A strategy to reduce illicit drug use is effective in elite Australian football

Peter R Harcourt,1 Harry Unglik,2 Jill L Cook3

ABSTRACT

Background  The World Anti-Doping Agency (WADA) prescribes that drug testing is conducted in sports competitions to detect drug use in athletes. This testing includes performance-enhancing drugs as well as illicit substances such as marijuana, amphetamines and cocaine. Illicit drugs are tested for on match days but not on non-match days. Some athletes are known to use illicit substances for recreational purposes, away from competition times and this poses a serious health and welfare issue not addressed by the usual sport drug testing regimes. This paper reports the results of the first 7 years of an illicit drug-testing programme that included non-match day testing in the elite Australian Football competition, the Australian Football League (AFL).

Methods  Players in the AFL were tested for illicit drugs both in-competition and out-of-competition. Players were selected for illicit substance tests either randomly or targeted based on previous test history or time since previous test. The number of tests conducted was increased each year from 2005 to 2011 and testing was focused on high-risk times during non-competition periods.

Results  There were no positive match day tests. There was a significant reduction in positive tests (19–6) for illicit drugs during non-competition periods over the 7 years (p < 0.0001). The reduction in positive tests may be related to player education, the greater number of tests conducted and the harm minimisation approach of the illicit drug policy.

Conclusions  An illicit drugs programme using a harm minimisation strategy can work effectively alongside a sport’s WADA compliant Anti-Doping Code.

INTRODUCTION

Illicit drug use for recreational purposes is a substantial issue within Western society and causes significant health issues.1 In Australian society the incidence of use of any illicit drug at least once in a lifetime has been reported to be 58% and even higher for the 20–29 age group.2 Over a 12-month period (in 2006) 11% of the population were reported to use cannabis, and 9% used amphetamines.2

The incidence of illicit substance use in elite sporting groups, based on self-report surveys, is lower than the community. Dunn et al3 reported that 7% of Australian athletes had used illicit drugs in the past year and elite Australian athletes had a 21% lifetime cannabis use, 9.5% for ecstasy and 6.7% for cocaine. These findings were similar to data from the USA; Green et al4 noted a self-report incidence of recreational drug use in National Collegiate Athletic Association (NCAA) college athletes at 28.4% for marijuana, 3.1% for amphetamine and 1.5% cocaine.

Testing individuals for drug use is uncommon in the community but practiced regularly in elite sport to detect drug use. The first stand against drug use in sport was taken by the International Amateur Athletic Federation in 1928. The anti-doping movement gained real momentum in 1967 when the International Olympic Committee released its first list of prohibited substances.5 The anti-doping movement was further facilitated by the formation of the World Anti-Doping Agency (WADA) in 1999 and the subsequent harmonisation of anti-doping policies in most sports and countries.6 Testing of sports people for drug use is now regularly conducted both in-competition and out-of-competition for performance-enhancing drugs, including testing for common illicit recreational drugs as a part of competition testing.

The use of performance-enhancing drugs has a clear impact on sporting competition. However, the use of illicit drugs, such as cannabis and stimulants, used recreationally, well away from competition time, are less clearly linked to enhanced sporting performance and may even be detrimental. Interestingly, the WADA Code can apply the same sanctions for the use of illicit substances for performance-enhancing effects in competition testing and inadvertent recreational use away from the competition period.5 Illicit drugs such as cannabinoids are not widely considered performance enhancing and are presumably on the list under the health risk criteria.2–7 However, the WADA Prohibited List includes cannabinoids in the in-competition testing but not non-competition testing when the health risks would be the same.

Alongside the health risks of illicit substance use, elite athletes also have a welfare risk because they are subject to sanctions for drug use under their sport’s anti-doping codes. Athletes risk sanctions of 2 years or more and for professional athletes such as Australian Football League (AFL) players this has a substantial impact on their welfare.

Because of the differences between substances tested for in-competition and those tested for out-of-competition under the WADA Code, and considering anecdotal reports of drug use and the advice of experts and health promotion organisations, the AFL introduced an Illicit Drugs Policy (IDP) in 2005. This policy started after extensive expert and stakeholder consultation and agreement and the support of the AFL Players Association. The new strategy was introduced to strengthen the AFL Anti-Doping Code (ADC) and close the gap in illicit substance testing by including the non-competition period.

The AFL IDP places player health and welfare as its primary goal. The policy includes League-wide...
education and the first two detections are responded to with
confidential athlete counselling, treatment and rehabilitation.
Sanctions occur with the third detection. Since inception, the
programme has evolved with increased test numbers, better
test targeting and improved medical interventions after
detection.

The programme runs in parallel with the WADA compliant
AFL ADC that primarily targets performance-enhancing drugs
and illicit substances in game day testing. This paper reports
the outcomes of the first 7 years of the AFL IDP.

METHODS
Players from the 16 clubs participated in drug testing under the
ADC and IDP. Each club had a playing list of approximately 40
male players (approximately 640 players), indicative mean age,
height and weight of the players in the period 2005–2010 was
23 years, 188 cm and 87 kg. All players in the AFL were tested
under the two drug policies on game days and at any training
session during the preseason and competition season. During
the players’ holiday break (8 weeks) players return to their club
once at which time they could be tested under the IDP.
Immediately after the holiday break when the players have
returned to training preparation for the AFL competition
there is a period of increased IDP testing.

The ADC testing examined urine specimens for both
performance-enhancing drugs and recreational drugs (WADA
S1–S9 and M1–M5) in competition tests and the IDP examined
specimens for commonly used drugs classified under WADA as
S6–S8 (cocaïne, ecstasy, amphetamines, narcotics and cannabis)
as well as γ-hydroxybutyric acid and ketamine.

The ADC testing was conducted by the Australian Sport
Anti-Doping Authority (ASADA) and IDP testing was con-
ducted by a commercial pathology laboratory. Random and tar-
geted tests were conducted. Players were picked for random
tests from a list of players at a training session by the testing
officials. Targeted tests were directed at players with a previous
history of a positive drug test and players who had not been
tested in the past 12 months.

In-competition tests were conducted at the playing venue
with the drug test personnel notifying the players and collect-
ing the specimens after the game according to WADA protocols.
Standard testing privacy and collection procedures were used.
Non-competition testing followed similar protocols but were
conducted at team training facilities.

Drug testing is part of the players’ contract with the AFL
and while players did not sign informed consent, the provision
of data to third parties for authorised research as overseen by
club medical officers is part of the standard playing contract.
This manuscript was generated out of the AFL data which is in
the public domain. An exemption from ethics was obtained
from Monash University, Australia.

RESULTS
There was a steady decline in the annual number of positive
tests (22–6) over the 7 years of the programme. There were six
illicit substance detections under the IDP testing programme
during 2011 and the detection rate was 0.4% compared to
4.05% in 2005 when the programme started. There was a sig-
nificant reduction in the proportion of positive tests between
2005 and 2011 (table 1, McNemars test, $\chi^2=450.4, p<0.0001$).
The mean age of players who had a first detection was
23.8 years (range 19–30 years, median 25 years).

The reduction in positive tests has coincided with a 350%
increase in the number of tests conducted and the shift of IDP
testing times to high-risk periods such as the period immedi-
ately after a game when a player was socialising or early in the
postseason when players start their break from competition
and training.

All detections (80) were from the IDP testing. There were no
positive drug tests from the competition tests conducted under
the AFL ADC. Aside from the decrease in detections, there has
been a trend away from the use of cannabinoids (table 2).

The association with alcohol consumption was compelling;
56 detections were associated with alcohol use, six were not
and the data on the remaining 18 was not collected in the first
year of the programme. Interestingly, illicit drug use was
mostly conducted away from team mates; only six detections
were associated with drug use with a team mate, 65 were not
and 9 were unknown.

DISCUSSION
This paper reports on detections of illicit substances in a large
group of elite male Australian football players. There has been a
steady decline in the number of detections in the 7 years of the
IDP in the face of a substantial increase in the number of tests
conducted, targeting of players and targeting of high-risk
periods. Most detections occurred in the non-competition
period, suggesting that illicit substance use was opportunistic,
discretionary and not for any performance enhancement effects.

The results of testing over 7 years suggest that the AFL IDP
is an effective programme in modifying player behaviour
thereby positively impacting on the health and welfare of
players. The determination of the AFL and the AFL Players
Association in addressing the issue of illicit drug use by players
and the commitment of the players themselves and their teams
has contributed to the success of the policy.

The IDP additionally appears to have induced behavioural
change in players as seen in the reduction in cannabinoid use.
Cannabinoids have a long detection window of up to 6 weeks.

Table 1 | Results of drug tests for illicit substances

<table>
<thead>
<tr>
<th>Year</th>
<th>Total test numbers</th>
<th>Total detections</th>
<th>Players recording a second positive*</th>
<th>Detection (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>472</td>
<td>19</td>
<td>3</td>
<td>4.03</td>
</tr>
<tr>
<td>2006</td>
<td>486</td>
<td>9</td>
<td>0</td>
<td>1.85</td>
</tr>
<tr>
<td>2007</td>
<td>1152</td>
<td>14</td>
<td>3</td>
<td>1.20</td>
</tr>
<tr>
<td>2008</td>
<td>1220</td>
<td>12</td>
<td>2</td>
<td>0.98</td>
</tr>
<tr>
<td>2009</td>
<td>1568</td>
<td>14</td>
<td>2</td>
<td>0.99</td>
</tr>
<tr>
<td>2010</td>
<td>1654</td>
<td>61</td>
<td>1</td>
<td>0.36</td>
</tr>
<tr>
<td>2011</td>
<td>1489</td>
<td>6</td>
<td>0</td>
<td>0.40</td>
</tr>
</tbody>
</table>

*This column reflects those players who recorded their second detection in that
year. In 2005, there were 19 detections involving 16 players. Detections ‘expire’ after
4 years.
†This figure includes a player whose detection was not a positive drug test.

Table 2 | Substances detected with drug testing

<table>
<thead>
<tr>
<th>Year</th>
<th>Cannabinoids</th>
<th>Stimulants</th>
<th>Mixed</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>2005</td>
<td>6</td>
<td>12</td>
<td>1</td>
<td>19</td>
</tr>
<tr>
<td>2006</td>
<td>0</td>
<td>8</td>
<td>1</td>
<td>9</td>
</tr>
<tr>
<td>2007</td>
<td>4</td>
<td>10</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>2008</td>
<td>3</td>
<td>8</td>
<td>1</td>
<td>12</td>
</tr>
<tr>
<td>2009</td>
<td>1</td>
<td>13</td>
<td>0</td>
<td>14</td>
</tr>
<tr>
<td>2010</td>
<td>1</td>
<td>5</td>
<td>0</td>
<td>6</td>
</tr>
<tr>
<td>2011</td>
<td>0</td>
<td>6</td>
<td>0</td>
<td>6</td>
</tr>
</tbody>
</table>
(compared with stimulants of 3–4 days) and out-of-competition testing reduces the opportunity to use cannabis without detection to almost zero as the players only have an 8-week break from playing or training. It appears players have responded to the greater detection risk of cannabinoids.

Most literature reporting on drug use has relied on player surveys and very little has been written about the outcomes of drug testing in other sports. Rossi et al reported the outcomes of 95 000 ADC mostly in-competition tests (15% of tests were out-of-competition) over 9 years in elite sports participants in Italy. They demonstrated that between 1% and 1.8% of tests were positive to all prohibited substances, the incidence fluctuating over the 9 years but not trending down. They did note a high proportion of the positive tests involved stimulants and drugs of abuse and further deduced that their intake appeared not to be for performance enhancement but rather for activities not related to sport.

Illicit recreational drugs comprise a high proportion of the positive tests that arise from competition testing in WADA compliant elite sport. In Australia, WADA compliant testing across all sports is undertaken by ASADA. In a 4-year period the ASADA testing had a detection rate of 0.58% for all prohibited substances across all sports. Of this total number of ASADA tests the detection of illicit substances at in-competition tests was 0.51% or over 80% of the total. However it is not clear, except in the case of cannabinoids, whether these substances were used by athletes for potential performance-enhancing effects or for recreational purposes and therefore inadvertent from a sport performance perspective.

There is a suggestion that more testing may reduce illicit drug use and this study supports this supposition given the decrease in positive tests with greater test numbers. Professional football players in England reported widespread use of recreational drugs in an environment of low testing; only 66% had been tested in the previous 2 years and 60% felt they were unlikely to get tested that year. It would appear that more testing is likely to impact on athlete behaviour.

The operational approach of the AFL IDP includes education across the whole player group and initially confidential clinical management overseen by AFL Medical Officers for players with detections. This approach has evolved over the 7 years of the IDP with the introduction of mandatory club doctor notification and mandatory independent addiction medicine specialist assessment for players with positive tests. In the AFL IDP the results of the first two detections remain confidential between the player and clinicians. A third detection results in referral to the AFL General Manager Football Operations and an open clinical assessment for players with positive tests. In the AFL IDP the introduction of mandatory club doctor notification is likely to impact on athlete behaviour.

What this study adds

- Harm minimisation is an effective approach to managing illicit drug abuse alongside established punitive methods.
- These data, particularly in the case of cannabinoids, suggest that ‘performance enhancement’ can be an absolute criterion before a substance is added to the WADA Prohibited List. The inclusion of substances that are primarily harmful to health or in contravention of the spirit of sport can be dealt with by an alternative mechanism.

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Contributors PRH and HU collected and collated the data in their role with the AFL. JLC reviewed the data, provided statistical and scientific input. All three authors contributed to the writing of the manuscript.

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REFERENCES