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Drug misuse in sport: a New Zealand perspective

Andrew Curtis, David Gerrard, Peter Burt, Hamish Osborne

ABSTRACT

AIMS: Drug misuse in elite sport is a world-wide phenomenon. This article explores the culture of contemporary sport, provides estimates of doping prevalence, discusses dietary supplementation and highlights major factors influencing high-performance athletes and their support personnel. The aim is to stimulate discussion, informed by the World Anti-Doping Code (WADC), which is particularly relevant to doctors caring for athletes.

METHODS: Online databases were searched for relevant peer-reviewed research from 2009 to 2015. Comparative New Zealand data have been included.

RESULTS: Estimates of the prevalence of sports doping range from less than 1% to as high as 52%, dependent upon the demographics of the identified cohort. The culture of elite sport, personal stressors, competitive demands, financial reward and the influence of an 'entourage' of support personnel were identified as critical determinants of drug misuse.

CONCLUSIONS: The culture of elite contemporary sport is seductive to many aspiring young athletes. To combat drug misuse, effective education should embody moral, ethical and clinical dangers, recognising the importance of support at times of increased athlete vulnerability. Inadvertent doping from product contamination is a recognised risk of unsupervised dietary supplementation. Doctors responsible for the care of high-performance athletes must be cognisant of these issues and the provisions of the WADC.

The use of drugs to enhance sports performance is a global phenomenon that continues to receive wide media attention. The number, variety and use of legal and illegal drugs has increased in recent years.¹ Drug misuse in elite sport is monitored internationally by the World Anti-Doping Agency (WADA), while Drug-Free Sport New Zealand (DFSNZ) is responsible for national athlete testing and education.

Recently, it has been proposed that young athletes transition incrementally from their use of 'permitted' to illegal substances, with the suggestion of 'harm minimisation' as an approach to counter this.¹ Health professionals, particularly doctors, are traditionally recognised by athletes as a trusted resource for all matters of drug efficacy and safety, including the use of dietary supplements and performance-enhancing agents.² However, many physicians lack fundamental knowledge to provide adequate advice to athletes.³

This article references the body of research on doping prevalence in sport, discussing its associated culture, common reasons, key personnel and prevention strategies to assist medical professionals in the New Zealand context.

Review methodology

MEDLINE, PubMed, Scopus and SPORT-Discus online databases were searched for peer-reviewed research from 2009 to January, 2015, using combinations of the terms, "doping", "performance enhancing drug*", "performance enhancing substance*", "drugs", "anti-doping", "education", "sport*", "prevalence", "prevention", "athlete*", "elite", "sub-elite", "recreational" and "adolescent." A second-stage 'snowball' search scanned reference lists of published articles for relevant manuscripts and considered articles recommended by the online databases at the time

the original manuscripts were downloaded. A total of 232 references were identified that related to the prevalence, prevention and culture of drug misuse in sport. Only six of these were specific to New Zealand.

Results and discussion

Definitions

For the purposes of this review, ‘doping’ is defined as a breach of the WADA rules, including use or attempted use of a prohibited substance or method. These include anabolic agents, peptide hormones, stimulants, diuretics, beta-2 agonists and recognised performance-enhancing methods, such as blood and gene doping, urine tampering or intravenous infusions unless medically indicated. The use of illicit “recreational” drugs, including narcotics and cannabinoids, is also considered a breach of the WADC. Contemporary literature uses the interchangeable terms “performance-enhancing drugs” (PEDs), “banned drugs” and “doping” with resulting confusion.^{1,4} In this review, doping infers the collective of PEDs, performance-enhancing methods and illicit drugs.

Breaches of the WADA rules are considered either intentional or inadvertent. The former implies ‘cheating’, whereas the latter may result from supplement contamination or ignorance.¹ Acts of doping in sport focus primarily on an intent to enhance performance, while ‘inadvertent doping’, not generally considered as purposeful, is deemed a consequence of either unknown product contamination or ‘recreational’ drug use. However, the WADC applies strict personal liability to drug misuse, making no such discrimination when considering violations. As a result, any athlete found ‘positive’ may be sanctioned in accordance with options from a reprimand, to the rarely used lifetime ban from sport. For the purposes of this review, the authors use ‘doping’ to refer to deliberate, banned drug-use and ‘inadvertent doping’ for product contamination or ignorance of the rules.

Prevalence

A true prevalence of doping in sport is difficult to determine given the limitations of data collection, the intrusiveness of the

questions and the obvious sensitivity of the responses. International drug testing results, collated by WADA, demonstrate an approximate prevalence of 2% positive tests per year. However, the true prevalence is thought to be closer to 10%⁵ with a recent review of the literature yielding an estimation of 14–39%.⁴

In 2013/14, DFSNZ carried out 925 drug tests on elite athletes, with 4 violations, a doping prevalence of 0.004%, which compares to 0.007% in 2012/13 and 0.005% in 2011/12.⁶ However, these tests do not include gym users or athletes not subjected to anti-doping regulations. Another paper reported 5 of 32 New Zealand body builders admitting the use of androgenic anabolic steroids (AAS) at some stage in their career.⁶ Australian-based studies of doping amongst elite athletes reported an 8% response, compared with 52% in male gym users,^{7,9} while 25% of a Canadian cohort of junior provincial athletes reported PED use in the previous year,⁹ and up to 12% of an American high school student cohort reported AAS use.^{10,11} From these estimates, 10% of athletes seen by a health professional are possibly using a PED, and 1 in 3 are at risk of inadvertent doping from supplement use.

Drug-User Profile

Competitive athletes who intentionally dope are categorised as “...villains, mavericks and professionals.”¹¹ “Villains” cheat deliberately, while “mavericks” display an ignorant disregard for the rules. “Professionals” however—purported to be the largest group—progress from diet and lifestyle changes, to supplementation, and finally to banned substance use. It is argued that these athletes are not ‘cheaters’, but products of the intensely competitive, commercialised world of elite sport, whereby they are driven to train with greater intensity for longer periods.

At a recreational level, so-called ‘gym users’ plus ‘power and strength sportspeople’ are more likely to use AAS or growth hormone derivatives.^{12,13} This systematic review of anabolic steroid use listed appearance, aggression or enhanced performance as the most relevant reasons for doping.¹³ These dopers were characterised as being male, under 30 years of age, mistrusting of medical

professionals and with comorbidities including depression and a history of illicit drug use.^{12,13} Furthermore, female AAS-users have a much higher risk of dependency than male counterparts.¹⁴ Therefore, recreational sportspeople with the characteristics described should prompt medical professionals to be wary of their potential for drug misuse.

Times when athletes are at an increased doping risk

The culture of doping is as varied as the sports, sub-cultures, ability, ages and personalities of the users.^{1,2,15-19} Notwithstanding, some individual characteristics and specific determinants have emerged that could assist doctors who regularly manage athletes. As a group, athletes have been identified as being more likely to use a PED if offered the chance.^{20,21} Qualitative research involving a cohort of 147 UK athletes identified reliability, rule abiding and role modelling as 'protective behaviours', while rule breaking, bad temperament and a win-at-all-costs attitude were risk factors for doping.²² An athlete's 'doping risk' was also reported to increase during critical events, such as selection/de-selection,^{23,24} during recovery from injury and when negotiating crucial sponsorship deals.¹⁷ These transitions were considered to be times of psychosocial challenge with an enhanced risk of doping. At such times, social support, individual coping mechanisms^{2,25} and the influence of medical advice was deemed critical.³

Entourage—influence and knowledge

A complex of individuals, identified as the 'athlete entourage', contributes to the environment of every elite athlete. Doctors, coaches, trainers, family, friends, teammates and physiotherapists are acknowledged sources of knowledge, leadership and support.² Yet a study of the anti-doping knowledge of 292 Australian support personnel revealed that 40% had no specific training, despite providing advice to athletes.²⁶ This study also revealed that 32% of these support personnel ignored the unethical behaviour of colleagues, despite a WADC obligation to report doping offences irrespective of confidentiality.³ The importance of the coach in the social network is

also emphasised, and for 292 New Zealand athletes interviewed, coaching style was a determinant in an increased athlete doping risk.¹⁹ This influence was also reflected by studies of elite Scottish,²⁷ German,¹⁶ and Greek²⁸ athletes.

Culture of sport

While the culture of sport has been identified as shaping an athlete's attitudes and intentions to dope, the public and the media consider doping as simply another form of 'cheating'.^{13,29} Athletes caught cheating are commonly portrayed as 'bad', with the role of their entourage often ignored,²⁸ despite compelling evidence that they are complicit.¹⁷ Athletes are frequently 'villainised' when caught using drugs in a recreational setting. Multiple Olympic gold medallist Michael Phelps was publicly chastised for his one-time use of cannabis,^{30,33} yet Barack Obama as a Presidential candidate was praised for honesty in declaring his youthful, cannabis and cocaine use.³¹

Elite athletes are more likely to dope if they believe that other athletes are doping.^{21,32,33} For example, eight elite and neo-elite cyclists, interviewed prior to turning professional, viewed doping as cheating, yet once they became professional they regarded doping as an inevitable progression in performance enhancement. They also claimed elite sport as being deleterious to health, rationalising that PEDs conferred a protective influence.^{32,34} Boundaries can be blurred between 'legitimate' performance enhancement, including physiological testing, nutritional supplementation or biomechanical computer-modelling and frank doping to compensate for media pressures, sponsorship or public expectation.^{35,36} Times of increased vulnerability demand concerted education and awareness from all stakeholders, particularly doctors.

Dietary supplements

Dietary supplementation in sport is common, with the internet, team mates, coaches and athletic trainers providing the most common sources of information.³⁷ An unpublished survey of elite New Zealand athletes reported a 93% usage of 3 supplements in the prior 6 months,³⁸ findings comparable to data from a similar Canadian study.³⁷ Inadvertent doping is a potential

consequence of supplementation, with products frequently not subjected to strict manufacturing and quality control. Fifteen percent of internet-sourced supplements have been reported with steroid contamination³⁹ as well as potent psychoactive substances, including DMBA (1,3-dimethylbutylamine) and its analogues.³⁹ Dietary supplement users are also shown to be at greater risk of doping than non-users, reflected in studies of elite UK athletes,¹⁵ Australian and Greek high school students,^{19,25} amateur Australian cyclists,^{24,36} and Croatian rugby players.⁴¹ A more permissive attitude towards doping has mirrored increasing supplement use, with recovery from injury or training, improved performance, increased muscle size and body image as common reasons.^{15,35,37} Sources of supplements and reasons for their use are matters for doctors to explore with athletes in their care.

Body image and moral disengagement

'To look good,' is an oft-cited reason for recreational athletes, especially serious gym users, to use AAS and supplements.⁴² Both AAS and supplement use are reportedly associated with an increased alcohol and illicit drug consumption,^{13,42} low self-esteem or a negative body image, and participation in sports where muscle bulk is important.¹⁰ Product source is important, with 50–75% of PEDs being reportedly purchased online.²¹ One study used laboratory testing of 57 AAS or growth hormone derivatives purchased online and reported 42% being either contaminated with bacteria, containing no active anabolic ingredient or raising other safety issues.²¹ The same study reported that testing 634 nutritional supplements found many to contain some trace of AAS. The potential co-morbidities and risks for PEDs or supplements purchased online is important information for all medical professionals, but particularly doctors, to be aware of.

Athletes frequently rationalise doping on spurious grounds that ignore health and safety.^{23,32} A strategy known as 'moral disengagement' negates the immoral actions of cheating through established mechanisms

of "...displacement or diffusion of responsibility, advantageous comparison, distortion of consequences, moral justification and euphemistic labelling".¹³ These phenomena are documented in body builders,^{7,13,35} weightlifters,²³ cyclists,³⁴ and in 1,188 Australian adolescents were predictive of doping attitudes, regardless of social demographics or athletic status.³³ In order to counter forms of moral disengagement, medical professionals must recognise the process and develop appropriate counter arguments.³⁵

Conclusions

Despite the importance of sport in our society, there is a dearth of New Zealand research relating to sports doping. International figures suggest that doping is more common than figures would suggest and that deterrence through punitive measures alone is ineffective.

An understanding of drug misuse in sport deserves a wider, empathetic view that embodies the culture of sport and the influence of the athlete entourage of support personnel. The most common reasons given for PED use are to improve looks, increase performance, to cope with the demands of training, or to recover from injury. More recent research also suggests impressionable young athletes may see doping as a natural progression of performance enhancement and be willing to risk sanctions and personal health in the pursuit of success. Regardless, athletes taking supplements or PEDs bought online risk their health through possible contamination. Effective educational strategies encourage themes of health, morality and refusal skills, while acknowledging that there are periods of increased athlete vulnerability. Medical professionals in particular need to be increasingly wary of these times of increased risk.

Doctors treating competitive or recreational athletes carry a burden of responsibility in their knowledge of dietary supplementation and prohibited substances that reflects patient health and the spirit of sport embodied in the World Anti-Doping Code.

Competing interests:

Dr. Gerrard reports he is currently the Chair of the World Anti-Doping Agency (WADA) Therapeutic Use Exemption Committee and a member of the WADA Health Medicine and Research Committee, both voluntary positions.

Author information:

Andrew N Curtis, University of Otago, Christchurch; David Gerrard, Medicine, Dunedin School of Medicine, University of Otago, Dunedin; Peter Burt, Dunedin School of Medicine, University of Otago, Dunedin; Hamish Osborne, Dunedin School of Medicine, University of Otago, Dunedin

Corresponding author:

David Gerrard, Medicine, Dunedin School of Medicine, University of Otago, Dunedin
david.gerrard@otago.ac.nz

URL:

www.nzma.org.nz/journal/read-the-journal/all-issues/2010-2019/2015/vol-128-no-1426-4-december-2015/6747

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