ... you may become dependent on them and they may:
➤ Give you acne
➤ Make you bald
➤ Increase your risk of liver and cardiovascular disease
➤ Give you mood swings
➤ Make you more aggressive
➤ Make you suicidal.

Guys, you may also look forward to:
➤ Shrinking testicles
➤ Breast growth
➤ Reduced sex drive and even impotence
➤ Decrease in sperm production.

Ladies, you may look forward to:
➤ Deeper voice
➤ Excessive facial and body hair
➤ Abnormal menstrual cycles
➤ An enlarged clitoris.

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EPO
EPO (erythropoietin) may help with the way your body uses oxygen, BUT ... why risk it when it may lead to death?
Using EPO may make your blood more like honey – thick and sticky – than water.

Trying to pump this thick blood through your veins may:
► Make you feel weak – not good when you are trying to train hard!
► Give you high blood pressure
► Make your heart work so hard that you have a heart attack or stroke (even at your age).

Stimulants
Stimulants are used to heighten the competitive edge, BUT ... how edgy would you feel if you:
► Can’t sleep (insomnia)
► Have involuntary shaking or trembling
► Have problems with your coordination and balance
► Are anxious and aggressive
► Develop an increased and irregular heart rate
► Have a heart attack (imagine dying of a heart attack at your age!) or stroke.

These are the effects that using stimulants may have on your body.

hGH
hGH (human growth hormone) makes your muscles and bones stronger and recover faster, BUT ... it is not only your muscles that get bigger.

Using hGH may lead to:
► Acromegaly – protruding forehead, brow, skull and jaw – which can’t be reversed
► An enlarged heart that can result in high blood pressure and even heart failure
► Damage to your liver, thyroid and vision
► Crippling arthritis.

Masking agents
Some athletes try to cheat the system by using diuretics and other substances to cover up the signs of using banned substances.

The side effects can definitely affect your ability to compete and train.

You may:
► Become dizzy or even faint
► Become dehydrated
► Get muscle cramps
► Have a drop in blood pressure
► Lose coordination and balance
► Become confused and moody
► Develop cardiac disorders.

Narcotics
Narcotics like heroin and morphine may help you forget about the pain, BUT ... how competitive do you think you’d be with a:
► Weakened immune system
► Decreased heart rate and suppressed respiratory system (you can’t compete if you are dead)
► Loss in balance, coordination and concentration
► Gastrointestinal problem like vomiting and constipation
► Narcotics are also highly addictive – your body and mind quickly become dependent on them.

Marijuana
Marijuana, cannabis, pot – whatever you call it, IT IS BANNED.
Whether you are a pot-head or a casual user, marijuana may have a negative effect on your athletic performance and your health.

Using may:
► Reduce you memory, attention, and motivation – even result in learning disabilities
► Weaken your immune system
► Affect your lungs (chronic bronchitis and other respiratory diseases, even throat cancer)

Some supplement companies are not highly regulated ...
There could be a banned substance in your ‘all-natural’ supplement.
Doping and Drugs in Sport

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Doping in sport is considered one of the most egregious things an athlete can do – and when it occurs at the Olympics it is all the more shocking.

The reality of the situation is that no one actually knows how many athletes dope and get away with it, observes Dr James Connor and Dr Vanessa McDermott

Former track and field star Marion Jones, who won five gold medals at the Sydney Games, never failed a drugs test. On October 5, 2007, Jones admitted to lying to federal agents about her use of steroids before the 2000 Olympics and pleaded guilty at the US District Court for the Southern District of New York.

So just how many drug cheats might there be at the Games?

The simple answer is we really have no idea. Estimates range from the ‘official’ answer of 2% right up to 35% depending on the approach of the research.

The World-Anti-Doping Agency (WADA) and the national equivalents (ASADA here) carry out drug testing on elite athletes and have consistently detected a prevalence rate of about 2% over the past decade. Based on WADA’s own statistics, that means at least 200 (of the 10,000 or so) athletes in London are doping.

They won’t catch all of them as only every medal winner, and half of all participants will be tested, taking the likely number caught to about 100. If we remove the dozen already sent home, then across the next two weeks we should have at least 90 cases of confirmed doping.

To put the numbers into historical perspective, tests caught 11 (0.47%) in Sydney, 26 (0.74%) in Athens and 20 (0.42%) in Beijing (including six horses). All these figures are considerably below the long-term average of 2% and below the 100 cases we should see in London (the total number of athletes was 10,000-11,000 in each Games).

The reality of the situation is that no one actually knows how many athletes dope and get away with it.

It is important to remember that the outcry and zealous response to doping in sport is out of all proportion to the actual effect it has on performance.

WADA’s figure only represents those who got caught. Current research, using a variety of techniques, has estimates ranging from 5% to 35% of athletes doping.

A study of the blood profiles of track athletes collected since 2001 showed that 14% engaged in blood doping – but with a clear variation based on the runner’s nationality, perhaps indicating a return to the
When athletes are asked how many other athletes are using, they guess about 10%. A recent German study showed that actual doping rates were eight times the testing rate, so in the case of WADA’s 2% one could assume a rate of 16% of athletes doping.

Athletes get away with doping using a variety of means. They use drugs that are undetectable (‘the clear’ in Jones’ case). They modify their doping and training regimens to only use when least likely to be tested. They only take enough of a substance to stay below the critical test thresholds. They cheat the tests — through a variety of means. There is also the implication that doping may be organised by some governments.

Doping is central to sport arguments about ‘a level playing field’ and drugs will remain an issue at the Olympics.

It is important to remember, however, that the outcry and zealous response to doping in sport is out of all proportion to the actual effect it has on performance. You will never be an elite athlete because you had the best drugs — what they do is make an athlete a little bit better, which in the context of the 100-metre sprint may be the difference between a gold medal and placing.

The real differences in athletic performance come from the wealth differences among countries. Ask yourself why we rarely see Third-World athletes in highly technical or equipment-expensive sports. If your country has the money you can have the medals. Nutrition, equipment, facilities and paid time to train are all far more important and effective than drugs.

Nonetheless, doping is central to sport arguments about ‘a level playing field’ and drugs will remain an issue at the Olympics. A perusal of the statistics shows though that the athletes likely to get caught in London will be the ‘unlucky’ ones — plenty must be getting away with it.

Dr James Connor and Dr Vanessa McDermott are sports researchers with the University of NSW in Canberra.
John Fahey, the President of the World Anti-Doping Agency (WADA), promised before the London Olympics that anti-doping testing at Games would employ the latest advancements and would be as rigorous as possible. A number of athletes were banned for doping violations before the Games began. But how big is the problem? What percentage of athletes are involved in illegal drug use?

The data suggest that doping is a relatively rare occurrence. But few regard such statistics as a reliable measure of the true incidence of doping.

Each year WADA gets data on analytical results from its accredited anti-doping laboratories. In 2009 there were 35 WADA-accredited laboratories, conducting a combined total of 277,928 analyses. A total of 5,610 samples – or 2.02% of the complete sample – produced either ‘adverse’ or ‘atypical’ findings.

In their reports, WADA representatives stressed that an adverse or atypical finding is not the same as an adjudicated or sanctioned anti-doping rule violation. That’s because some athletes are allowed to use substances for therapeutic reasons. So it would be incorrect to assume that the incidence of doping is 2.02%; in all probability it is lower.

Let’s look at Australia’s data from 2009. According to WADA, 6,834 samples were analysed, with 41 adverse analytical findings (an incidence rate of 0.6%). In the reporting period for 2008-09, the Australian Sports Anti-Doping Authority conducted 7,498 biological tests of athletes, resulting in 29 athletes or support personnel being entered into the Register of Findings of anti-doping rule violations.

The incidence rate for doping violations in the period was thus 0.39%, which is (as expected) lower than the incidence rate of 0.6% reported for adverse or atypical findings reported for all sports by WADA. Data from other countries reveal a similar incidence rate for detected doping violations.

The Sydney Olympics was initially lauded as a victory for anti-doping campaigners. But more medals have been stripped from cheating athletes after Sydney than any Olympics before or since.

The data suggest that doping is a relatively rare occurrence. But few regard such statistics as a reliable measure of the true incidence of doping. Essentially, these figures merely tell us how many athletes have tested positive, not how many are actually using drugs and avoiding detection.

In 2006, every player in the USA’s National Hockey League was tested between January 15 and the end of the season. There were 1,406 tests, and no positive results. The NHL testing period ends at the start of the playoffs and only resumes at the start of the following season, a five-month gap. Penn State University Professor Charles Yesalis offered the following blunt commentary on the NHL policy: “You would have to be an idiot to get caught under a system like that – an absolute moron”. Similarly, the International Olympic Committee has been accused of lacking commitment to detecting drugs in sport. The Sydney Olympics was initially lauded as a victory for anti-doping campaigners. But more medals have been stripped from cheating athletes after Sydney than any Olympics before or since, including those from Marion Jones.

In part, people think the IOC lacks commitment because in 2000 it rejected new testing procedures that subsequently identified seven Sydney athletes using erythropoietin (commonly known as EPO).
The test was not recognised at the time, so the identities of the seven known EPO users have not been disclosed.

The above data suggest that incidence of doping is perhaps as low as less than half of 1% of athletes. But the true incidence of doping in sport is difficult to quantify.

At one extreme, the answer is zero; at the other extreme the answer is everyone.

Ettore Torri, a magistrate and head of the Italian Olympic Committee’s legal commission on anti-doping, said of the Italian cycling team: “All the riders are taking drugs.”

Somewhat predictably, the truth probably lies somewhere in between those two positions. There isn’t likely to be one simple answer since doping is almost certainly more prevalent in some countries, in some sports and among particular types of athletes.

At any rate, by the time anti-doping testing laboratories have developed a test for a particular substance, users will have already moved on to another substance for which a test has not yet been developed. This has given rise to an often quoted maxim: “The cheats are ahead of the testers.”

What we do know is that if you want to know the incidence of drug use in sport, you shouldn’t assume the data from anti-doping laboratories, or the number of athletes caught at the London Olympic Games, indicates how many athletes are taking drugs.

James Skinner is Head of Department, Tourism, Leisure, Hotel and Sport Management, Griffith Business School at Griffith University.

**The Conversation**

The commission’s chief, John Lawler said he is hopeful that the investigation will result in criminal charges.

The commission’s 12-month inquiry found that organised crime syndicates are involved in the distribution of Performance and Image Enhancing Drugs (PIEDs).

“Despite being prohibited substances in professional sport, peptides and hormones are being used by professional athletes in Australia, facilitated by sports scientists, high-performance coaches and sports staff. Widespread use of these substances has been identified, or is suspected by the ACC, in a number of professional sporting codes in Australia,” the report said.

“In addition, the level of use of illicit drugs within some sporting codes is considered to be significantly higher than is recorded in official statistics.”

Because investigations are ongoing, the report did not identify the clubs or players who stand accused of doping, but said that “officials from a club have been identified as administering, via injections and intravenous drips, a variety of substances, possibly including peptides.”

Overseas experience had showed that the involvement of organised crime in sport may lead to match fixing, the report said.

David Rowe, Professor of Cultural Research at University of Western Sydney, said he was not surprised by the report’s findings.

“The thing I am interested in is the intermeshing of the sport and gambling industries,” he said.

“The more involvement you have [of sport and gambling], the greater the temptation to try and change the odds.”

At stake was not just the professional integrity in sport but also a significant amount of public money, he said.

“At local, state and federal government levels, there is a significant amount of [financial] support for sport,” he said, adding that public money was also spent on bidding for and hosting events like football’s Asia Cup, which will be held in Australia in 2015.

Players and crime figures could conspire to fix the whole game or just minor parts of a match, such as when a goal is scored, he said.

“The gambling industry is already weighted against the gambler in all forms and if the match is fixed, then you have no chance unless you accidentally win or you are part of the fix,” he said.

“The majority of gamblers are going to lose under those circumstances.”

Professor Rowe said the report came at a “really important time for sport.”

“We have an obligation to make sure we treat it very seriously and respond accordingly,” he said.

The report said the problem crossed several codes and that two major codes had been briefed on its findings and asked to respond.

Dr Mike Pottenger, a lecturer in Statistics and Political Economy at the University of Melbourne and an expert in organised crime pointed to a section of the report that warned that “if left unchecked, it is likely that organised criminals will increase their presence in the distribution of peptides and hormones in Australia.”

“The initial concern is not just that the distribution of peptides will increase, but also that other organised criminal activity will grow and expand as a result,” he said.

“It’s often the case that organised crime will use those established networks to traffic other prohibited substances, like hard narcotics or weapons, particularly if and when those established networks are lucrative.”

All Australians, not just those who follow sport, have an interest in addressing this issue, said Dr Pottenger.

“The other problem is that wherever organised crime exists, it involves corruption of public officials.”

Dr Bob Stewart, Associate Professor in the School of Sport and Exercise Science at Victoria University said it was important to keep the report in perspective.

“Initially, I thought this is a bombshell but on reflection, I think it’s not as serious as it first appears. Some of these issues have already been identified before and the peptide issue has been around for a while,” he said.

“But the widespread use has been exposed in this report.”

Associate Professor Stewart said it was important to separate out the issue of match fixing by criminal gangs and supply of illicit substances by criminal gangs.

“I don’t think the gangs have infiltrated the clubs structures. I think the gangs may have influenced some club officials and one or two sports scientists but that’s about all.”

INTERVIEWED

David Rowe is Professor of Cultural Research at the University of Western Sydney.

Mike Pottenger is Lecturer, Statistics and Political Economy at the University of Melbourne.

Bob Stewart is Associate Professor in the School of Sport and Exercise Science at Victoria University.

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ORGANISED CRIME AND DRUGS IN SPORT

NATURE OF THE THREAT

Despite being prohibited substances in professional sport, peptides and hormones are being used by professional athletes in Australia, facilitated by sports scientists, high-performance coaches and sports staff. Widespread use of these substances has been identified, or is suspected by the ACC, in a number of professional sporting codes in Australia. In addition, the level of use of illicit drugs within some sporting codes is considered to be significantly higher than is recorded in official statistics.

The ACC has also identified that organised crime identities and groups are involved in the domestic distribution of PIEDs, which includes peptides and hormones. If left unchecked, it is likely that organised criminals will increase their presence in the distribution of peptides and hormones in Australia.

The ACC has identified significant integrity concerns within professional sports in Australia related to the use of prohibited substances by athletes and increasing associations of concern between professional athletes and criminal identities.

Further key findings, summarised into relevant topics are outlined below.

THE PIEDS MARKET

The PIEDs market in Australia is large and diverse, with a wide range of substances being used by a broad cross-section of the community.

PIEDs previously considered to only be available to elite athletes and used in sophisticated sports doping programs due to the expense and complexity of their administration, are now widely available. A highly profitable and organised market has been established around the sourcing and supply of new generation PIEDs.

The growth hormone releasing peptide (herein referred to as ‘peptides’), hormone and anabolic steroid markets are assessed by the ACC to be one and the same, with individuals trafficking anabolic steroids also distributing peptides and hormones.

THE ROLE OF ORGANISED CRIME

Organised criminal identities and groups are active in the trafficking of PIEDs that are being used by elite athletes in Australia. Organised crime groups are taking advantage of the current legislative and regulatory situation whereby persons and entities who supply certain substances to athletes which are prohibited under the WADA Code do not commit a crime in Australian jurisdictions. However, athletes who use the substances face substantial sporting bans. This is a significant legislative and regulatory vulnerability.

Professional sport in Australia is highly vulnerable to organised criminal infiltration through legitimate business relationships with sports franchises and other associations. This is facilitated by a lack of appropriate levels of due diligence by sporting clubs and sports governing bodies when entering into business arrangements.

There is also increasing evidence of personal relationships of concern between professional athletes and organised criminal identities and groups.

USE BY PROFESSIONAL ATHLETES

The ACC has identified widespread use of peptides and hormones by professional athletes in Australia. Given that many of these substances are prohibited for use by athletes by WADA, athletes who use these substances have potentially committed anti-doping rule violations.

While intelligence confirms the use of peptides in major sporting codes, it further suggests that individuals in a range of other codes may also be using peptides.

Multiple players across some sporting codes and specific clubs within those codes are suspected of currently using or having previously used peptides, which could constitute an anti-doping rule violation. The level of suspected use of peptides varies between some sporting codes, however officials from a club have been identified as administering, via injections and intravenous drips, a variety of substances, possibly including peptides. Moreover, the substances were administered at levels which were possibly in breach of WADA anti-doping rules.

The use of peptides and hormones is linked to a culture
in some professional sports in Australia of administering untested and experimental substances to athletes in the hope they will provide an advantage in the highly competitive world of professional sport. In some instances, the substances are not yet approved for human use.

In addition to elite athletes using peptides and hormones, these substances are also being used by sub-elite athletes competing at various levels of competition, for example at the state and club level.

Illicit drug use by professional athletes is more prevalent than is reflected in official sports drug testing program statistics, and there is evidence that some professional athletes are exploiting loopholes in illicit drug testing programs.

THE ROLE OF SPORTS SCIENTISTS, COACHES AND OTHER FACILITATORS

Some coaches, sports scientists and support staff of elite athletes have orchestrated and/or condoned the use of prohibited substances and/or methods of administration.

Sports scientists are now influential in professional sport in Australia, with some of these individuals prepared to administer substances to elite athletes which are untested or not yet approved for human use.

In many Australian sporting codes, sports scientists have gained increasing influence over decision making within the clubs. Some sports scientists and doctors are experimenting on professional sportspersons in an effort to determine if particular substances can improve performance without being detected.

Complicit medical practitioners are a key conduit through which peptides and hormones are being supplied to athletes and other individuals on prescription. In some cases, medical practitioners who are prescribing peptides, hormones and other PIEDs are engaging in lax, fraudulent and unethical prescribing practices, such as prescribing controlled drugs in false names.

Some anti-ageing clinics have been identified as a key source of supply of pharmaceutical grade WADA-prohibited PIEDs to athletes, in some cases without prescription.

THE IMPORTANCE OF SPORT IN AUSTRALIA

Internationally and domestically, sport has become a highly profitable global enterprise. Based on the latest Australian Bureau of Statistics data, in 2006 the total annual income generated by the sport and recreation industry in Australia was estimated at A$8.82 billion, a figure which will have grown substantially since then. Apart from the direct contribution of sport to the Australian economy, there is intangible value from the success of Australian teams and athletes on the international stage and the ability to showcase Australia on the international stage when it hosts major events.

The concept of fair play is a key foundation for amateur and professional sport in Australia. The Essence of Australian Sport, a document produced last year by the Australian Sports Commission (ASC) in consultation with the sports industry, provides a statement on what sport in Australia stands for – its core principles and values.

This document notes: “Australians are proud of their sporting ability and reputation as a nation of good sports, and our society expects high standards of behaviour from all people involved in sport.”

The ACC and ASADA have identified significant issues in professional and sub-elite sport in Australia which undermine the principles of fair play as a direct consequence of the use of PIEDs.

The importance of fairness is identified as one of the key principles in The Essence of Australian Sport. The document states that players of sport at all levels should strive to uphold the principles of fairness and operate in the spirit of the rules, never taking an unfair advantage, and making informed and honourable decisions at all times.

It goes on to state: “... it is vital that the integrity of sport is maintained. The main responsibility for this lies with decision makers at every level of sport, who should ensure that all policies, programs and services are based on the principles of fairness, respect, responsibility and safety.”

Apart from the potential impact on spectators and their loss of faith in sport arising from integrity issues around the use of prohibited substances, the increasing link between sports and wagering markets means the issues identified by the ACC and ASADA also have major implications for the integrity of sports betting markets. Individuals and teams engaged in the use of prohibited substances have an unfair advantage, which can be exploited by persons with inside information.

While there is a long history of betting on sports, the market has expanded significantly in recent years with growth of up to 13 per cent annually. Betting on racing remains the largest betting market in Australia, increasing 69 per cent between 2000-01 and 2010-11. Wagering on other sports increased by 278 per cent over the same period.

NOTES

3. ibid., p.2.
4. ibid., p.2.
5. Racing includes thoroughbred horse racing, and harness and greyhound racing.
6. In 2000-01, of the estimated A$12.8 billion wagered on racing and other sports in Australia, A$3880 million was wagered on sports other than racing. In 2010-11, A$23.5 billion was wagered on racing and sports in Australia, with A$53.3 billion being wagered on sports other than racing. Australian Racing Board Limited 2011, Australian Racing Fact Book: A guide to the Racing Industry in Australia, Australian Racing Board, Sydney.
The federal government is exploring ways to strengthen ASADA’s powers to investigate doping cheats, writes Australia’s Minister for Sport, Senator Kate Lundy.

News of the explosive report released by the United States Anti-Doping Agency (USADA) earlier this month has rocked the cycling world to its core. Lovers of sport have been left reeling and now face the stark realisation that sophisticated doping infiltrated road racing at an elite level.

The scandal has devastated fans, damned the legacy of many of cycling’s greatest champions and unfortunately shattered the integrity of the sport of cycling.

Pages of evidence, testimony of former teammates and friends, demonstrated to the world that doping in sport was now a sophisticated business. Further it revealed that those who wanted to cheat the system, their fans and themselves, made every effort possible to cover it up to avoid exposure and prosecution for doping.

Like many with a love of sport, I was deeply distressed at the seemingly entrenched and systemic nature of the doping revealed to be so prevalent among some of the world’s best professional cyclists.

Put simply, doping is cheating. Doping ruins sport for everyone. It only cheats the fans and honest athletes and competitors who play by the rules, stay clean and work hard to reach their potential.

Put simply, doping is cheating. Doping ruins sport for everyone. It only cheats the fans and honest athletes and competitors who play by the rules, stay clean and work hard to reach their potential. Dopers wreck the integrity of sport. Kids look up to our elite athletes and those that dope undermine the trust bestowed by fans, spectators and the community.

The Government firmly believes that to maintain the integrity of sport we must ensure all the resources and agencies we have at our disposal are utilised to their maximum potential. It is timely that we examine what options there are to strengthen the regime against doping in sport and to show leadership internationally.

This has been a tough week for sport lovers, particularly those that follow cycling. Through ASADA this Government will continue to work to keep Australia at the forefront of the fight against doping cheats.
What is the World Anti-Doping Code?

The World Anti-Doping Code (Code) is the document that harmonises regulations regarding anti-doping in sport across all sports and all countries of the world. The Code provides a framework for anti-doping policies, rules, and regulations for sport organisations and public authorities.

The World Anti-Doping Code provides a framework for anti-doping policies, rules, and regulations for sport organisations and public authorities.

How do sports organisations implement the Code?

Signatories must make sure that their own rules and policies are in compliance with the mandatory articles and other principles of the Code. WADA assists signatories by reviewing their anti-doping rules to ensure that they are Code-compliant and, where this is not the case, by offering assistance to remedy the situation.

How do governments implement the Code?

Many governments cannot be legally bound by a non-governmental document such as the Code. Governments have accordingly drafted, pursuant to the Code, an International Convention under the auspices of UNESCO, the United Nations body responsible for education, science, and culture, to allow formal recognition of WADA and the Code. The UNESCO-led International Convention against Doping in Sport was unanimously adopted by the 33rd UNESCO General Conference in Paris in October 2005 and went into force in February 2007. UNESCO Member States are now working to ratify it individually according to their respective constitutional jurisdictions.

What can WADA do to apply the Code?

WADA closely monitors doping cases and has the right to appeal to the Court of Arbitration for Sport for cases under the jurisdiction of organisations who have implemented the Code. WADA also has powers of intervention in ensuring that Therapeutic Use Exemptions (TUEs) are consistently granted. WADA’s role in the TUE process is two-pronged: the Agency reserves the right to monitor and review any TUE granted by a federation or anti-doping agency; and athletes who requested a TUE and were denied can ask WADA to review that decision. If WADA determines that a denial of the TUE did not comply with the International Standard, the Agency can reverse the decision.

In addition, as the guardian of the World Anti-Doping Code, WADA is required to report formally on stakeholder compliance with the Code (Code Article 23.4.4).

What happens if a sports organisation or a government does not comply with the Code?

WADA reports cases of non-compliance to its stakeholders who have jurisdiction to impose sanctions, including the International Olympic Committee (IOC). The Olympic charter was amended in 2003 to state that adoption of the Code by the Olympic movement is mandatory. Only sports that adopt and implement the Code can be included and remain in the program of the Olympic Games.

If a country does not ratify the International Convention against Doping in Sport, it may be subject to sanctions from the IOC and from other sports organisations, including losing the right to host Olympic Games.

What is the situation of professional leagues and sports organisations outside the Olympic movement in relation to the Code?

Members of these leagues must comply with the Code when they take part in events or tournaments under the jurisdiction of organisations that have implemented it, for example National Basketball Association or National Hockey League players playing at the Olympic Games or at World Championships. WADA is in contact with a number of these leagues and, with the support of governments and other sports organisations, hopes that all of them will accept and implement the Code in order to have one single standard for all athletes in all sports and in all countries.

Will there be changes in the Code in the next few years?

The Code is a living document, and WADA ensures it evolves regularly by engaging in extensive consultation and thorough review of the Code and its associated International Standards on a periodic basis. Amendments to the original Code went into force on January 1, 2009, and further changes may occur in the future if necessary.

Article 23.6 of the Code states that: “WADA shall initiate proposed amendments to the Code and shall ensure a consultative process to both receive and respond to recommendations and to facilitate review and feedback from athletes, signatories and governments on recommended amendments. Amendments to the Code shall, after appropriate consultation, be approved by a two-thirds majority of the WADA Foundation Board including a majority of both the public sector and Olympic Movement members casting vote.”

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THE LATEST PROHIBITED LIST FROM THE WORLD ANTI-DOPING AGENCY

The official text of the Prohibited List shall be maintained by WADA and shall be published in English and French. In the event of any conflict between the English and French versions, the English version shall prevail. This List came into effect on 1 January 2013.

THE 2013 PROHIBITED LIST WORLD ANTI-DOPING CODE

Valid 1 January 2013

In accordance with Article 4.2.2 of the World Anti-Doping Code, all Prohibited Substances shall be considered as ‘Specified Substances’ except Substances in classes S1, S2, S4.4, S4.5, S6.a, and Prohibited Methods M1, M2 and M3.

PROHIBITED SUBSTANCES

S0. Non-approved substances

Any pharmacological substance which is not addressed by any of the subsequent sections of the List and with no current approval by any governmental regulatory health authority for human therapeutic use (e.g. drugs under pre-clinical or clinical development or discontinued, designer drugs, substances approved only for veterinary use) is prohibited at all times.

S1. Anabolic agents

Anabolic agents are prohibited.

a. Anabolic Androgenic Steroids (AAS)

Exogenous® AAS, including:

1-androstenediol (5α-androst-1-en-3β,17β-diol);
1-androstenedione (5α-androst-1-en-3,17-dione);
bolandiol (estr-4-en-3β,17β-diol);
bolasterone;
boldenone; boldione (androsta-1,4-diene-3,17-dione);
calusterone; clodione; danazol ([1,2]
oxazolo[4',5':2,3]-pregna-4-en-20-yn-17β-ol);
dehydrochloromethyltestosterone (4-chloro-17β-hydroxy-17α-methylandrosta-1,4-dien-3-one);
desoxymethyltestosterone (17α-methyl-5α-androst-2-en-17β-ol);
drostanolone;
edylestrenol (19-norpregna-4-en-17α-ol);
fluoxymesterone; formebolone; furazabol (17α-methyl[1,2,5]oxadiazolo[3',4':2,3]-5α-androst-17β-ol);
gestrinone; 4-hydroxytestosterone (4,17β-dihydroxyandrost-4-en-3-one);
mestanolone;
mesterolone; metenolone; methandienone (17β-hydroxy-17α-methylandrosta-1,4-dien-3-one);
methandiol; methasterone (17β-hydroxy-2α,17α-dimethyl-5α-androstan-3-one);
methylidenolone (17β-hydroxy-17α-methylestra-4,9-dien-3-one);
methyl-1-testosterone (17β-hydroxy-17α-methyl-5α-androst-1-en-3-one);
methyltestosterone (17β-hydroxy-17α-methyl-5α-androst-4-en-3-one);
methyltestosterone;
metribolone (methyltrienolone, 17β-hydroxy-17α-methylestra-4,9,11-trien-3-one); mibolerone; nandrolone; 19-norandrostenedione (estr-4-en-3,17-dione); norboleton; norclostebol; norethandrolone; oxabolone; oxandrolone; oxymesterone; oxymetholone; prostanoloz (17β-[tetrahydropran-2-yl]oxy]-1H-pyrrozolo[3,4:2,3]-5α-androstane); quinbolone; stanozolol; stenbolone; 1-testosterone (17β-hydroxy-5α-androst-1-en-3-one); tetrahydrogestrinone (17β-hydroxy-18α-homo-19-nor-17α-pregna-4,9,11-trien-3-one); trenbolone (17β-hydroxyestr-4,9,11-trien-3-one); and other substances with a similar chemical structure or similar biological effect(s).

b. Endogenous® AAS when administered exogenously:
adrestenediol (androst-5-en-3β,17β-diol);
adrestonedione (androst-4-en-3,17-dione);
dihydrotestosterone (17β-hydroxy-5α-androstane-3-one); prasterone (dehydroepiandrosterone, DHEA, 3β-hydroxyandrost-5-en-17-one); testosteron; and their metabolites and isomers, including but not limited to:
5α-androstan-30,17α-diol;
5α-androstan-30,17β-diol;
5α-androstan-3β,17α-diol; 5α-androstan-3β,17β-diol; androst-4-en-3α,17β-diol;
androst-4-en-3α,17α-diol; androst-4-en-3β,17β-diol;
androst-5-en-3α,17α-diol; androst-5-en-3α,17β-diol;
androst-5-en-3β,17α-diol; androst-5-en-3β,17β-diol; 4-androstenediol (androst-4-en-3β,17β-diol); 5α-androstenedione (androst-5-en-3,17-dione); epitadihydrotestosteron; etiitestosterone;
etiocholanolone; 3β-hydroxy-5α-androstan-17-one;
3β-hydroxy-5α-androstan-17-one; 7α-hydroxy-DHEA; 7β-hydroxy-DHEA; 7-keto-DHEA; 19-norandrosterone; 19-noretiocholanolane.

2. Other Anabolic Agents, including but not limited to:

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Clenbuterol, selective androgen receptor modulators (SARMs), tibolone, zeranol, zilpaterol.

For purposes of this section:
* ‘exogenous’ refers to a substance which is not ordinarily capable of being produced by the body naturally.
** ‘endogenous’ refers to a substance which is capable of being produced by the body naturally.

S2. Peptide hormones, growth factors and related substances

The following substances and their releasing factors are prohibited:
1. Erythropoiesis-Stimulating Agents [e.g. erythropoietin (EPO), darbepoetin (dEPO), hypoxia-inducible factor (HIF) stabilisers, methoxy polyethylene glycol-epoetin beta (CERA), peginesatide (Hematide)];
2. Chorionic Gonadotrophin (CG) and Luteinizing Hormone (LH) in males;
3. Corticotrophins;
4. Growth Hormone (GH), Insulin-like Growth Factor-1 (IGF-1), Fibroblast Growth Factors (FGFs), Hepatocyte Growth Factor (HGF), Mechano Growth Factors (MGFs), Platelet-Derived Growth Factor (PDGF), Vascular-Endothelial Growth Factor (VEGF) as well as any other growth factor affecting muscle, tendon or ligament protein synthesis/degradation, vascularisation, energy utilisation, regenerative capacity or fibre type switching; and other substances with similar chemical structure or similar biological effect(s).

S3. Beta-2 agonists

All beta-2 agonists, including all optical isomers (e.g. d- and l-) where relevant, are prohibited except inhaled salbutamol (maximum 1,600 micrograms over 24 hours), inhaled formoterol (maximum delivered dose 54 micrograms over 24 hours) and salmeterol when taken by inhalation in accordance with the manufacturers’ recommended therapeutic regimen.

The presence in urine of salbutamol in excess of 1,000 ng/mL or formoterol in excess of 40 ng/mL is presumed not to be an intended therapeutic use of the substance and will be considered as an Adverse Analytical Finding unless the Athlete proves, through a controlled pharmacokinetic study, that the abnormal result was the consequence of the use of the therapeutic inhaled dose up to the maximum indicated above.

S4. Hormone and metabolic modulators

The following are prohibited:
1. Aromatase inhibitors including, but not limited to: aminoglutethimide, anastrozole, androsta-1,4,6-triene-3,17-dione (androstatrienedione), 4-androstene-3,6,17 trione (6-oxo), exemestane, formestane, letrozole, testolactone.
2. Selective estrogen receptor modulators (SERMs) including, but not limited to: raloxifene, tamoxifen, toremifene.
3. Other anti-estrogenic substances including, but not limited to: clomiphene, cyclofenil, fulvestrant.
4. Agents modifying myostatin function(s) including, but not limited to: myostatin inhibitors.
5. Metabolic modulators:
   a. Insulins
   b. Peroxisome Proliferator Activated Receptor δ (PPARδ) agonists (e.g. GW 1516), PPARδ-AMP-activated protein kinase (AMPK) axis agonists (e.g. AICAR).

S5. Diuretics and other masking agents

Masking agents are prohibited. They include: Diuretics, desmopressin, plasma expanders (e.g. glycerol; intravenous administration of albumin, dextran, hydroxyethyl starch and mannitol), probenecid; and other substances with similar biological effect(s). Local administration of felypressin in dental anaesthesia is not prohibited.

Diuretics include: Acetazolamide, amiloride, bumetanide, canrenone, chlorothalidone, etacrynic acid, furosemide,
indapamide, metolazone, spironolactone, thiazides (e.g. bendroflumethiazide, chlorothiazide, hydrochlorothiazide), triamterene; and other substances with a similar chemical structure or similar biological effect(s) (except drosiprenone, pamabrom and topical dorzolamide and brinzolamide, which are not prohibited).

The use In- and Out-of-Competition, as applicable, of any quantity of a substance subject to threshold limits (i.e. formoterol, salbutamol, cathine, ephedrine, methyl-ephedrine and pseudoephedrine) in conjunction with a diuretic or other masking agent requires the deliverance of a specific Therapeutic Use Exemption for that substance in addition to the one granted for the diuretic or other masking agent.

PROHIBITED METHODS

M1. Manipulation of blood and blood components

The following are prohibited:

1. The administration or reintroduction of any quantity of autologous, homologous or heterologous blood or red blood cell products of any origin into the circulatory system.
2. Artificially enhancing the uptake, transport or delivery of oxygen, including, but not limited to, perfluorochemicals, efaproxiral (RSR13) and modified haemoglobin products (e.g. haemoglobin-based blood substitutes, microencapsulated haemoglobin products), excluding supplemental oxygen.
3. Any form of intravascular manipulation of the blood or blood components by physical or chemical means.

M2. Chemical and physical manipulation

The following are prohibited:

1. Tampering, or attempting to tamper, in order to alter the integrity and validity of Samples collected during Doping Control. These include but are not limited to urine substitution and/or adulteration (e.g. proteases).
2. Intravenous infusions and/or injections of more than 50 mL per 6 hour period except for those legitimately received in the course of hospital admissions or clinical investigations.

M3. Gene doping

The following, with the potential to enhance sport performance, are prohibited:

1. The transfer of polymers of nucleic acids or nucleic acid analogues
2. The use of normal or genetically modified cells.

PROHIBITED SUBSTANCES

S6. Stimulants

All stimulants, including all optical isomers (e.g. d- and l-) where relevant, are prohibited, except imidazole derivatives for topical use and those stimulants included in the 2013 Monitoring Program*

Stimulants include:

a. Non-specified stimulants:

Adrafinil; amfepramone; amiphenazole; amphetamine; amphetamine; amphetamine; benfluorex; benzphetamine; benzylpiperazine; bromantan; clobenzorex; cocaine; cropropamide; crotetamide; dimethylamphetamine; etamivan; famprofazone; fencamine; fenfluramine; fencamfamin; fenprofazone; fenproporex; furfenorex; mefenorex; methylenedioxymethylamphetamine; methylenedioxymethamphetamine; methylenedioxymethylamphetamine; modafinil; norfentanyl; phenmetrazine; phenmetrazine; phentermine; p-phenylpiracetam (carphedon); prenylamine; prolintan. A stimulant not expressly listed in this section is a Specified Substance.

b. Specified Stimulants (examples):

Adrenaline**; cathine***; ephedrine*****; etamivan; etilefrine; fenbutrazate; fencamfamin; heptaminol; isomethetene; levmetamfetamine; meclofenoxate; methylenedioxymethylamphetamine; modafinil; norfentanyl; phenmetrazine; phenmetrazine; phentermine; 4-phenylpiracetam (carphedon); prenylamine; prolintane. A stimulant not expressly listed in this section is a Specified Substance.

S7. Narcotics

The following are prohibited:

Buprenorphine, dextromoramide, diamorphine (heroin), fentanyl and its derivatives, hydromorphone, methadone, morphine, oxycodone, oxymorphone, pentazocine, pethidine.

S8. Cannabinoids

Natural (e.g. cannabis, hashish, marijuana) or synthetic delta-9-tetrahydrocannabinol (THC) and cannabinimetics.

* The following substances included in the 2013 Monitoring Program (bupropion, caffeine, nicotine, phenylephrine, phenylpropanolamine, pipradol, synephrine) are not considered as Prohibited Substances.

** Local administration (e.g. nasal, ophthalmologic) of Adrenaline or co-administration with local anaesthetic agents is not prohibited.

*** Cathine is prohibited when its concentration in urine is greater than 5 micrograms per milliliter.

**** Each of ephedrine and methylenedioxymethylamphetamine is prohibited when its concentration in urine is greater than 10 micrograms per milliliter.

***** Pseudoephedrine is prohibited when its concentration in urine is greater than 150 micrograms per milliliter.
Doping and Drugs in Sport

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P1. Alcohol
Alcohol (ethanol) is prohibited *In-Competition* only, in the following sports. Detection will be conducted by analysis of breath and/or blood. The doping violation threshold (haematological values) is 0.10 g/L.

- Aeronautic (FAI)
- Archery (FITA)
- Automobile (FIA)
- Karate (WKF)
- Motorcycling (FIM)
- Powerboating (UIM)

P2. Beta-blockers
Unless otherwise specified, beta-blockers are prohibited *In-Competition* only, in the following sports.

- Archery (FITA) (also prohibited *Out-of-Competition*)
- Automobile (FIA)
- Billiards (all disciplines) (WCBS)
- Darts (WDF)
- Golf (IGF)
- Shooting (ISSF, IPC) (also prohibited *Out-of-Competition*)
- Skiing/Snowboarding (FIS) in ski jumping, freestyle aerials/halfpipe and snowboard halfpipe/big air.

Beta-blockers include, but are not limited to, the following:
Acebutolol, alpenrolol, atenolol, betaxolol, bisoprolol, bunolol, carteolol, carvedilol, celiprolol, esmolol, labetalol, levobunolol, metipranolol, metoprolol, nadolol, oxprenolol, pindolol, propranolol, sotalol, timolol.

S9. Glucocorticosteroids
All glucocorticosteroids are prohibited when administered by oral, intravenous, intramuscular or rectal routes.

(e.g. “Spice”, JWH018, JWH073, HU-210) are prohibited.

SUBSTANCES PROHIBITED IN PARTICULAR SPORTS

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Some drugs, medications and substances are banned in sport, as are some methods. Athletes competing in sports governed by a World Anti-Doping Code compliant anti-doping policy need to be aware that they can’t just take any drug or medication, or even use certain methods.

Each year the World Anti-Doping Agency updates and publishes a Prohibited List. The Prohibited List is the international standard that outlines the substances and methods that are prohibited in sport. It reflects the latest scientific and medical advances and is finalised after a consultative process facilitated by WADA.

**Important information about the 2013 Prohibited List**

On 1 January the 2013 Prohibited List comes into effect. The major changes for 2013 include the following:

**Increase in threshold for formoterol**

Formoterol is a substance used in common asthma medications including Symbicort, Foradil and Oxis. The permitted delivered (inhaled) dose of formoterol has increased to 54 micrograms over 24 hours with a corresponding increase of the urinary threshold to 40 ng/mL.

For athletes this means the substance is permitted in- and out-of-competition in all sports. However, athletes should consult with their medical practitioners to ensure their prescribed dosage of formoterol will lead to delivered doses within these thresholds.

**Rewording of section on prohibited methods**

In order to make Section M1 more encompassing to include all kinds of manipulation of blood and blood components, the title and body of Section M1 has been changed.

The title of M1 now reads ‘Manipulation of Blood and Blood Components’, while M2.3 has been deleted as it is now included in this revised category under M1.3, which reads ‘any form of intravascular manipulation of the blood or blood components by physical or chemical means’.

Section M3, which covers gene doping, has also been reworded to provide a more precise definition of this prohibited method.

**Beta-blockers**

Beta-blockers are no longer prohibited in the sports of boules, ninepin and tenpin bowling, and powerboating.

**Clarification of stimulants**

To give more clarity, under Section 6 for Stimulants it has been confirmed that all optical isomers where relevant are prohibited.

**Monitoring program**

In order to reveal potential patterns of abuse, tapentadol has been added to the Monitoring Program in 2013 under in-competition narcotics.

The full list of substances included in the 2013 Monitoring Program are:

1. **Stimulants**: In-competition only: Bupropion, caffeine, nicotine, phenylephrine, phenylpropanolamine, pipradrol, pseudoephedrine (< 150 micrograms per millilitre), synephrine.
2. **Narcotics**: In-competition only: Hydrocodone, morphine/codeine ratio; tapentadol; tramadol.
3. **Glucocorticosteroids**: Out-of-competition only.

Athletes and support personnel should familiarise themselves with the full details available through WADA’s website which contains the List, a Summary of Modifications and details of WADA’s Monitoring Program for 2013 (www.wada-ama.org).

**How substances come to be prohibited**

For a substance or method to be prohibited, it must meet two of the following three conditions:

1. The substance or method has the potential to enhance, or does enhance performance in sport.
2. The substance or method has the potential to risk the athlete’s health.
3. The World Anti-Doping Agency has determined that the substance or method violates the spirit of sport.

The full definitions of reasons why methods and substances are prohibited (along with the rest of the World Anti-Doping Code) can be found on WADA’s website (www.wada-ama.org).
Every athlete is responsible for the substances that enter their body. Athletes are also responsible for any method they undertake.

ASADA can help athletes and their support personnel check substances (https://checksubstances.asada.gov.au) they may have to take, as well as find out more about banned substances and methods.

**Check your substances**

1. Click the 'check your substances' button on any page of the ASADA website (https://checksubstances.asada.gov.au)
2. Choose your sport, gender and your role (e.g. athlete or medical professional) – this ensures you get the right result.
3. Enter the name of the Australian medication.
4. Get your results instantly in a new window. If you want to check more than one substance, go back to step three.
5. Click 'log out and print session receipt'. Either save your receipt electronically or print it out.

* You will be given a reference number to document your search results. It is extremely important that you retain your reference number, as proof of your research before using the medication or substance. This may help you if you are ever called upon to provide that information in the future.

**Pseudoephedrine**

Pseudoephedrine is prohibited above 150 micrograms per millilitre, under the List.

Athletes should not take pseudoephedrine 24 hours prior to or during competition.

There are permitted alternatives which you can take in this time period.

Out-of-competition there is no need for a TUE to take pseudoephedrine.

For therapeutic applications in-competition, consider the use of alternative permitted medications upon previous consultation with a physician, or apply for a Therapeutic Use Exemption (TUE) (www.asada.gov.au/substances/therapeutic_use_exemptions.html).

**Overseas products**

Drugs, medications and substances listed on the ASADA website are only brand-name products sold in Australia. Be extremely careful when using an overseas product.

You might not find medications or substances listed on the ASADA website if they are an overseas product, a new product, or if you are searching by the generic product name or ingredients.

Some medications obtained overseas have the same brand name as medications sold in Australia, but they may contain different ingredients. Although the name and logo may be identical to that in Australia, overseas products may contain substances that are prohibited in sport.
The eight anti-doping rule violations

Rules and violations advice from the Australian Sports Anti-Doping Authority

**Rule violation 1**
1. Presence of a prohibited substance or its metabolites or markers in an athlete’s sample.

ASADA tests for the presence of substances, drugs, medications and methods listed on the Prohibited List. ASADA also tests for markers or other chemicals that indicate a prohibited substance has been used.

More information on testing procedures: www.asada.gov.au/testing/testing_guide.html

**Rule violation 2**
2. Use or attempted use by an athlete of a prohibited substance or prohibited method.

In addition to testing athletes, ASADA also has the power to investigate the possible use of prohibited substances, drugs, medications or methods in conjunction with the Australian Federal Police and Customs and Border Protection. An athlete does not have to have succeeded in using a prohibited substance or method – if there is sufficient evidence that the athlete has attempted to use a prohibited substance or method, they can be sanctioned. It is the athlete's responsibility to ensure that no prohibited substance, drug or medication enters his or her body. Not knowing that you have taken something is not an excuse.


Check your substances: https://checksubstances.asada.gov.au

**Rule violation 3**
3. Refusing or failing without compelling justification to submit to sample collection after notification as authorised in applicable anti-doping rules, or otherwise evading sample collection.

If an athlete refuses or evades drug testing, they can be sanctioned. This sanction can be the same as if an athlete tested positive for a prohibited substance or method.


**Rule violation 4**
4. Violation of applicable requirements regarding athlete availability for out-of-competition testing, including failure to file required whereabouts information and missed tests which are declared based on rules which comply with the International Standard for Testing. Any combination of three missed tests and/or filing failures within an eighteen-month period as determined by Anti-Doping Organisations with jurisdiction over the athlete shall constitute an Anti-Doping Rule Violation.

Athletes who are part of the Registered Testing Pool (RTP) need to let ASADA know where they are going to be, at specific times, so that ASADA can perform no-advance-notice testing. If athletes in the RTP do not provide current and accurate whereabouts information, they may incur Anti-Doping Rule Violations and subsequent sanctions.


More information on testing pools: www.asada.gov.au/testing/testing_pools.html

**Rule violation 5**
5. Tampering or attempted tampering with any part of doping control.

Any attempt to interfere in the drug testing process can lead to sanctions.


**Rule violation 6**
6. Possession of prohibited substances and prohibited methods.

Athletes can receive sanctions for having possession of prohibited substances or methods, even if they have not taken the substance, or used the method. If an athlete needs to take a prohibited substance or use a prohibited method for health reasons, they may be able to apply for a Therapeutic Use Exemption (TUE).


**Rule violation 7**
7. Trafficking or attempted trafficking in any prohibited substance or prohibited method.

As a Government authority, ASADA works closely with Australian Customs and Border Protection to investigate the trafficking of prohibited drugs, medications and substances. Athletes can receive a sanction for being involved in the trafficking of prohibited substances.

**Rule violation 8**
8. Administration or attempted administration to any athlete in-competition of any prohibited method or prohibited substance, or administration or attempted administration to any athlete out-of-competition of any prohibited method or any prohibited substance that is prohibited out-of-competition, or assisting, encouraging, aiding, abetting, covering up or any other type of complicity involving an Anti-Doping Rule Violation or any attempted Anti-Doping Rule Violation.

Coaches, support personnel, parents, friends and anyone else involved in the life of an athlete can be subject to the World Anti-Doping Code. While anything found in an athlete’s body is the athlete’s responsibility, support personnel can commit Anti-Doping Rule Violations and receive subsequent sanction.

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Australian Sports Anti-Doping Authority | www.asada.gov.au

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What’s the point of anti-doping? And what’s the point of sport in the early 21st century? Is the current system of anti-doping good for our kids, our athletes and is it good for sport? Is it even good for society? These are not easy questions to answer – but surely they’re not beyond us, ask Martin Hardie and Benjamin Koh

PENAL PURSUITS

In the midst of the current doping scandal, the Australian Olympic Committee (AOC) has announced the introduction of the landmark rule to make it mandatory for all future Australian Olympians to sign a statutory declaration about doping.

The refusal to do so, or an admission of having taken performance-enhancing drugs, would make athletes ineligible for team inclusion. Those found to have made inaccurate representation in the statutory declaration face up to five years in jail.

This measure is yet another designed to segregate all perceived impure elements from the ranks of Australian sport.

The AOC move follows the recommendations of Justice Wood and his inquiry into the governance of Australian cycling and the banishment from that sport of former cyclists turned officials, Stephen Hodge and Matthew White after their admissions that they had doped in the past.

On February 6, the Commonwealth introduced the Australian Sports Anti-Doping Authority Amendment Bill 2013. The introduction of the Bill will potentially see ASADA being given new and unprecedented powers including the imposition of civil penalties and being able to compel the handing over of documents and the giving of evidence, not only from athletes and those directly involved in sport, but presumably from other stakeholders such as academic researchers who explore athletes’ lived experiences in elite sport.

It’s easy to speculate – based on one of the author of this paper’s unpublished research – that the Bill is at least in part a response to the refusal of some cyclists to cooperate with ASADA given the repercussions of them speaking about their sporting careers.

Without some protection for such potential witnesses many athletes continue to equate confessing or cooperating with ASADA as their own career and personal suicide.
LIPSTICK ON A PIG

Simply getting ‘tough’ on the ‘cheats’ through such measures has been criticised by WADA President John Fahey as having the result of only reinforcing the cone of silence that pervades sport and its administration. Both Fahey and his director-general David Howman have made numerous recent statements that signal WADA’s uneasiness with the blind pursuit of zero tolerance embarked on by governments and sporting administrators.

Heavy-handed zero tolerance policies at the elite level simply pushes experimental use of performance-enhancing substances into the sub-elite level, where younger athletes prepare themselves prior to encountering elite anti-doping testing regimes.

The signal is that WADA feels that such measures will be in the longer term counterproductive.

In the course of their separate research experiences, both authors of this article are convinced that heavy-handed zero tolerance policies at the elite level simply pushes experimental use of performance-enhancing substances into the sub-elite level, where younger athletes prepare themselves prior to encountering elite anti-doping testing regimes.

A question that needs to be asked is whether we really want our sub-elite and junior sports to become laboratories for professional sport preparation.

The problem with anti-doping is that it is another ‘anti’; another war on something that appears to be more about protecting commercial and national investments and reputation than it does protecting the athletes’ health.

The focus thus far has mainly been on individual fault-finding. But from our perspective it is not about individual ‘cheats’; what is in issue is the entire sporting system and its links to business and government (and even organised crime).

If there is one lesson we can learn from recent events – whether it be the Armstrong investigation, the Spanish Operacion Puerto trial or the Australian Crime Commission public report – it’s that there are systemic and institutional drivers of doping practice.

Former cyclist and team manager Jonathan Vaughters has said in respect of his sport that everyone involved is to blame for the problem, not just individuals such as Armstrong.

MAKE-UP OR MAKE-OVER

Sport and games have not always been what we know today. The etymology of the word sport points us towards ideas of ‘pleasure’ and ‘diversion’.

Pre-modern European folk games were based around an ethic that is very different from today’s hyper-competitive sport – rather than win at all costs many of these games operated on the principle of not leaving anybody behind.

Sport as an ideal of human pursuit, and an economic activity, is very much a modern-day phenomenon such that sport has become a primary mechanism for governance of society in a global neo-liberal world.

Anti-doping has replaced the previous emphasis on the ethics of amateur sport. Research conducted by one of the authors of this paper revealed widespread cynicism from cyclists who had not bought the line that anti-doping was either about fair play or about their health.

In circumstances in which professional sport is an industry and athletes are commodities, the health and welfare of the athlete should be the focus of anti-doping. There are too many cases of athletes having adverse health effects or even having died as a result of doping practices gone wrong.

It is because of sport’s economic and symbolic role that our current form of hyper-competitive sport, supported by business and government, is by its very nature transgressive of fair play.

We should forget the intangible and rhetorical claims about preserving the integrity of sport and protecting a romanticised image of sport that attract sponsors.

The AOC statutory declarations and the ASADA Bill are simply more measures to get tough on the cheats. But they are merely symptomatic solutions that will do nothing to ensure athlete health and welfare or assist in curbing the systemic drivers of doping in sport; nor are they measures that might address the underlying pathology inherent in modern sport.

Whether sport mirrors society or today’s society mirrors sport, we believe that some of the questions we should be asking include:

➤ What is the point of sport in the early 21st century?
➤ What do we want the point of sport to be in the future?

It is only when we start to ask ourselves whether our past ideals should define our future goals that we can begin to more clearly articulate the point of anti-doping. In reflecting on issues beyond the superficial, we remind ourselves that in the end the question is about what type of society we want.

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THE CONVERSATION


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The Australian Crime Commission report, *Organised Crime and Drugs in Sport*, has come as a hammer blow to Australian sport. According to a review of cycling released only last month, Australia is supposed to have a reputation of being ‘clean’ on these matters. Just weeks later, that has all been swept away. Jason Mazanov comments:

So, how did it come to this? Like any social problem, it is the result of a whole host of things. Untangling them is to approach a Gordian Knot without even a blunt pen knife.

Sport is big business, worth nearly $9 billion in Australia. Game day is the outcome of a lengthy and convoluted production process. What matters is the objective outcome when that day ends. If the sponsors, broadcasters and punters are happy – the managers are happy. Few resources are directed anywhere else. The *Cycling Australia Review*, for example, reported anti-doping was the responsibility of a part-time employee handling 40,000 competitive riders and their events. Cycling Australia saw investment in events as far more important than “the fight against doping”.

Australian athletes can and do use performance-enhancing substances because they have to. It is impossible to be competitive at the elite level without using some kind of substance.

The competition between sports, such as Australian Rules and Rugby League, leads to the constant pressure to develop a competitive advantage. This is the constant nightmare of big business, preserving market share while expanding into new areas. Part of this mix is making the sport provide ‘more’ – more excitement, more thrills, more nerve shattering moments.

This is what sports consumers want; it’s what they demand. Failure to meet this demand means less money at the gates.

The production process to meet this demand rests on the athlete. In pursuit of ‘more’, athletes have to find ways to be higher, faster, stronger.
One reason athletes demand performance-enhancing drugs is because of the inhuman expectations placed on them. Let’s change our expectations. Making seasons shorter is a simple way of giving athletes more time to recover from injuries. Looking at rotation policies might be a good way forward too. Putting athlete health and welfare on some kind of level footing with other costs of doing business might be a useful start, (though this is unlikely to be palatable to business interests).

The war on drugs has failed, and it seems reasonable to assume the ‘war on drugs in sport’ is going to end the same way.

Australian athletes can and do use performance-enhancing substances because they have to. It is impossible to be competitive at the elite level without using some kind of substance. Athletes can lose their job if they heal too slowly. This creates a demand for performance-enhancing substances that organised crime is only too happy to meet, with multi-billion dollar reward.

The government would have us believe the answer rests in ramping up anti-doping exercises to ‘catch’ baddies – investing more in detection and making punishment more severe. Let’s be clear: making anti-doping work is going to cost a lot of money. In the current fiscal climate, that money is going to have to come from health, education, defence or welfare. This raises the question of whether ‘clean sport’ is more important than, say, the National Disability Insurance Scheme.

Unfortunately, putting anti-doping on steroids is unlikely to do much. This approach has failed to prevent the rising market of illicit drugs in Australia – at least if Australia 21 is to be believed. The war on drugs has failed, and it seems reasonable to assume the ‘war on drugs in sport’ is going to end the same way.

One way of resolving the problem is to move from anti-doping to drug control. Let’s look at developing ways to better understand the role of drugs in sport. A host of substances are already permitted. There are clearly some drugs that should be banned – a hockey player smacked out on ice is a danger to themselves and everyone else. But that does not apply to all substances. Unfortunately, this idea is unlikely to be palatable to those who have invested heavily in ‘zero tolerance’ – which John Fahey, President of WADA, has repeatedly declared an unrealistic goal anyway.

Another solution is to change the nature of sport. What might professional sport look like if it emphasised the joy of the game?
The culmination of the Lance Armstrong doping affair in August – at which point the US Anti-Doping Agency (USADA) stripped the seven-time Tour de France winner of all titles won since August 1998 – caught many in the media and in the sporting world by surprise.

To others, of course, the USADA ‘revelations’ were simply confirmation of ongoing suspicions.

Three major themes emerged during coverage of the Armstrong case:

1. Armstrong never failed a doping test. That is not entirely true but this is a popular meme in the retelling of the story so we will let that pass.
2. Armstrong was not alone and many other elite cyclists were also doping. While we cannot be certain, ‘many others’ does not equate to ‘all others’.
3. While the strategies used by Armstrong and his colleagues to evade detection were the result of careful planning, it would probably be wrong to think of Armstrong as some form of criminal mastermind. For a wide range of reasons (including regular tip-offs of doping tests), the anti-doping agencies and sporting bodies were remarkably easy to outwit.

In light of these factors, many are questioning whether doping should continue to be treated as a crime.

The case for doping

The arguments in favour of legalisation have not changed greatly over the years and at first glance the logic appears sound.

One such argument posits that sport is inherently ‘unfair’ when an athlete who is genetically gifted is faster than everyone else and keeps winning races.

While some would see such victories as part of the attraction of sport, others have quite a different perspective, seeing only inequality and a need to ‘level the playing field’ through the supply of performance enhancements to ‘disadvantaged’ athletes.

To safeguard the health of athletes, legalisation of doping would be accompanied by a ‘harm reduction’ system, whereby athletes would be able to openly use performance-enhancing drugs as prescribed and administered by a medical doctor.

Proponents of such a view typically argue that the spectacle of sporting competition would be boosted by such a development (athletes would throw, hit and run faster than ever, etc). The problem of ‘cheating’ would also be removed by the simple expedient of legalisation (it can’t be cheating if it is not against the rules).

Serious problems no doubt, but are they sufficient to justify legalisation?

The case against doping

Drug legalisation is an argument that struggles to find widespread support beyond a handful of advocates.

In Australia, a 2009 survey my colleagues and I conducted regarding public opinion about drugs in sport (with a large, nationally representative sample), found that 90% of the Australian public saw the problem of performance-enhancing drug use in sport as serious; 96% agreed that doping athletes should feel guilty about breaking the rules; and 91% believed that companies should stop sponsoring doping athletes. Our survey of elite Australian athletes in 2009-2010 revealed a similar pattern of results.

If we can take such findings on face value, it would appear public
and elite athletes are thus opposed to performance-enhancing drugs.

**Talk talk**

Rather than showing the war on doping has failed, the Armstrong case highlights the new direction in anti-doping: the value of ‘non-analytical positives’. That is, evidence of doping from sources other than biological testing.

Sports bodies have typically adopted an almost exclusively biological approach to drug detection.

It is a popular fallacy, known as the ‘CSI effect’, that most criminal investigations are solved through the use of scientifiably verifiable evidence (such as fingerprints or DNA).

In reality, the majority of cases are solved through evidence obtained during interviews with witnesses, or from suspects via confessions.

Last year, the World Anti-Doping Agency (WADA) released guidelines concerning the coordination of investigations between anti-doping agencies and other public agencies, most significantly, police forces. The guidelines state:

*These new partnerships will allow Anti-Doping Organisations to take advantage of the investigative powers of those public authorities, including search and seizure, surveillance, and compulsion of witness testimony under penalties of perjury.*

To many in the sporting world, esp-

**Should Olympic athletes be allowed to use performance-enhancing drugs?**

Some bioethicists are arguing that athletes should be allowed to take performance-enhancing drugs, according to this report from *Australasian Science* by Michael Cook

The London Olympics have arrived and with them come familiar controversies over drug cheats. IOC President Jacques Rogge said yesterday that tests had identified more than 100 cheats in the lead-up to the Games. Years of tough restrictions appear to be bearing fruit, with fewer scandals every time the Olympics are held. In Athens in 2004 26 athletes were caught; in Beijing in 2008, only 14 athletes and 6 horses. However, this may mean that athletes are just outsmarting the IOC. The 1980 Games in Moscow have been called the Chemist’s Games because so many athletes were apparently using drugs – but no one was actually nabbed.

Is it worth the effort? This is a question that involves bioethics and as usual, there are fierce controversies. The Bush Administration’s bioethics commission produced a document which took a very dim view of drugs in sport.

“They are, despite their higher scores and faster times, bad or diminished as sportsmen – not simply because they cheated their opponents, but because they also cheated, undermined, or corrupted themselves and the very athletic activity in which they seem to excel.”

However, it is bioethicists who endorse the use of drugs in sports who are in the headlines this week.

“If the goal is to protect health, then medically supervised doping is likely to be a better route,” says Andy Miah, a bioethicist at the University of the West of Scotland in Ayr told *Nature.* “Better yet, the world of sport should complement the World Anti-Doping Agency with a World Pro-Doping Agency, the goal of which is to invest in safer forms of enhancement.”

But the leading spokesman for making drugs freely available to athletes is Julian Savulescu, an Australian who teaches at Oxford University. In a very interesting interview in *Der Spiegel,* he argued that it is impossible to stop athletes from using drugs to get a winning edge. “So we have to go for the second best option, which is having an open market for doping,” he said.

Admittedly this is risky, but “Boxers risk severe brain damage. Cyclists careening downhill at speeds exceeding 70 kilometres per hour risk their lives. These dangers are far greater than those connected with controlled and responsible use of drugs – and we accept them.”

As a safeguard, doping should be done under medical supervision by doctors who are obliged to do as they are asked.

“I think it is part of the doctors’ professional obligation to more broadly protect athletes’ health rather than saying ‘no, I won’t do it, that’s their own problem.’ They have an obligation to provide doping services, like they offer abortion services, even if they might personally object to abortion.”

*Der Spiegel*’s journalist was baffled by the comparison of abortion to sport. But Savulescu insisted:

“Pregnancy is not a disease, so abortion is no therapy. In most cases, it is a reproductive enhancement. It helps people decide when to have children and how many of them. Only a tiny amount of abortions are done for medical reasons, the overwhelming majority are done for social reasons, including in Germany. And of course, we have a whole system of regulations to prevent backstreet abortions – as we should in doping.”

What if doping were legal at the Olympics?

THERE IS NO ADVOCATING FOR DOPING HERE – JUST A DOSE OF REALISM, REMARKS SIMON OUTRAM

The Olympics is arguably the greatest show of combined physical and mental prowess we’ll ever see. The Games challenge competitors and challenge the watching public to think about the achievements they’re witnessing.

At London 2012, we will likely be both elated by a new Olympic world record and deflated by yet another doping incident.

But what if doping was legal at the Games? What would the problems be, and what would the event look like?

Obviously if everyone had access to the same drugs – equally distributed – there would be no question of cheating through drugs. Equally obviously, if the drugs used were bad for short-term health, they would not be used by athletes. Poor health is detrimental to sporting achievement.

But would such an Olympics be fair? Even if the next Olympics was entirely populated by doped athletes – each given the same drug for their particular sport – there would be an overwhelming question of whether sport was unfair.

Drugs aren’t the only training aid: not everyone has the money to pay for swimming lessons, the best running shoes or the best coaches.

And even if the drugs had minimal short- or long-term side effects – akin to nutritional supplements – there would still be nagging questions about the overall health of elite sportspeople who endure extraordinarily high rates of injury as a by-product of intensive training.

But what about the audience: would they see an Olympic Games that was more or less interesting? That depends on what kind of drugs were available.

Let’s suppose there’s a magic pill for each Olympic event. Given a minimal number of training hours, and taking the magic pill a specific number of hours before the race, each athlete would run, swim or throw exactly the same. It would be a sporting disaster, but a triumph for biotechnology.

What if the magic pill was not so magic? What if this magic pill had rather less-certain impacts upon sporting achievement – rather like stimulants, steroids and blood doping? If some of our suspicions are correct, it wouldn’t be particularly different to today’s Olympics, because many athletes might already be on such drugs but mask them well.

Drugs aren’t the only training aid: not everyone has the money to pay for swimming lessons, the best running shoes or the best coaches.

But even if this was not the case, drug use of this sort would be an additional factor, not the factor, in determining the race order. All the banned supplements in the world – at
There is no advocating here – just a dose of realism. An Olympics on dope would be an uncomfortable prospect. The possibility of openly using doping products would send out a disturbing message to aspiring athletes and may result in further damage to the long-term health of elite athletes.

But as to what it would look like: while some records may tumble, they probably wouldn’t fall by much. And while some new drugs might be found that market themselves as the drug for 100m, 200m, 1500m runners, they are unlikely to be as magical as the spectacle we are currently witnessing.

**Gene doping is likely to result in minor changes to the body and impossible-to-predict results on performance.**

The element of uncertainty, so vital for sport, would still be there. Ethically, depending where you put drug use among the many other forms of unfairness, the doped results may be the same.

But doping isn’t just pills and shots. What about gene doping? Swimmers with webbed feet, long jumpers with extraordinarily long legs, marathon runners who have not a gram of extra weight.

The list of potential modifications is endless, as are the ethical concerns stemming from such scenarios.

So far genetics has shown much potential but very little in the way of designing human shapes and sizes. Gene doping is likely to result in minor changes to the body and impossible-to-predict results on performance. I suspect the element of sporting uncertainty would still exist.

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*The Conversation | theconversation.com.au*
The practice of doping is said to have been so commonplace and engrained in some high-level athletic competitions that until recently, regulating it has been unfeasible.

‘Doping’ is committed when a competitor uses performance-enhancing substances which are prohibited by the rules of the competition. Lance Armstrong, a well-known competitive cyclist, was recently found to have repeatedly and intentionally violated the rules of the World Anti-Doping Code. As a result of his misconduct, Armstrong received a life-time ban and had his results disqualified. This news was met with shock and dismay by many, including my uncle, who is a long-time cycling enthusiast and admirer of Armstrong’s achievements.

Armstrong’s case is but one of a slew of recent doping indictments involving high-profile sporting competitors. The similarities between these cases raises insights into the complications of regulating sporting events.

The Tour de France, like other prestigious sporting events, is a high stakes competition. Its riders vie for prize money of up to 450,000 EURO, not to mention revenue from endorsements. Not only that, but the winner receives non-pecuniary rewards as well: the joy of victory and the pride of being recognised and immortalised among sporting greats. Such rewards create powerful incentives for a competitor to gain a competitive advantage, including by breaking the rules. Doping is just one of many means on which some competitors rely to improve their chances of victory.

Those who disapprove of Armstrong’s conduct may do so for the following reasons. The first is that Armstrong acted dishonestly. This is wrong because deceitful conduct – such as deliberately and knowingly distorting test results – is unconscionable. Some of Armstrong’s fans, among them my uncle, bristle at the idea that they have been duped into admiring him. This goes to show that sporting heroes are built on virtues besides athletic prowess, such as honesty and integrity.

‘Doping’ is committed when a competitor uses performance-enhancing substances which are prohibited by the rules of the competition.

A second reason is the belief that anti-doping rules exist to ensure a ‘level playing field’ among competitors. Competitors are on a level playing field when they all have access to the same or similar opportunities to improve their performance. Anti-doping laws exist for the safety of the competitors and to ensure that no competitor enjoys an unfair advantage over others. In this context, Armstrong took an unfair advantage over his competitors by flouting the rules restricting what methods competitors can employ to maximise their results.

The ‘level playing field’ argument raises interesting complications since it is difficult to see how a level playing field is possible, let alone feasible. Physiological attributes are one type of difference that contributes to athletic advantage. Different attributes will be more or less useful depending on the contexts. For example, it is a physiological advantage for a competitive swimmer to possess particularly large hands and feet. Everything else held equal, including training regime, diet, coaching staff etc, competitors who possess certain physiological characteristics are going to have an advantage over those who do not. Since such attributes are often not shared by all competitors, the playing field, as it were, is already tilted in favour of some over others.

Anti-doping laws exist for the safety of the competitors and to ensure that no competitor enjoys an unfair advantage over others.

There are other attributes that are inaccessible to some competitors. For instance, no amount of training, coaching, or sheer willpower will endow one with large hands and feet. At the same time, no one can be said to have earned these kinds of advantages. Yet there’s no rule in competitive swimming, or other sports, that prohibits genetic and environmental endowments; those who have physical advantages due to their genes and circumstances are entitled to leverage these attributes to their full extent.

On what basis may the rules of a sport enshrine the permisibility of unevenly distributed, ‘lucky’ factors, like having paddle-sized hands and feet? What makes these advantages different from other advantages, such as those which can be derived from doping?

Undoubtedly, there is a range of reasons that can allow us to draw a sufficiently bright line between fair and unfair competitive practices. However, this line cannot be satisfactorily drawn without acknowledging the following consideration: rules may protect particular advantages which benefit some competitors, but not others.

Sporting events like the Tour de France are adversarial, competitive systems. When appropriately defined, these systems bring out the best efforts of competitors and push the level of competition to greater heights. What we value and expect from participants in these kinds of competitions influences the rules of the game. By understanding how we arrive at these rules, we gain a clearer idea of what it means to be a sporting hero and what it takes to be a villain.

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Lance Armstrong is the flavour of the month when it comes to doping and anti-doping discussions at the moment, but closer to home there are some real and pertinent issues to debate.

Australian government ministers and sport officials have always taken a strong position on drug use in sport, with a zero-tolerance approach front and centre. But things, as they now stand, may have gone just a little bit too far.

In the 1980s the main concern was about the unregulated use of stimulants and anabolic steroids. And by the end of the 1990s illicit drugs were added to the list of banned substances, although the bans were confined to in-competition, and not out-of-competition use.

By the mid-2000s, there were demands to make illicit drug use an offence all year round, in line with the stance on performance-enhancing drugs. And now we are faced with the prospect of sport officials controlling prescription drug use by telling athletes and their medical advisors what they should do to manage anxiety, over-arousal and sleeplessness.

In 2007, having confirmed the government’s commitment to the ban of performance-enhancing drugs, the Minister for the Arts and Sports, George Brandis, launched an illicit drugs in sport policy (IDSP), which contained ‘a series of important new measures’, which he thought would take drug controls to a ‘new level’ in the government’s fight against drugs in sport.

The IDSP preamble also made it clear that this new illicit drug-use policy, which was to be administered by the Australian Sports Anti-Doping Authority (ASADA), would include drug testing outside periods of athletic competition.

This meant that players could be sanctioned for using an illicit drug at any time of day or night, and at any time of the year.

The scope of the policy was unprecedented, and national sport organisations were invited to adopt an out-of-competition illicit drug testing regime. What’s more, the government was prepared to spend more than A$20m to make the policy work.

A “tough on drugs in sport” stance was vital, the policy document stated, to “help restore the status of sports men and women as positive role models for all Australians”.

Although the Brandis policy initiative was never implemented, because the Government lost the following election, the “tough on drugs in sport” mantra is still at play. It reached its zenith in July this year, in the lead up to the London Olympic Games.

Bitter pill: have drug bans in Australian sport gone too far?

THERE SHOULD BE A COMPLETE OVERHAUL OF THE DRUG CONTROL REGULATIONS IN AUSTRALIAN SPORT, CONTENTS BOB STEWART

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Athlete biological passport

First, ASADA launched the Athlete Biological Passport (ABP) program, an electronic record of multiple blood samples taken from an athlete over a period of time.

According to ASADA, ABP would allow officials to build profiles that would monitor changes in the athletes’ blood chemistry, and thus be especially useful in tracking athletes who increased their red blood cell count by illegal transfusion or erythropoietin (EPO) use.

The ABP system had been employed overseas since 2009 and, according to ASADA chief executive, Aurora Andruska, Australia's adoption of the measure would ensure our Olympic athletes were covered by the best-available drug detection science.

Andruska confidently asserted that “we are across the full range of detection techniques”, while Sports Minister Kate Lundy reckoned that, at a cost of A$600,000, the implementation of the biological passport initiative was value-for-money.

She, like Andruska, noted that the passport would:
1. Provide an additional check that no doping had occurred
2. Reassure sport fans that the government was on top of things
3. Convince the international sporting community that a level playing field was in place
4. Remind players and athletes alike that “there is no place for drug cheats in sport”.

Ban on sleeping pills

Also in July, the Australian Olympic committee (AOC) announced, without warning, that Australia’s Olympic athletes would be banned from using certain brands of sedative-based sleeping pills – Stilnox, Rohypnol and Mogadon to be precise – and, moreover, would have their Olympic Village rooms raided if they were suspected of using these.

The AOC immediately re-wrote the team medical manual to not only include the sleeping pill bans, but also warn athletes on the consequences of taking the drugs.

The medical manual revisions also included a section on “sleep and relaxation strategies”, which advised that deep breathing, muscle relaxation, and just remaining calm, could negate the need for the potentially dangerous use of prescription drugs to get to sleep.

These restrictions were instigated to make sure athletes did not fall into what officials called a “vicious cycle” of addiction to stimulants and sedatives.

The AOC also issued a stern warning that excessive caffeine use was to be stemmed on the basis that it would exacerbate the “upper and downer” cycle.

This attempt to squeeze out sedative use came in the wake of revelations about the troubled domestic life of former swim champion, Grant Hackett.

In an article in *The Australian*, Hackett said he had developed a dependency on Stilnox – during a period which included his competition at the Beijing Olympics – after being prescribed the drug by Australian team doctors.

After reading the Hackett story, AOC president John Coates became concerned that the current arrangements on sleeping pills were endangering the health of athletes and were therefore intolerable.

Coates also confirmed athletes would incur the full wrath of officials if they were found to have smuggled the newly banned drugs into the London Olympic Village rooms.

Coates then repeated his claim that the regular use of sedatives would be a “very serious offence under our team conditions agreement”, and advised that the Chef-de Mission Nick Green – could not only warn offending athletes, but also suspend them, or even send them home early.

What next?

There should be a complete overhaul of the drug control regulations in Australian sport. While there are good reasons for regulating substances that enhance performance, the justification for handing out heavy suspensions for other types of substances use, even if they might increase the risk of harm, is, to put it mildly, less convincing.

In such circumstances, it would be far more decent to provide advice and support, and guide athletes along less risky substance-use paths.

There is also a human rights issue at stake, since it is reasonable to think that people, no matter what their personal situation or occupational status, should be able to seek out treatment for a condition, or secure medication to make their lives more manageable, without coercive sanctions hanging over them.

It’s time to remodel our drugs in sport controls in order to get a proper balance between the maintenance of a sport’s reputation, the integrity of the contest, its attractiveness to fans, and the rights of players and athletes.

Bob Stewart is Associate Professor in the School of Sport and Exercise Science at Victoria University.

THE LANCE BOMB HAS BLOWN, BUT IS DOPING REALLY CHEATING?

The Lance Armstrong affair is not a failure of anti-doping: it’s a wake-up call that says we need to think much harder about our approach to doping and anti-doping, writes Jason Mazanov

Should Lance Armstrong lose his seven Tour de France titles for doping, as is being proposed by the US Anti-Doping Agency (USADA)?

It’s an issue that puts the UCI – the international cycling union – and Tour de France organisers in a very awkward position. To move the issue from being a ‘witch hunt’ of Lance Armstrong to being about protecting the integrity of sport from doping, they need to go through every team that raced to find the first clean winner.

If estimates made by Tyler Hamilton – a former teammate of Armstrong and confessed doper – are accurate, 75-80% of the peloton was doping through the period in question (1999-2005). And given the Tour de France field is normally more than 180-strong, it might be the first legitimate winner came in 87th!

If that many cyclists were doping, it could be argued that Le Tour, across the Armstrong era – 1999 to 2005 – was, to some extent, being raced on a level playing field.

It seems that many cyclists in that era were getting some kind of performance edge from a cocktail of drugs, including human growth hormone, cortisone and, of course, EPO. It is naïve to think that Armstrong’s US Postal team was the only team with this kind of set-up.

On this basis, even if Armstrong was doped to the eyeballs, he was still first among equals and therefore won those titles on the same basis as any ‘clean’ competition.

The impacts of the Lance Bomb are further-reaching than just Le Tour. The case raises questions about whether anti-doping can ever work. The prohibition approach to doping has been criticised from day one as being doomed to failure. It seems the Lance Bomb shows no matter how much money is poured into anti-doping, athletes can and do get away with doping during competition – even if they are caught retrospectively.

It’s time to think of alternative ways of handling drugs in sport.

TRY SOMETHING NEW

As it currently stands, the way we manage drugs in sport is all about protecting the integrity of sport rather than the integrity of, say, athletes or kids. There has been much talk about taking away the current model under which some drugs are allowed and some are banned, and setting up a system that sees drugs used safely rather than misused or abused.

Is it more important to stop a bunch of elite athletes from medically-supervised EPO use or stopping a bunch of teens risking caffeine toxicity from chugging a couple of energy drinks before they play footy?

We need to move on from saying “drugs are bad” and start looking at new ways of dealing with drugs in sport. Criminalising illicit drugs in wider society has failed – criminalising doping is likely to end the same way.

SO WHAT ARE THE ALTERNATIVES?

The first point to consider is whether the athletes really are the centre of all doping. US Postal needed a big team of support personnel to do this; indeed any doping enterprise does. Former World Anti-Doping Agency (WADA) president Dick Pound spoke to the UCI president (1991-2005) Hein Verbruggen about the ticking Lance Bomb, advising: “You guys have a huge problem in your sport”.

Perhaps sport, at least as it is constructed by the IOC,
should come clean and talk about how sport promotes doping.
Completing Le Tour is an almost inhuman feat. It’s three weeks of the toughest bike racing on Earth, including stages that feature some of the toughest mountain climbs in Europe.
Brandy and strychnine were used to help cyclists survive early Tours (in the first few decades of the 1900s) – Tours which were often longer and more strenuous even than the ones today.

The uncomfortable conclusion for those who still want to fight the “war on drugs in sport” is to recognise the role of drugs in sport and be open about it.

And perhaps the Lance Bomb is just a pharmaceutically-refined scientific solution to cyclists being asked to accomplish the inhuman. Perhaps we face a choice between drug-free cycling and Le Tour.

Making coaching contracts contingent upon how well athletes are treated, as well as their performance outcomes, might go a long way to stopping coaches pushing athletes and the support teams to dope. Equally, changing contracts so sponsors are less interested in outcomes might help reduce incentives to dope. The fact such suggestions seem implausible only points to the fundamentals of the problem.

Verbruggen’s resistance to act on the Lance Bomb, according to Dick Pound, was to meet spectator (and presumably sponsor) expectations about a Tour raced at 40kph.

Until we make sport-as-business part of the discussion (in addition to sport-as-social-capital or sport-as-health) the way we manage drugs in sport is unlikely to change.

Finally, we could stop calling doping ‘cheating’ – just as we stopped calling the Fobsbury Flop – a technique in high jump that’s now used by competitors worldwide – ‘cheating’.

The uncomfortable conclusion for those who still want to fight the “war on drugs in sport” is to recognise the role of drugs in sport and be open about it.

Would Lance Armstrong have been such a bully if there was no need to hide what his team was doing? Would we have seen more promising young cyclists live instead of having EPO-induced heart attacks?

One way forward would be to use the Athlete Biological Passport to monitor athletes’ health – rather than to “catch drug cheats”. The ‘passport’ – which involves monitoring an athlete’s biological variables over time – was introduced by WADA in 2009, and implemented in Australia in July of this year.

The passport creates incentives for athletes to reveal what they are taking and provides officials with a method for detection. Any unknown or banned substances see the athlete disqualified.

This approach engages big pharmaceutical companies and encourages them to put performance-enhancing drugs through Phase I-IV trials to get TGA or FDA approval.

This prioritises health and encourages the development of sets of drugs and tests. And who knows, big pharma might just develop a drug that helps endurance athletes regulate their body temperature that also helps treat premature babies unable to control their own body temperature.

The Lance Armstrong affair is not a failure of anti-doping: it’s a wake-up call that says we need to think much harder about our approach to doping and anti-doping. If we want to keep following prohibition we need to find new ways to make it work as the current system is clearly falling short of the mark.

If we want to do something else, let’s look at the alternatives out there, whether that’s about athlete health and welfare, sport-as-business, or something else.

Jason Mazanov is Senior Lecturer, School of Business, UNSW-Canberra at the University of New South Wales.

THE CONVERSATION

Cheaters never prosper, or so we’ve been told. Yet with internet-assisted exam cheating and drugs in sport scandals back in the news, some may wonder whether modern societies have lost their way; whether in today’s world you can either be honest or prosper, but you can’t have it both ways.

I think there will always be cheaters, liars and those who break the law, but we are better equipped than ever before to manage it.

There have always been teens who sought to cheat on exams. Remember Happy Days? But while the internet didn’t invent cheating, it may make it easier to detect. With search engines like Google, for instance, detecting plagiarism – the use without attribution of other people’s work – is a snap.

There is also a long history of athletes feeling pressured to break the rules. Remember the East German doping athletic scandals of the 1970s and 1980s?

And while doping strategies have grown more sophisticated, so are the strategies to catch drug cheats. Just as DNA testing on preserved evidence is delivering justice to victims in cold cases, new technologies can reveal cheating in preserved bodily fluids years after a sporting crime. As a result, medals, winnings, places in history, reputations, and future chances to compete can all be taken away.

But even when cheaters are caught – and their capture is often how we learn there is a problem – we may feel uneasy. So they nailed this one, but how many others have got away clean?

And the thought that cheaters are prospering drives us mad, in part because a thirst for fairness may be hardwired, not just in us humans, but in lower order primates.

Persistent suspicions – or worse, proof – that a contest isn’t fair threatens the very foundations of societies like Australia. Because if no matter how hard we work or how fair we play, the rewards go to the privileged slackers or cheaters who don’t get caught, then we’re the ones left with egg on our face. There we were, foolishly squandering our time and hard-earned cash in investments in ourselves and our children that never had a chance in a corrupt world to bear fruit.

It is because doubts about the integrity of the equal opportunity and merit-based systems that govern our lives are so corrosive that we must jump up and down and lay down the law when cheating is exposed. So no one dares think shared values about honesty or fair play are slipping or that if they cheat, they won’t bear the shame of getting caught.

In the Armstrong case, the US Anti-Doping Agency has released a detailed and compelling report charging Armstrong with having used illicit performance-enhancing drugs. They have stripped him of his titles and issued a lifetime ban on his participation in further competition.

Public and media pressure on the Union Cycliste International – which administers the Tour de France – should continue until it agrees to enforce these sanctions.

The resolve of the chief executive of the Board of Studies of NSW – where HSC exams have begun – is also clear. “The majority of [students] go in there and don’t even consider cheating. But, in any community, there will be some who do and our message to them is that they’ll be caught.”

Adolescents – and those of adolescent mentality – think what’s right is what ‘everyone’ does or says. It is this level of development that parents worldwide seek to goad their teenagers from endorsing by asking, “If so-and-so jumped off the Westgate, would you jump, too?” Still others do the right thing for even more primitive reasons – the fear or certainty of being detected and punished, now or in the hereafter.

Moral maturity is when you realise you need to do the right thing because you can’t behave in ways you wouldn’t prescribe for others, and if everyone cheats, lies and steals, society falls apart.

What matters is that we both assume that most people will do right with the right leadership and systems in place, and move heaven and earth to ensure that leadership and systems are present. So that for whatever reason makes sense for them, most people will do the right thing most of the time.

Dr Leslie Cannold is an author, researcher and medical ethicist with an adjunct position at Monash University.
There has been much discussion in recent weeks about Lance Armstrong, his legacy, and charges levelled by the United States Anti-Doping Agency (USADA) that the Texan cyclist spearheaded a systematic doping regime over many years.

By opting out of the USADA arbitration process, Armstrong faces a lifelong suspension from competing, coaching or holding any official position in professional cycling, and has been stripped of his seven Tour de France titles.

But now the dust has settled, what can the Armstrong case tell us about anti-doping regulation in cycling and in sport more generally? Is there too much focus on punishment for ‘dopers’ and too little focus on prevention? And perhaps more importantly, what are the effects of prioritising punishment?

Recent media commentaries have accused USADA of hypocrisy, arguing that the agency charged with protecting ‘fair play’ in sport acted unethically by abusing legal processes and taxpayer dollars to ensure Armstrong’s punishment. Others, including James Heathers (see page 47-48), have pointed to the mismanagement of drug control.

The judge presiding over Armstrong’s lawsuit against USADA, Sam Sparks, has also questioned USADA’s motives and ability to work with other governing bodies to regulate and promote cycling.

These criticisms are worth taking seriously.

Having studied the anti-doping regime since 2007, I can attest that nearly every anti-doping official I have met has said that ‘catching’ Armstrong would be the anti-doping movement’s crowning achievement. Many of them have stated that changes to the World Anti-Doping Code that took effect in 2009 (such as the requirements for governments detailed in Article 22) would finally make it possible to catch Armstrong.

Citing the growing number of signatories to the UNESCO International Convention Against Doping in Sport, anti-doping officials often contend that increasing government support will ensure more resources for the fight against doping and more punishments.

And they are right. Well, sort of.

Before USADA brought its latest fight to Armstrong, the US Department of Justice had been investigating the Texan. But in February this year, the Department of Justice closed its two-year investigation for reasons that, although still unclear, suggest there was not enough evidence to criminally convict him.

While USADA put together a case against Armstrong, it still couldn’t ‘catch’ him in the way that many regulators I have spoken with had hoped.

Anti-doping officials had expressed to me a desire for severe punishments, some going so far as to say Armstrong deserved something akin to what US sprinter Marion Jones endured.

In 2007, Jones lost her Olympic gold medals and lucrative sponsorships, and served a six-month prison sentence for perjury after finally admitting to doping. In contrast, Armstrong is largely unaffected.

A mother of three, she cannot vote, and she cannot be employed in many workplaces – except, luckily, the Women’s National Basketball Association. Getting behind fairer and safer sport is one thing; openly...
supporting broader, arguably unfair, punitive trends is another.

Stepping back to consider these implications is important. While I have yet to meet a professional or aspiring professional cyclist who thinks Armstrong did not dope, there is something more troubling behind his case: a global, anti-doping regime structured to favour punishment, negating opportunities for more responsive regulation.

And by responsive regulation, I mean attempts to balance the use of punishment with meaningful modes of persuasion.

Recently, the Biological Passport system – which monitors athletes’ ‘biological variables’ over time – yielded nine anti-doping violations just days before the London Olympic Games.

More generally over the years, the Court of Arbitration in Sport has overwhelmingly ruled against athletes appealing anti-doping violations.

During my own research in Australasia and the United States, I have witnessed many athletes – particularly young men from working-class and ethnic minority backgrounds who perceive sport as a viable career pathway – receive lengthy bans for relatively minor and non-performance-enhancing substance use.

Dreams and livelihoods are jeopardised, because anti-doping regulation takes a punitive stance – sometimes even more so than the national justice system – rather than adopting more proactive or culturally sensitive measures.

While the case against Armstrong points to regulatory shortcomings, it may also be a mistake to suggest his case is indicative of the global regime. I have encountered many zealous anti-doping advocates, but I have met just as many administrators committed to helping athletes navigate the complex web of rules woven by the World Anti-Doping Agency (WADA).

Currently, international rules actually limit local agencies’ abilities to deliver specialised programming, in part because responsive authorities commit many resources to help athletes comply with WADA’s guidelines.

In the aftermath of Armstrong’s case and the actions taken by USADA, it seems timely to ask whether (and how) resources can be more effectively channelled in proactive and responsive ways.

To date, the legacies of anti-doping regulation are not fairer or safer sport, merely an expanding list of athletes punished for violating the rules.

Some athletes have genuinely doped but, at least in my experience, the majority have been duped by a system charged with preventing and deterring doping in sport.

Kate Henne is a Research Fellow at the Regulatory Institutions Network (RegNet) at the Australian National University.

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**Legal doping – a response**

*Brodie Buckland offers an athlete’s perspective on the fairness of doping in sport*

I really enjoyed reading Simon Outram’s balanced, realistic assessment of the impact on legalised doping in sport (see pages 32-33). And, if the health impacts of it were possible to avoid, then I’m sure that the usage of it would be a much more reasonable prospect.

As an athlete, there are two things about the legalised usage of performance-enhancing drugs that bother me. The first is that I would feel like I was required to take them in order to be competitive, and that if I missed a dose or a cycle then I would be behind my competitors. Even if the drug might not have helped me that much, the fact that I may perceive that I was at a disadvantage could pile a psychological limitation onto a physical one.

The second, and more important, thing that bothers me about performance-enhancing drugs is that they would take something away from the athlete. If they were legal, sniping spectators could always say that it was the drugs and not the athlete that got that victory. One of the things about rowing that I love is that it’s hard. It hurts, and the challenge of focusing through the pain yields rewards when you’re able to overcome it. If you take some of the difficulty away, you take something away from the athlete. In a drugged world, the victors would still claim the spoils, but the intangible rewards, the pride in success, the sadistic joy in hard work, would fade away. There would always be a question in the back of my mind – was it me or the drugs?

I know sport is a spectacle, something that we all love to watch and comment on, but there is also a private aspect to it for the athletes involved. If you take away some of the difficulty, some of the struggle and strife, you may improve a time or distance or height, but you also take something away from the athlete. Perhaps I’m too sentimental about sport, a modern echo of the purists who first deemed that the Olympics should be an amateur endeavour. Perhaps my views will be similarly consigned to history in the future. But I just wanted to note the loss that could come with widespread doping, and acknowledge that a reward is all the sweeter for the difficulty in reaping it.

*Brodie Buckland is an Olympic rower and student at Australian National University.*
This week’s article by George Galanis in The Punch was an interesting read. But, I’m afraid to say, it mistakenly perpetuated the myth that somehow it is medically safe to use performance-enhancing substances in sport.

Doping has been around as long as competitive sport itself. However, in modern history one of the major catalysts for the prevention of doping in sport was the deaths of athletes resulting directly from doping.

The reality is that athletes have indeed died during and straight after competition because they have doped. The death of Danish cyclist Knud Enemark Jensen during competition at the 1960 Olympic Games in Rome (the autopsy revealed traces of amphetamine) increased the pressure for sports authorities to introduce drug testing.

In 1967, the urgency of antidoping work had been highlighted by another tragic death, that of cyclist Tom Simpson during the 13th stage of the Tour de France. The post mortem found that he had taken amphetamines and alcohol, a diuretic combination which proved fatal when combined with the heat.

So one thing is for sure – before doping control, the lives of athletes were not only at risk, but on occasion, were sacrificed for a win.

In George’s article, he suggests that it is possible to use steroids in a safe way and that athletes should be able to do this.

In part, George is correct.

It is possible for athletes to use prohibited substances (such as steroids) for legitimate medical reasons. In fact, the World Anti-Doping Code actually allows for this.

However, athletes can only use prohibited substances following approval from a group of medical experts who grant the athlete what’s called a Therapeutic Use Exemption, or TUE.

What’s important to note from this process is that a group of doctors must approve the TUE. These doctors must be absolutely sure that the use of the substance will not be detrimental to an athlete’s health.

In this way, the World Anti-Doping Code recognises that sometimes athletes do need to use prohibited substances. But, it only allows athletes to use these substances for medical reasons.

There have been recent examples of athletes who have reportedly had major health scares and even died as a result of cheating through doping. These athletes have faced these health problems because they’ve tried to step outside of the World Anti-Doping Code rules, which exposes them to the dangerous risks of doping.

We can’t possibly stand by and let this occur.

That’s why I’m proud to lead an organisation that aims to develop a sporting culture free from doping in which performance is based on an athlete’s talent, determination, courage and honesty.
Bring truth into play by saying yes to drugs in sport

Bans on performance enhancers don’t make elite competition fairer, argues Craig Fry

The 2012 Tour de France starts this weekend under yet another drugs cloud. The US Anti-Doping Agency’s recent announcement of ‘doping’ charges against Lance Armstrong and others is no small matter. If the case is proven, it will nullify Armstrong’s record seven Tour de France wins between 1999 and 2005, and reverberate much more widely through international cycling. This being an Olympic year, it amplifies the relevance of this case for world sport generally.

It is a good time to reflect on our current thinking about performance enhancement in sport.

The genetic lottery of sporting ability is hardly fair either. The people who compete for Olympic medals, world championships and Tour de France jerseys are the genetic exceptions, not the rule.

Most people are against performance-enhancing drugs in elite sport based on the fairness and equity ideal of a level playing field, and a belief that ‘doping’ is unnatural and poses a health risk.

But what is the truth of performance enhancement in elite competition? Let’s take the level playing field idea first.

These days, elite-level sportspeople have an increasing array of performance-enhancing options and technologies available – from lighter, smoother, stronger, and more aerodynamic competition clothing and equipment to scientifically advanced skills and fitness training regimes. The list goes on.

Access to these resources is far from equal. Major equity gaps exist across and within countries as a function of national wealth, development and politics. Gaps also exist between certain sports due to differences in marketability and public profile, and related funding.

The genetic lottery of sporting ability is hardly fair either. The people who compete for Olympic medals, world championships and Tour de France jerseys are the genetic exceptions, not the rule.

We might all agree in principle that striving for greater equity in sporting competition is important. But belief in that ideal doesn’t commit us to judging all examples of advantage or disadvantage as unfair or morally wrong. Like it or not, in sport there is difference and this is determined by more than natural abilities alone.

What about the argument that performance-enhancing drugs are problematic because they are unnatural, dangerous and risky?

In elite sport no one gets to be the fastest, strongest or most skilled through natural hard work alone. In addition to the performance technologies already highlighted above, a cornucopia of nutritional, medicinal and other aids for energy, recovery, pain and stress relief, and emotional and mental health is now available to athletes.

Use of these consumable performance enhancers is widespread in the highest levels of all sports, with government-funded scientific programs and large teams of health and other professionals devoted to maximising outcomes.

Why make a distinction between these accepted examples and performance enhancement through use of corticosteroids, testosterone, erythropoietin, clenbuterol and the like?

Many say such substances and other doping practices should be restricted because of risks to athlete health. There are indeed risks with the use of these banned substances.

But safe forms of most of these are in use in other areas of life. And legally obtained drugs and medicines have risks and side effects too if used inappropriately.

For many people, the fact that certain practices are defined as illegal or prohibited in the sporting context is reason enough to accept them as such. Regulations that aim to govern sporting conduct are necessary at all levels, but we should acknowledge there is no divine or universal truth to the rules of sporting competition. These are subjectively defined, and history confirms that these change over time as knowledge and attitudes evolve and societal expectations shift.

We may like to believe that our modern sporting rules and laws uphold the ideals of equity and natural risk-free achievement in elite sport. Yet current practices suggest that the true spirit of elite sporting competition is more...
consistent with the Athenian ideal of superhuman effort at any cost.

The truth is ‘health risk’ occupies a central place in sporting competition. We applaud our sporting heroes when they take risks and triumph through injury. Putting your body on the line, pushing physical limits, and courageous play are as much a part of the allure of elite sporting competition as any interest in fairness and upholding the rules.

There will always be athletes at the highest levels willing to use banned drugs and other substances. The allure of fame, money, power and position for the successful will see to that.

The inconvenient truth is that the current drugs and substances prohibited from elite sporting competition are not uniquely dangerous or risky, or inherently harmful. Nor are they the only or biggest sources of risk.

We have the knowledge to use such things safely in sport if we so choose. Instead, our approach encourages clandestine doping.

As we have seen with drugs and other substances regarded as dangerous, prohibition policies serve to create illicit markets of hidden, uninformed and unregulated consumption. The evidence confirms such conditions exacerbate a range of health and other harms to both individual and community.

The level playing field and natural, risk-free achievement in elite sport are sentimental myths. Using these ideals to argue against performance-enhancing drugs in sport makes little sense, and does not reflect the truth of elite sporting competition as it occurs today.

An alternative would be an open and regulated approach to performance-enhancing drugs in elite sport. This would be consistent with the range of other enhancement technologies and resources used now. It would also better enable us to prevent and or minimise the health risks to those athletes already using prohibited substances secretly.

Associate Professor Craig Fry is a principal fellow at the Centre for Health & Society and Centre for Applied Philosophy and Public Ethics, Melbourne University. He specialises in drugs in society, health ethics and policy.
DRUGS IN SPORT: WHAT CONSTITUTES ‘UNFAIR ADVANTAGE’?

At the heart of growing concern about performance-enhancing drugs in Australian sport is the very basic matter of sport as an even contest, writes sociology professor Gary Wickham.

As Roy and H.G. used to put it, no one is particularly interested in an exhibition of a man kicking a dog. Sport is the pursuit (and the industry) it’s become because those who play it and those who watch it desire, and now expect, a close contest between relatively equally matched teams or individuals.

While some fans might wish to have their team win every game by a street, this outcome would be a turn-off for other fans, broadcasters, sponsors, administrators, and many others. The same is obviously true for a mismatch in boxing or tennis.

So, the idea that some teams or individuals are using drugs in a bid to defeat not just their opponents but the contest itself needs to be confronted. Punishments need to be meted out. But are we overreacting?

While some fans might wish to have their team win every game by a street, this outcome would be a turn-off for other fans, broadcasters, sponsors, administrators, and many others.

Before I go further, let me stress that I’m dealing here only with the use of drugs in sport deemed by officials to be performance enhancing to the point of creating an unfair advantage. My comments do not apply to any drug use that is illegal under Australian law (federal or state), which is a matter for the police and the courts (and for commentators qualified in that area).

When we leave illegal drugs out of the argument, it is vital that we answer a double-barreled question: what advantages are unfair and, at the other end of the problem, what is to count as a level playing field?

On the first issue, should we treat what’s regarded as a fair advantage in some domains as unfair in sport? If someone playing in the Tasmanian badminton championship, for example, has taken cold tablets for the two days before the tournament to help them get through their job as a librarian (a fair advantage, surely), should we regard this as a step down the Lance Armstrong path the minute that player takes the court, or should we treat it as we would treat any of us taking a cold tablet as we head off to work – not be tested and not to be frowned upon?

And what if the attempt to gain an advantage doesn’t work? Should the investigation into Cronulla’s supposedly enhanced performance in the 2011 NRL season take into account the fact that they finished 14th of 16 teams that year? Or the fact that in 46 seasons in the top flight they’ve never won anything?

In other words, how are we to measure the difference between Armstrong winning the Tour de France seven times and a team used to losing coming third last in the NRL 2011?

Zealotry is not the sign of a healthy society, but one too obsessed with perfection and too keen to punish those who aren’t perfect.

Are the present proposed penalties too harsh for such (alleged) offences? Why are we considering punishing fans and entire competitions for the sort of offences being investigated in this case (wherever the investigation ends up going)?

Zealotry, in my opinion, is not the sign of a healthy society, but one too obsessed with perfection and too keen to punish those who aren’t perfect.
too keen to punish those who aren’t perfect. Think Salem witch hunts, or their McCarthyist equivalents. I doubt that most Australians want their sport to be absolutely pure. Sure, they don’t want it rigged, but there are many degrees of minor adulteration before one gets to ‘rigged’ or ‘corrupt’. Some of these minor adulterations are treated as folklore.

The matter of defining a level playing field is even more complex. Are we hankering for contests between teams or individuals that rely only on their ‘natural’ abilities, free from the ‘taint’ of money and the drugs and other advantages it can buy?

If so, this could be another case of wrongly aiming for a mythical standard of perfection, putting us in danger of basing our system for determining unfair advantage on the old ideal of amateurism, which reigned in an era when television was barely interested in sport.

If we are going to be purists, why should we stop at drugs? Doesn’t unequal access to training facilities and expertise create an unfair advantage?

Surely it would be better if we could sort out the unfair advantage problem more sensibly, so that we can continue to enjoy access to sport in ways we couldn’t dream about even in the sixties and seventies.

And if we are going to be purists, why should we stop at drugs? Doesn’t unequal access to training facilities and expertise create what some might consider an unfair advantage? Shouldn’t we make sure every athlete and every team has equal access?

What about access to good food? Should Olympic athletes from poor countries be given the same access to the performance boosting diets enjoyed by those from rich countries?

I’m obviously being ridiculous here in a bid to drive home my point. It would be madness to try to equalise absolutely everything. It would be like insisting every cricket Test be played at a neutral venue with wickets scientifically tested and adjusted hourly to make sure conditions are the same for both sides.

Life just isn’t like that. Sport in a complex modern society like Australia requires complex modern procedures, procedures which acknowledge differences and issue punishments in a spirit of tolerance and with a determination to be reasonable to the sportsmen and women who give so much pleasure to the rest of us, sometimes for big rewards, often not.

Gary Wickham is a Professor of Sociology at Murdoch University.

Doping and Drugs in Sport

Issues in Society | Volume 364

The Olympics are in a few months. They’d throw me out. Right now, I would fail an Olympic-style drug test so hard it would make your teeth rattle. None of this A sample/B sample business, both specimens would probably just glow in the dark.

I haven’t broken the law, by the way – this is all perfectly legal. However, the World Anti-Doping Agency (WADA) would consider me well out of line. For my midday Monday workout, I would probably get a two year ban from competition. What would my sponsors say?

Plenty of performance-enhancing drug use is perfectly legal (caffeine, beta-blockers and asthma medication figure prominently in some sports).

And this isn’t unusual. Plenty of performance-enhancing drug use is perfectly legal (caffeine, beta-blockers and asthma medication, for instance, figure prominently in some sports).

So how should we interpret a recent study in which a majority of Australians are in favour of criminalising performance-enhancing drug use in sports? Didn’t think that one through, did we?

(Are people confusing performance-enhancing drugs with recreational drugs? Not all sports are rugby league, you know …)

This kind of thing is just one wrinkle amongst many in the rich constellation of confusion which surrounds the problem of drugs in sport. But facts, sadly, and any kind of reflective thought in general are completely antithetical to how most people think about the issue. The hysteria goes hand-in-glove with the raft of high-profile cases of doping over the last few years.

So, let’s start with the facts. The whole basis of sport is arbitrary – a pure social construction. That’s why it’s very easy to change the rules when the circumstances around them demand it. We can make cricket balls or pitches trickier to play after we get better cricket bats, restrict baseball bat designs, change the rugby scrum laws after head and neck injuries, etc.

And, of course, progressively add new drugs to the list of banned substances as providing an unfair advantage. There is no such thing as intrinsic cheating – this is something that only exists when we have a violation of a standard which has an official mandate.

So let’s look at our official mandates. There are some sports, like bodybuilding or strongman, which have a reduced interest in drug testing (for obvious reasons). But the vast majority of sports have a similar code to, or are subject to the rules of, WADA. A few years back, WADA declared the presence of any performance-enhancing drug, regardless of its level or how it got there, to be a rule violation – ‘strict liability’.

In other words, WADA’s solution is to punish the presence of drugs, not the presence of cheating.

It sounds sensible and no-nonsense on the face of it, but from that we end up with the ridiculous situation of Alberto Contador – testing positive to a level of a banned substance so low that the chances of it being deliberately ingested are practically zero – being stripped of his Tour de France win and banned from competition. To say nothing of any matter of confidentiality, or the presumption of innocence until proven guilty.

After more than a year, a final arbitration in Contador’s case took almost 100 pages of notes to acknowledge that...
a) the test he failed was almost certainly accidental, and b) this doesn't matter under the rules as they exist – because they couldn't prove how it was accidental.

This did not stop the wolves, though. A quick Google trip will allow you to pursue in great detail how readily the word 'cheat' was flung around in light of this result. No one offered a reason why the best cyclist in the world would take a dosage of an easily detectable substance that was too small to have any performance benefit in the middle of the most heavily drug-tested event on the world stage.

People have an uncertain idea about protecting the 'humanness' of sport, the spirit of endeavour and greatness achieved through human toil, and that drugs represent a level of 'artificiality'.

I suppose at the very centre of it all, people have an uncertain idea about protecting the 'humanness' of sport, the spirit of endeavour and greatness achieved through human toil, and that drugs represent a level of 'artificiality' – something from outside the body.

This argument is perfectly acceptable – but it certainly does draw as uncertain the status of oxygen tents, and hyperbaric chambers, and ice baths, and legal supplements, and gym machines designed to mimic human strength curves, and electromuscular stimulators, and movement/gait analysis, and blood metabolite monitoring, and the vast array of legal and grey market supplements ... suddenly as 'natural'.

What is the specific line where modifying a body for success becomes bad?

There isn't a way to make this issue go away. Both the current testing system (and any proposed kind of legalisation I've ever seen) have serious problems, and the hysteria about drug use runs so deep that to even question the structure and logic of drug testing is to invite ridicule. Some of you have probably already skipped to the end to bray loudly at me about cheating.

But, the one thing we can do is be aware that this full-volume hysterical morality is not helping. Here's a start: perhaps insanely competitive people like athletes are to be respected, and their feats are to be put on a pedestal, but the people themselves shouldn't be. I'm not sure at what point in time we started to expect moral excellence in the company of physical excellence, or a balanced respect for contemporary values from the utterly single-minded.

If we continue to do so, in the world of a world of masking agents and selective androgen receptor modulators and combinatorial chemistry, we will be making heroes and then damning them forever.
EXPLORING ISSUES

ABOUT THIS SECTION

‘Exploring issues’ features a range of ready-to-use worksheets relating to the articles and issues raised in this book.

The activities and exercises in these worksheets are suitable for use by students at middle secondary school level and beyond.

As the information in this book is gathered from a number of different sources, readers are prompted to consider the origin of the text and to critically evaluate the questions presented.

Does the source have a particular bias or agenda? Are you being presented with facts or opinions? Do you agree with the writer?

The types of ‘Exploring issues’ questions posed in each Issues in Society title differ according to their relevance to the topic at hand.

‘Exploring issues’ sections in each Issues in Society title may include any combination of the following worksheets: Brainstorm, Research activities, Written activities, Discussion activities, Quotes of note, Ethical dilemmas, Cartoon comments, Pros and cons, Case studies, Design activities, Statistics and spin, and Multiple choice.

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WORKSHEETS AND ACTIVITIES
**BRAINSTORM**

Brainstorm, individually or as a group, to find out what you know about doping and drugs in sport.

1. **What is a performance-enhancing drug?**

2. **What are anabolic steroids, and what sports are they commonly used in association with and why?**

3. **What are sedatives, and how are they used to enhance an athlete’s performance?**

4. **What is the *World Anti-Doping Code*, and how does it work?**
Complete the following activity on a separate sheet of paper if more space is required.

“Put simply, doping is cheating. Doping ruins sport for everyone. It only cheats the fans and honest athletes and competitors who play by the rules, stay clean and work hard to reach their potential.”

Do you agree with this statement? Write a short essay exploring the views expressed. Consider all sides of the argument and present your own conclusion.

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Research the following terms and explain what they are, their potential effects, and what sports they are commonly used in association with. Complete on a separate sheet of paper if more space is required.

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<tr>
<th>Term</th>
<th>Definition</th>
<th>Potential Effects</th>
<th>Sports Commonly Used</th>
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<tbody>
<tr>
<td>Lean mass builders</td>
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<td>Stimulants</td>
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<td>Diuretics</td>
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<td>Blood boosters</td>
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<td>Masking agents</td>
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Select one of the following design activities and create a full design brief. The brief should be in two parts: a) the visual concept – featured images, colours, text size, etc; and b) the content ideas – headings, feature tag line, text, statistics, etc. Complete on a separate sheet of paper if more space is required.

1. A general community awareness poster addressing the topic of ‘doping’ in professional sport.
2. A poster aimed at young athletes promoting healthy diet and exercise versus the use of performance-enhancing drugs.
3. A sports magazine advertisement addressing the concept of fair play versus ‘drug cheats’ in sport.
4. A newspaper advertisement educating people about the effects of experimenting with drugs in association with sport.
5. A website advertising banner discouraging people from experimenting with drugs in sport.

**VISUAL CONCEPT**

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**CONTENT IDEAS**

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DISCUSSION ACTIVITIES

Some athletes do not have access to the best equipment, nutrition and trainers. In groups, discuss whether you feel there is a difference between using performance-enhancing technologies (i.e. equipment, nutrition, training) and using performance-enhancing drugs. Compile a list of reasons in the spaces below for each line of argument derived from your discussion.

PERFORMANCE-ENHANCING DRUGS

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PERFORMANCE-ENHANCING TECHNOLOGIES

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This e-book is subject to the terms and conditions of a non-exclusive and non-transferable SITE LICENCE AGREEMENT between THE SPINNEY PRESS and: Trinity College, East Perth, library@trinity.wa.edu.au
Complete the following multiple choice questionnaire by circling or matching your preferred responses. The answers are at the end of the next page.

1. American cycling great Lance Armstrong has been stripped of how many Tour de France titles?
   a. 0  
   b. 4  
   c. 7  
   d. 9  
   e. 14  
   f. 17  

2. Which of the following sports do not allow the use of the alcohol and/or beta-blockers in-competition according to the 2013 World Anti-Doping Code Prohibited List?
   a. Skiing  
   b. Karate  
   c. Golf  
   d. Darts  
   e. Hockey  
   f. Billiards  
   g. Rugby Union  
   h. Motorcycling  
   i. Gymnastics  
   j. Archery  

3. EPO is a commonly used term with regard to blood doping. What is it an acronym for?
   a. Evening primrose oil  
   b. Erythropoetin  
   c. Ethylestrenol  
   d. Etilamphetamine  
   e. Ephedrine  
   f. Epitestosterone  

4. How many athletes were caught doping at the 2004 Olympic games in Athens?
   a. 0  
   b. 2  
   c. 6  
   d. 14  
   e. 22  
   f. 26  

5. What is the name of the track athlete who famously tested positive for the use of anabolic steroids at the 1988 Olympic Games in Seoul?
   a. Marion Jones  
   b. Lance Armstrong  
   c. Grant Hackett  
   d. Ben Johnson  
   e. Tom Simpson  
   f. Ben Jones
MULTIPLE CHOICE

Complete the following multiple choice questionnaire by circling or matching your preferred responses. The answers are at the end of this page.

6. Identify whether the following are classified as Prohibited Substances according to the World Anti-Doping Code Prohibited List (2013). Choose either ‘True’ or ‘False’:

a. Drugs under pre-clinical or clinical development
   True / False

b. Nicotine
   True / False

c. Beta-2 agonists
   True / False

d. Local administration of adrenaline
   True / False

e. Glucocorticosteroids
   True / False

f. Intravenous administration of albumin
   True / False

g. Ephedrine (when its concentration in urine is less than 10 micrograms per millilitre)
   True / False

h. Marijuana.
   True / False

i. Pseudoephedrine (when its concentration in urine is greater than 150 micrograms per millilitre)
   True / False

j. Diuretics
   True / False

MULTIPLE CHOICE ANSWERS

1 = c ; 2 = a, b, c, d, f, h, j ; 3 = b ; 4 = f ; 5 = d ; 6 – a = T, b = F , c = T, d = F , e = T, f = T, g = F , h = T, i = T, j = T.
Doping is used to boost muscle growth and repair and/or the body's capacity to carry oxygen to the exercising muscles. (p.1)

A lot of the banned substances and procedures were originally developed to help people with diseases such as leukemia. (p.2)

The word doping is probably derived from the Dutch word dop, the name of an alcoholic beverage made of grape skins used by Zulu warriors in order to enhance their prowess in battle. (p.4)

Ancient Greek athletes are known to have used special diets and stimulating potions to fortify themselves. (p.4)

Thomas Hicks ran to victory in the marathon at the 1904 Olympic Games, in Saint Louis, with the help of raw egg, injections of strychnine and doses of brandy administered to him during the race. (p.4)

In 1928 the IAAF (athletics) became the first International Sport Federation (IF) to ban doping. (p.4)

Drug tests were first introduced at the Olympic Winter Games in Grenoble and at the Olympic Games in Mexico in 1968. (p.5)

The most famous doping case of the 1980s concerned Ben Johnson, the 100-metre champion who tested positive for stanozolol (anabolic steroid) at the 1988 Olympic Games in Seoul. (p.5)

The World Anti-Doping Agency (WADA) was established on November 10, 1999. (p.5)

Performance-enhancing drugs are also found in animals as synthetic growth hormone. (p.6)

Painkillers used by athletes range from common over-the-counter medicines such as NSAIDs (e.g. ibuprofen) to powerful prescription narcotics. (p.6)

Using a syringe to dope puts you at a higher risk for contracting infectious diseases such as HIV/AIDS and hepatitis. (p.8)

EPO (erythropoietin) may help with the way your body uses oxygen, but may make your blood more like honey than water. (p.9)

Some athletes try to cheat the system by using diuretics and other substances to cover up the signs of using banned substances. (p.9)

Former track and field star Marion Jones, who won five gold medals at the Sydney Games, never failed a drugs test. On October 5, 2007, Jones admitted to lying to federal agents about her use of steroids before the 2000 Olympics and pleaded guilty at the US District Court for the Southern District of New York. (pp. 10, 40)

In February 2007, (p.18) The Tylenol case (pp. 10, 16, 17, 18, 19, 20, 21) The US Anti-Doping Agency (USADA) stripped the seven-time Tour de France winner, Lance Armstrong, of all titles (pp. 30, 34, 37, 39, 40, 43) In Australia, a 2009 survey regarding public opinion about drugs in sport, found that 90% of the Australian public saw the problem of performance-enhancing drug use in sport as serious. (p.30) There are now fewer scandals every time the Olympics are held. In Athens in 2004 26 athletes were caught; in Beijing in 2008, only 14 athletes and 6 horses. (p.31)

Former swim champion, Grant Hackett developed a dependency on Stilnox during a period which included his competition at the Beijing Olympics after being prescribed the drug by Australian team doctors. (p.36)

Brandy and strychnine were used to help cyclists survive early Tour de France races in the first few decades of the 1900s. (p.38) The death of Danish cyclist Knud Enemark Jensen during competition at the 1960 Olympic Games in Rome (the autopsy revealed traces of amphetamine) increased the pressure to introduce drug testing. (p.42)

The death of Danish cyclist Knud Enemark Jensen during competition at the 1960 Olympic Games in Rome (the autopsy revealed traces of amphetamine) increased the pressure to introduce drug testing. (p.42)
**Anabolic steroids**
Drugs which mimic the effects of male reproductive hormones (i.e. by boosting muscle growth and protein synthesis). Side effects include aggression, liver damage and high blood pressure. They are used in many different kinds of professional sports to enhance performance or assist with recovery from injury. Their use is prohibited by the governing bodies of most sports.

**Athlete**
A highly-trained professional or amateur sportsperson.

**Blood boosters**
These drugs increase the oxygen-carrying capacity of blood beyond the individual's natural capacity. Their misuse is centred on endurance sports like cycling and nordic skiing. Erythropoietin (EPO) is the most publicly known.

**Diuretics**
Diuretics are used to expel water from an athlete’s body through urine. They are often used by athletes who need to meet weight restrictions, and can also be used to hide banned substances during urine tests, as the urine is more diluted. Their use is prohibited in competitive sport.

**Doping**
Term used to describe when a competitor uses performance-enhancing substances which are prohibited by the rules of the competition.

**Gene doping**
Defined by the World Anti-Doping Agency as “the non-therapeutic use of cells, genes, genetic elements, or of the modulation of gene expression, having the capacity to improve athletic performance”.

**Lean mass builders**
Drugs which drive or amplify the growth of muscle and lean body mass and are sometimes used to reduce body fat – includes anabolic steroids, xenoandrogens, beta-2 agonists, selective androgen receptor modulators (SARMs), and various human hormones, most notably human growth hormone.

**Masking drugs**
Drugs used to prevent the detection of other classes of drugs. An example is the use of epitestosterone, a drug with no performance-enhancing effects, to restore the testosterone/epitestosterone ratio (a common criterion in steroid testing) to normal levels after anabolic steroid supplementation.

**NSAIDs**
Common abbreviation for non-steroidal anti-inflammatory drugs which are commonly used to treat inflammation, mild to moderate pain and fever. Examples of NSAIDs include aspirin and ibuprofen.

**Painkillers**
These drugs mask athletes’ pain so they can continue to compete and perform beyond their usual pain thresholds. Painkillers used by athletes range from common over-the-counter medicines such as NSAIDs to powerful prescription narcotics.

**Performance-enhancing drugs**
The phrase is commonly used in reference to anabolic steroids or their precursors (hence the colloquial term ‘steroids’). Anti-doping organisations apply the term more broadly to refer to several distinct classes of drugs (e.g. lean mass builders, stimulants, painkillers, sedatives, diuretics, blood boosters and masking drugs). Anabolic steroids are universally classified as performance enhancers whereas other substances (like vitamins and protein supplements) are virtually never classified as such despite their significant effects on athletes' performance.

**Prohibited List**
List identifying the substances and methods prohibited in sport. It is one of the four World Anti-Doping Agency International Standards and is mandatory for signatories to the World Anti-Doping Code.

**Sedatives**
These are sometimes used by athletes in sports which require steady hands and accurate aim such as archery, and may also be used by athletes attempting to overcome excessive nervousness or discomfort. Examples of sedatives include alcohol, diazepam, propranolol and marijuana.

**Stimulants**
These are drugs which cause the body and mind to perform optimally by enhancing focus, energy and aggression. Examples of stimulants include caffeine, amphetamine and methamphetamine.

**Therapeutic Use Exemption**
If an athlete needs to take a banned substance, they can apply for a Therapeutic Use Exemption (TUE). These are administered in Australia by ASADA’s partner organisation, the Australian Sports Drug Medical Advisory Committee (ASDMAC).

**World Anti-Doping Code**
The key document that harmonises regulations regarding anti-doping across all sports and all countries of the world. The Code provides a framework for anti-doping policies, rules and regulations for sport organisations and public authorities.
Websites with further information on the topic

Australian Institute of Sport (AIS)  www.ais.org.au
Australian Olympic Committee (AOC)  http://corporate.olympics.com.au
Australian Sports Anti-Doping Authority (ASADA)  www.asada.gov.au
Australian Sports Drug Medical Advisory Committee (ASDMAC)  www.asdmac.org.au
Good Sports (Australian Drug Foundation)  http://goodsports.com.au
International Olympic Committee (IOC)  www.olympic.org
Sports Medicine Australia  http://sma.org.au
World Anti-Doping Agency (WADA)  www.wada-ama.org

For more information about social issues visit The Spinney Press website at www.spinneypress.com.au
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