

Editorial

## The war on drugs in sport

*Education rather than prohibition may be the answer*

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History dictates that prohibition is a strategy doomed to failure. In 1920, the Americans enacted prohibition. Far from the anticipated effect, alcohol consumption increased, organised crime thrived, and there was corruption amongst government officials.

From the recently released Stazi files, we can see that countries, such as the German Democratic Republic (GDR), have systematically encouraged the use of performance enhancing drugs by their athletes. For the politicians, athletic performance was a quick and cheap way to obtain international prestige. As part of this plan, the state-owned pharmaceutical company, VEB Jenapharm, produced oral turinabol, to improve the GDR athlete's performance [1]. When the urine test for a raised testosterone:epitestosterone ratio was introduced in 1984, the GDR was one step ahead. The sports physicians of the country determined the dose of epitestosterone required to bring the ratio back to the normal range and VEB Jenapharm produced it [2]. If an athlete was still liable to fail a drugs test, there was no cause for panic as one of the members of the international doping control committee was from the GDR and was able to cover up positive results by arranging false negative findings or by exchanging the athlete's sample with clean urine [3].

Of the 8473 competitors at the Seoul Olympics, only 10 were banned for failing a drugs test, most notably the Canadian 100 m sprinter, Ben Johnson, who had won a gold medal [4]. Following the games, the Canadian Government set up an official enquiry, headed by the Canadian Justice Minister, Charles Dubin. The enquiry heard evidence that, far from a handful of athletes, more than half were using performance enhancing drugs [5]. A similar enquiry for the Australian Senate heard evidence that suggested that 25% of the 1988 Australian Olympic

track and field squad had taken, or were taking, performance enhancing drugs [6].

With 27 members of the Chinese squad being withdrawn before the start of the 2000 Sydney games [7], the theft of 1575 phials of growth hormone from a Sydney wholesaler [8], and a coach from the Uzbekistan team being caught smuggling human growth hormone, it would appear that prohibition is far from being effective. The use of performance enhancing drugs has increased, organised crime has thrived, and there is 'corruption' amongst government officials.

### Old drugs but new temptations

Performance enhancing drugs are nothing new. The ancient Greeks ate hallucinogenic mushrooms as well as sesame seeds to improve performance, and gladiators used stimulants to stave off fatigue in the arena [9]. In the 19<sup>th</sup> century, it was the turn of stimulants such as strychnine, cocaine, and caffeine [10]. By the 20<sup>th</sup> century the performance enhancing drug taker's lexicon included stimulants such as amphetamine and ephedrine; anabolic agents such as androgenic anabolic steroids; the polypeptide hormones insulin, insulin-like growth factor and human growth hormone; and the regulator of erythropoiesis, erythropoietin. Pushing the rules to the limit has long been part of sport but the influence of governments and the large financial rewards of sporting success are creating further temptations for athletes.

As technology advances there can be no level playing field. Sports science is pushing the boundaries of physical performance and it is difficult to see where it will end. In the war against performance enhancing drugs, the lines of legality and fairness are increasingly blurred. Sponsorship, both commercial and governmental, has

created tiers of support within sport that clearly give some athletes an advantage, as they are able to pursue a full time sporting career. While it is an offence to use exogenous erythropoietin, if the athlete is able to afford the expense, it is legal to live at altitude and train at sea level in an effort to enhance performance [11]. It is even legal to sleep in a decompression chamber with reduced atmospheric oxygen to induce the 'natural' production of erythropoietin [12].

### **Current drug tests cause confusion and create inequity**

The real dilemma for the 'clean' athlete today is whether to train naturally, use supplements of proven benefit, or even take drugs that are not as yet detectable. Creatine monohydrate is a food supplement of proven performance benefit [13] and yet it remains legal. Many athletes have turned to this product with the intent of improving performance. UK Athletics, the governing body for the UK, cleared Gary Cadogan, Doug Walker, and Linford Christie who tested positive for nandrolone. At the International Amateur Athletics Federation (IAAF) hearings, it was argued that creatine combined with intensive exercise could result in nandrolone positive tests, using the results of a study performed by Professor Maughan in Aberdeen, Scotland. The IAAF rejected this as they felt "no conclusion could be drawn" from the study, and the bans on these athletes were reinstated [14].

The late introduction of a test for EPO at the Sydney Olympics left no time for the back room cheats to find ways to beat the test, but there are anecdotal reports that athletes have already started to use alternative products, such as fluorocarbons and haemoglobin, which can transport oxygen [15]. There are no available tests for human growth hormone, insulin-like growth factor, and insulin. To date, these banned polypeptide hormones remain undetectable. With a synergistic action between insulin and growth hormone [16], these hormones are anabolic and used in 'explosive' events, such as the 100 m or 200 m. So, although the new test for EPO scuppers athletes cheating in endurance events, athletes cheating in the prestige events of the 100 m and 200 m may remain undetected.

Male athletes can point to the irony that while women use a female sex hormone, the oral contraceptive pill, to control their menstrual cycle while training and competing, men are unable to use male sex hormones, androgenic anabolic steroids. This issue may become of more importance as the World Health Organisation strives to find a male contraceptive. With two of the researched products being nandrolone [17] and testosterone enanthate [18], if developed, male athletes will be denied use of these products.

### **Current tests obey none of the rules of screening**

Drug testing has been the main deterrent for athletes intent on cheating. As the conflict between UK Athletics and the IAAF over nandrolone has shown, governing bodies seem to be unable to agree on bans for positive drug tests and even the drug test results themselves. Surely, this raises questions about the drug testing programme. Any screening procedure must include three factors: sensitivity to catch the cheats, specificity to ensure we do not falsely accuse innocent athletes, and cost effectiveness. With only 28 positive tests for anabolic agents found by the UK testing programme from 1988 to 2000, and 796 tests performed each year [19], the sensitivity of the testing programme must be questioned. In the case of British athlete, Diane Modahl, who was cleared after a positive drugs test, and the recent UK Athletics' nandrolone cases leaving potentially innocent athletes struggling to clear their names, the specificity must be questioned too. In the USA, the National Collegiate Athletic Association budgeted only \$3.2 million for drug testing in the 1990-91 academic year, yet drug testing at the 1988 Olympics in Seoul, Korea, exceeded \$2 million. However, it was estimated that to test all high school American football players once a year would cost \$100 million [20]. Of the £1.6 million available to the UK anti doping programme in 1999/2000 [21], only approximately £200,000 is destined for athletics - about four weeks' salary of a top English premierships football player. This must bring the resources available - and those required - into question.

### **Instead of losing the war, should we be fighting a different one?**

Are we really winning the war on drugs, or merely highlighting our failings? As drug taking continues, seemingly unabated, is the myth being perpetuated that performance enhancing drugs are required in sport? Ultimately, the answer may be that we are fighting the wrong war. In 1993, the Canadian Centre for Drug Free Sport estimated that 83,000 schoolchildren between the ages of 11-18 had used androgenic anabolic steroids in the preceding 12 months [22]. Surely, educating our youth is the real battle and way ahead. For the vast majority of people, advice on diet and training will dispense with the need for performance enhancing drugs.

Elite athletes are different. When 198 world class athletes were asked if they would take a drug that would allow them to win all competitions for five years, was undetectable, but would kill them five years after taking it, 103 (52%) said they would [23]. If we are not prepared to invest much more into drug testing programmes, the answer, however unpalatable, may be to abandon the tests. Then we could offer athletes the opportunity of

open discussions with their doctors and provide adequate monitoring of the harm drugs can cause. It would also take the issue out of the media spotlight. Ultimately, the responsibility lays with the athlete - for what price a gold medal if it is tarnished by deceit. Surely, no true ath-

lete can value a medal if it is won through cheating. In such cases, the athletes will not only have let themselves down, but will have betrayed those of us desperate for heroes.

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