
1 Substance Use in Athletes

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KEY POINTS

- A strong, clear, enforceable drug testing policy with frequent, random drug tests would reduce substance use in athletes.
- Assessment of positive drug tests and treatment of substance use disorders and co-occurring mental illness by sports psychiatrists would help athletes continue to perform at a high level.
- The higher the stakes, the more the risk of doping and the use of performance-enhancing drugs, and the greater the need for sports psychiatrists working with athletes.

BACKGROUND AND SCOPE OF PROBLEM

Despite the risk of negative consequences of loss of performance, pay, and scholarships, elite athletes seem to use most substances at higher rates than age-matched nonathletes in the general population [1–10]. The rates may be lower in some sports, ethnicities, and nationalities [7, 11]. Comparing the National Collegiate Athletic Association (NCAA) survey data from 2005 to 2009, there was a drop in reported use of amphetamines (3.7% of U.S. college athletes reported use), ephedrine (0.9%), and anabolic steroids (0.6%), and increases in cannabis (22.6% reported use), cocaine (1.8%), opioids (3.3%), alcohol (83.1%), and alcohol binges (38.8%) [12]. While sometimes used initially for performance-enhancing reasons, many of these substances can represent gateways to other drug use. There are certainly risks of “stimulant stacking” (energy drinks, excitatory amino acids, caffeine, nicotine, ephedrine, and amphetamines) that can lead to “upper–downer” pairings (adding cannabis, alcohol, or prescription sleeping medications to stimulants) [4]. Sports psychiatrists must be aware of these pairings and patterns of use among their athletes to avoid enabling. Sports psychiatrists must be able to urine drug test their athletes for diagnostic purposes, in a way that would not lead to negative consequences and that would encourage treatment and assistance over penalties. Our elite athletes are role models for our youth; thus, creating prevention and intervention programs to reduce substance use in athletes may have a significant impact on substance use in general.

REASONS FOR USE

Athletes often use substances to objectively or subjectively assist performance. McDuff lists the most common reasons for elite athletes to initially use substances: to fit in, boost self-confidence, produce pleasure, escape problems, and have fun. Reasons for continued use may include: stress relief, psychological dependence, negative emotions reduction, and tolerance/withdrawal [4]. In this author's and others' experiences, a leading reason for athletes to use substances is to get high. Looking at the reasons for an individual athlete can help in the development of a treatment plan. Developing new coping mechanisms other than substance use is vital.

Enhancing performance with substances may involve getting bigger, stronger, or faster. For some athletes, substances are used to get thinner or to pay better attention. Relieving pain with opioids may lead to an iatrogenic addiction. Some athletes compete using opioids. A recent study by the National Institute on Drug Abuse and the National Football League (NFL) of 644 former NFL players found that 52% used pain medication while playing. Of those players, 63% received medication from a nonmedical source; 15% of the retired players are still misusing pain medications [5].

Substance use to celebrate wins or console losses may be done on an individual or team level. Particularly in individual sports, individual athletes may deal with the stress of winning (and higher expectations) or losing (and disappointment) with substances. It seems to be acceptable in many societies to celebrate a tough win with alcohol, as evident from many sports-related television commercials. Champion teams and athletes pop open and shower each other with champagne to celebrate. When substance use is part of the team culture through peer pressure, hazing rituals, or even as part of the team's recruiting process, it can be propagated from class to class or from old professional veterans to rookies.

Career termination

Of all the challenges with which athletes must contend, the termination of their athletic career certainly ranks among one of the most difficult [13]. When athletes recognize that professional sports participation is no longer an option, they may be reluctant to give up the identity of athlete. For many athletes whose identity has been drawn from athletic participation, anticipation of life after athletics can be scary. It is common for athletes experiencing the termination phase of their career to deal with the anxiety and fear by using substances [14]. Unexpected, early career termination due to injury, poor academic performance, or positive drug tests are even more challenging and may lead to more substance use. Unresolved physical pain may lead to substance use as well. The loss of identity and remaining stuck in the past may be seen in reunions, alumni functions, and frequent unexpected visits to the training room long after athletic careers are over. Substance use at these times may peak. Sports psychiatrists need to screen, warn, and treat their athletes of these common occurrences. Athletes often do not like to discuss what they would do if their athletic careers were over tomorrow, but discussing the subject and developing a Plan B may help prevent maladaptive behaviors in the future and should be part of the work of the sports psychiatrist.

Weight management

Most athletes are concerned with weight management at one time or another, to enhance performance, make specific weight classes, or appear attractive for judges [15]. For some, the focus on weight management becomes obsessive and eating disorder behaviors develop.

While misusing substances like diet pills, stimulants, or laxatives is expected with eating disorders, some athletes may develop a co-occurring substance use disorder [16]. Suspecting an eating disorder should be probable cause for a urine drug screen within athletic drug testing policies. While there is a sport-specific prevalence for eating disorders, no sport or individual should be considered exempt from developing an eating disorder. Anabolic steroids may be used to trim down and reduce body fat, or to bulk up and gain weight. Some athletes use cannabis to improve their appetites and gain weight for their sport.

Performance effects

Athletes may use substances for performance-enhancing effects. When sports psychiatrists refer to performance-enhancing drugs, we may think of anabolic steroids and stimulants. However, athletes may see some initial improvement in their game with alcohol, cannabis, or benzodiazepines if they are too energized or have difficulties with intensity regulation when competing. They may pair uppers (steroids, stimulants, or cocaine) with downers (alcohol, benzodiazepines, or cannabis) as they continue to use and require assistance with resulting insomnia or fatigue. Continued use or abuse may lead to dependence and/or a drop-off in performance. Tolerance develops and higher doses must be consumed to gain the same performance or euphoric effect. An athlete may have a difficult time deciding if continued use is for performance-enhancement reasons or for relaxation and coping with the deterioration in performance. Substance use usually increases during the off-season and on days off [5].

Athletes, coaches, trainers, or administrators may ask sports psychiatrists to prescribe performance-enhancing medications to athletes. Importantly, proper testing, diagnosing, treatment planning, and prescribing appropriate medication for mental illness should not be considered performance enhancing, but performance enabling [17]. Sports psychiatrists help athletes return to their previous level of functioning and performance with the use of psychiatric medications. However, sports psychiatrists must be aware of the psychiatric medications that are on the banned list of the sport in which their athlete-patient participates (particularly stimulants, modafinil, and beta-blockers) and, if a prescription of one of these medications is appropriate, submit the proper documentation for Therapeutic Use Exemptions (TUE) for most professional and Olympic sports [18]. The NCAA also has certain guidelines [19]. Medications to treat addictions, such as methadone or buprenorphine, may be on some banned lists as well.

TRAUMATIC BRAIN INJURY

Athletes with traumatic brain injury (TBI) are more susceptible to the intoxicating effects of substances and may get in trouble more easily due to the disinhibiting effects of the brain injury. Cognitive impairments may become more pronounced. Athletes with postconcussive symptoms or syndromes may rely on substances to help manage the headaches and frustrations of not being able to practice or compete. The risk of suicide may be magnified when TBI is complemented with substances. Athletes with TBI may become more impulsive, have more emotional dysregulation, have less cognitive reserve, and require more time to clear from substances, particularly from longer-acting benzodiazepines, which may be inappropriately prescribed for sleep by some physicians.

RECOGNIZING SUBSTANCE USE

Prior to or besides urine drug testing, how might sports psychiatrists recognize substance use in athletes? First and foremost, sports psychiatrists might not recognize substance use unless they ask. Other members of the sports medicine team might not feel comfortable or have much training in asking the questions. Asking yes/no questions such as “Do you drink alcohol?” often leads to a quick “no” from the athlete. On the other hand, asking “How much alcohol do you drink in a typical week?” usually results in a response of some number of drinks. When the answer is “zero,” the sports psychiatrist should probe why the athlete does not drink. The same series of questions should continue for other commonly used substances – stimulants, cannabis, anabolic steroids, cocaine, and others depending on the location and what substances are popular in that region or campus. To find out what other substances are popular in your region or campus, the sports psychiatrist may simply ask, “What are your teammates usually using?”

Besides responses to direct questions, students having difficulty reporting to practice, study hall, or class on time might be a clue to substance use problems. There may be a drop-off in their academic or athletic performance. Other odd behaviors or changes in attitude or work ethic are common. Sometimes substance intoxication is more obvious than substance withdrawal. More specific signs and symptoms of substance use are listed in Table 1.1.

For universities and teams, a good substance use prevention or drug testing policy will allow drug testing for cause. Discovering some of the signs mentioned previously should prompt someone to order a drug test. A good substance use prevention or drug testing policy is not designed to punish the athlete, but rather to help the athlete get the assistance she may

Table 1.1 Signs and symptoms of substance use.

Substance	Signs and symptoms of use	Signs and symptoms of withdrawal
Stimulants	Dilated pupils, anxiety, jitteriness, increased heart rate/blood pressure, mood, somnolence, dry mouth, nasal problems, restlessness, insomnia, talkativeness, loss of appetite, tics	Fatigue, headaches, anxiety, depression
Cannabis	Smell on clothes, bloodshot eyes, memory problems, lack of motivation, paranoia, increased appetite, use of eyedrops, drowsiness, giggling, slowed responses, cough	Insomnia, cravings, irritability, anxiety, reduced appetite
Alcohol	Sedation, disinhibition, slurred speech, euphoria, ataxia, blackouts, memory problems, flushing, impulsiveness, vomiting, fights, legal problems, nystagmus	Increased heart rate/blood pressure, tremor, seizures, irritability, insomnia, fatigue, depressed mood, headache, sweating
Anabolic steroids	Acne, rapid weight gain, irritability, rage, gynecomastia or hair loss in males, deepening of voice and facial hair in females, injection sites, cysts, bloating, night sweats, joint pain, insomnia, mood swings	Depressed mood, weakness, fatigue, aches, insomnia, weight loss, restlessness

need. Treatment and education should be emphasized over suspensions. There should be a “treatment track” that may allow an athlete who tests positive to return to play sooner if the athlete is compliant with treatment recommendations.

TREATMENT

Individual treatment

Sports psychiatrists may be asked to assess and intervene when an athlete tests positive on a random urine drug test from a team, university, NCAA, or professional league. Teams, universities, or leagues must have a very clear, fair drug testing policy that allows for assessment, treatment, and enforceable consequences for positive drug tests with little wiggle room for exceptions for more talented athletes in money-generating sports or for influential coaches. The best deterrent for drug use in sports is frequent, accurate, very closely observed, truly random urine drug testing. Masking agents must be tested for as well. If athletes know they will be tested and suspended for testing positive, they are much less likely to use. If athletes know that their parents, agents, or coaches can argue and have the result thrown out, they are more likely to use.

It is not unusual for athletes to deny any use, despite mass spectroscopy confirmation of their urine drug tests. The athlete may be in the precontemplation stage of change and not interested in treatment of or intervention for their substance use. A good sports psychiatrist can use motivational interviewing techniques in these circumstances. He can agree to disagree with the athlete, roll with resistance, and make the most of the mandated treatment. Discussing some of the reasons the athlete uses his substance of choice can be helpful. Pointing out the pros and cons of the athlete’s drug use and the discrepancies between where the athlete wants to go in life and the impact that continued use of that substance might have on that dream can move the athlete along the stages of change from precontemplation to contemplation, preparation, action, and then maintenance [20].

When an athlete is unable to cut down on use, has withdrawal symptoms when not using, develops tolerance, continues to use despite knowledge of the dangers, spends increasing time focused on using or finding drugs, uses drugs to escape responsibilities, or increases the amount used over time, then a serious substance use disorder should be considered [21]. Other substance use disorders should be ruled out, as athletes may use downers such as alcohol or benzodiazepines to counteract the effects of stimulants, as discussed earlier.

Besides motivational interviewing, 12-step facilitation, cognitive behavioral therapy/relapse prevention, and network therapy can be helpful treatment modalities. Concerns about confidentiality may make it more challenging to convince most athletes to go to a 12-step meeting (AA or NA). Because athletes have so much to lose by testing positive again, they tend to be willing to try pharmacologic interventions (disulfiram, acamprosate, naltrexone, buprenorphine, etc.). Co-occurrence of addiction together with mental illness is the rule rather than the exception. The co-occurring mental illness must also be treated.

Team treatment

Sports psychiatrists are consulted to do team interventions when administrators or coaches discover substance use problems that are widespread. When called in, sports psychiatrists need familiarity with which substances are being used, the drug testing policy, who the team leaders are, what attitudes the coaches have toward substance use, and what the expectations

of their service are. Permissive attitudes must change. When substance use is part of the team culture through peer pressure, hazing rituals, or even as part of the team's recruiting process, interventions need to be made at the team level. Athletes, coaches, administrators, and sometimes athlete alumni need to be on the same page in terms of substance use policies and team expectations. Teammates tend to use together. The team itself may need to draft its own substance use policy to establish new norms. More sessions may be required to check the progress, and the work needs to be solidified at the beginning of each season to maintain the change to the team culture.

COLLEGE VERSUS PROFESSIONAL

Colleges vary in if they do drug testing above that conducted by the NCAA or other national college athletics organizations and in if they offer or mandate treatment. Different professional leagues have different rates of substance use and different substance use policies. Some mandate treatment, while others rely on suspensions and do not offer treatment. Some professional teams do additional testing beyond league testing to help identify their at-risk athletes and subsequently offer treatment to them. Some teams will trade athletes who test positive with the knowledge that their athletic performance will probably drop due to continued substance use. Most college and professional athletic careers are relatively short and are shortened further by substance use difficulties. The more money that is involved in a sport, the higher the stakes and sometimes the more the resources, for better or worse, made available to the athlete. The more money an athlete makes, the more the athlete can afford designer drugs, masking agents, and novel anabolic steroids that may go undetected on standard urine drug testing. These athletes may also be more likely to try to cheat with the use of doping in ways that are just beginning to be described, for example, with gene doping.

SPECIFIC SUBSTANCES

Cannabis

Cannabis (marijuana) has a relatively long half-life in the urine. A heavy, daily user may continue to test positive for up to 2 months. Cannabis is lipophilic, which means that its half-life can be shorter in elite athletes with low body fat. Some athletes use synthetic cannabinoids (e.g., K2 or Spice) to avoid detection in urine drug testing. The NCAA and some professional leagues have banned cannabis for legal and safety reasons. Some athletes, coaches, and administrators have permissive attitudes toward marijuana. The potency of today's cannabis is significantly higher than it was 20–30 years ago. Cannabis use has been associated with amotivational syndrome, panic, depression, and psychosis. Due to its long half-life and relatively frequent use, sports psychiatrists are more commonly consulted for positive urine drug tests for marijuana than for most other substances. A case study later in this chapter illustrates an athlete who struggled with cannabis.

Stimulants

Amphetamines have been used in sports for performance-enhancing reasons since the 1940s [22]. Athletes may recognize and seek the performance-enhancing effects of stimulants, which are first-line treatment for attention deficit hyperactivity disorder (ADHD). It is very

easy to research and memorize the diagnostic criteria for ADHD in the hope of being prescribed stimulants for performance enhancement. When prescribed for well-documented ADHD, stimulants may be performance enabling, not performance enhancing. The prescription of stimulants strictly for performance enhancement must be considered a doping violation and unethical, and the sports psychiatrist should be reprimanded. Some of the external pressures to diagnose and aggressively treat ADHD may come from coaches, trainers, academic support, and/or athletic directors. The sports psychiatrist may want to feel like a team player and treat the athlete before proper testing is performed. The athlete may border on academic ineligibility and feel pressured by their support system to initiate stimulants as soon as possible. He may fear the loss of his scholarship or college career. Professional athletes may feel that if they do not perform at their best, they may lose games, contracts, or endorsement dollars. General managers, trainers, sports medicine physicians, and/or coaches may feel the need to get their athlete diagnosed and treated immediately for ADHD. A significant number of amphetamines prescribed to college students are illegally sold on college campuses by the people for whom the prescriptions were intended. Some athletes share their prescribed stimulants with teammates. When that teammate responds to the stimulant positively, that teammate may feel she must have ADHD too. Starting with extended-release formulations of stimulants for legitimate ADHD will reduce the likelihood of abuse for performance-enhancing purposes, addiction, and diversion.

Athletes are now using energy drinks in a similar pattern as amphetamines. Athletes may ingest ephedrine, pseudoephedrine, synephrine, phenylpropanolamine, nicotine, excitatory amino acids, ginseng, and high-dose caffeine. Athletes may ask for modafinil and armodafinil by name. These are easily obtainable via internet pharmacies and are not detected on standard urine drug screens. Sports psychiatrists may be unknowingly asked to treat these stimulants' common side effects, such as anxiety, insomnia, tremors, motor tics, irritability, overheating, and loss of appetite. Screening for all stimulant use is vital when encountering these complaints, and such screening is especially important during the season, when use increases. Prescribing good sleep hygiene prior to a sleep medication may be helpful.

Alcohol

Alcohol is the most commonly used substance by athletes. An NCAA 2001 study shows that college athletes drink overwhelmingly for social reasons (83.9%) compared to purposes of feeling good (12.9%), coping (3%), or performance (0.2%) [23]. It is a common part of hazing, team building, celebrating, and consoling. Binges lead to drop-offs in attending classes and practices, poor athletic performance, fights, injuries, legal problems, and public relation problems. Athletes who drink at least weekly have injury rates twice that of nondrinkers [24]. Alcohol consumption can reduce hand-eye coordination, muscle strength, muscle memory, and running and cycling times and lead to dehydration, insomnia, and myopathies [25]. Standard urine drug tests for alcohol will typically only pick up heavy alcohol users [4], unless testing for ethyl glucuronide (ETG). Sports psychiatrists have expertise in prescribing disulfiram, acamprosate, and naltrexone for cases of alcohol dependence.

Anabolic steroids

Anabolic steroid use seems to be on the decline. It has received more media coverage, and the NCAA and professional leagues are testing for it more. Sports psychiatrists may still be asked by athletes, coaches, and trainers about the half-lives of performance-enhancing drugs

such as anabolic steroids for the purposes of preparing for urine drug testing and about masking agents. Some athletes may ask to be prescribed a low dose of an anabolic steroid while claiming that it would be a harm reduction as opposed to taking an anabolic steroid at a higher dose. Besides the 1990 Anabolic Steroid Act making such a practice illegal, such behavior is unethical, immoral, and violates the purpose of sport. A sports psychiatrist's special knowledge may (unbeknownst to him or not) be used for doping purposes, and educational information must be given with the proper ethical considerations. One exception to this rule may be an athlete who is addicted to anabolic steroids and requires a medical detoxification. Cutting an athlete off cold turkey has reportedly resulted in acute depression and suicide attempts, according to the work of the Taylor Hooten Foundation [26]. Estimates suggest that up to 30% of anabolic steroid users develop a dependence disorder, which can be complicated by other substance use disorders (particularly disorders involving alcohol, opiates, and sedatives) [27]. Development of a detoxification protocol for anabolic steroids is necessary and in the works under the leadership of the Taylor Hooten Foundation.

Case Study

A college sophomore tennis player is referred to the sports psychiatrist after testing positive for marijuana on a university random urine drug test. She had been highly recruited, and despite some injuries, competed at a high level her freshman year. Her trainer reported at the time of the referral that she had recently purposely lost her NCAA semifinal championship match at the end of the third set so as to avoid the urine drug test required of the champion and runner-up. She knew she would test positive for marijuana and would face suspension and public humiliation. The trainer believed she had the talent and ability to have won the championship had she been free of marijuana. Typically, per this student's athletic department's drug testing policy, the first positive urine drug test would result in an evaluation by a substance abuse counselor and a requirement to attend a few group classes on substance abuse prevention. After that initial evaluation, the substance abuse counselor suggested a referral to the sports psychiatrist for addiction treatment. Subsequent to that referral, and partly because she had that potential to win a national championship, the sports psychiatrist met with her regularly for the rest of her college career.

In treatment together, while using a combination of motivational interviewing, network therapy, and development of a relapse prevention plan, the athlete and sports psychiatrist were able to move her from precontemplation to the maintenance phase of her recovery. She admitted that everyone in her family and all of her childhood friends smoked marijuana. Some of her teammates did so as well. The athlete and psychiatrist worked to find and develop friendships with clean and sober people. She experienced significant protracted withdrawal, which required a low dose of a sleeping medication. She refused to attend 12-step facilitation or other support group meetings. The sports psychiatrist spoke to several of her family members regarding her relapse prevention plan and asked them not to smoke in front of or offer marijuana to the student athlete. She had several slips and relapses, particularly when visiting her hometown. The athlete and psychiatrist thoroughly examined every relapse, trying to identify her triggers and develop other coping mechanisms when facing those triggers

and cravings. She used her phone network, which included her sports psychiatrist. She in fact called her sports psychiatrist twice while dealing with cravings. The athlete and psychiatrist met every other week for several months, until she was more confident in her recovery. Thereafter, meetings occurred once a month, with instant urine drug screens for marijuana.

The psychiatrist and athlete also discussed mental skills that involved shifting attention, reducing precompetitive anxiety, and improving positive self-talk. She won the national championship in her junior year. She continued to remain marijuana-free, and her academic performance also improved. She continued to pass random urine drug screens with the sports psychiatrist for treatment purposes only (off the books). In her senior year, she withdrew from her semifinal match due to a shoulder injury that later required a surgical repair. She denied any marijuana use around the time of that championship tournament and ultimately graduated from college with 14 months' sobriety.

CONCLUSIONS

Sports psychiatrists need to be well-trained in recognizing, preventing, and treating substance use disorders. Substance use is a common reason why professional teams, leagues, and university athletic departments hire sports psychiatrists. Substance use is easily tracked by urine drug tests, and the success or failure of treatment can be easily measured by decision makers. Medications can be helpful in treating addictions and co-occurring mental illness in athletes, and sports psychiatrists are the experts in these medical decisions. While helping athletes off substances, sports psychiatrists can help athletes perform at a high level. Sports psychiatrists are helpful in developing strong drug prevention and testing policies that emphasize education and treatment over sanctions. Sports psychiatrists should be aware of the common drugs used for performance enhancement and abuse on their teams and in their regions. The more elite the athlete and the more the financial gain that is involved, the greater the risk of doping and the use of performance-enhancing drugs, and the greater the need for sports psychiatrists working with athletes.

REFERENCES

1. Greene GA, Uryasz FD, Petr TA, *et al.* (2001). NCAA study of substance use and abuse habits of college student athletes. *Clinical Journal of Sports Medicine* 1, 51–56.
2. Millman RB, Ross EJ (2003). Steroid and nutritional supplement use in professional athletes. *American Journal of Addictions* 12(Suppl.), 48–54.
3. Ambrose PJ (2004). Drug use in sports: a veritable arena for pharmacists. *Journal of the American Pharmacists Association* 44, 501–514.
4. McDuff DR, Baron, DA (2005). Substance use in athletics: a sports psychiatry perspective. *Clinical Journal of Sports Medicine* 24, 885–897.
5. McDuff DR (2012). *Sports Psychiatry: Strategies for Life Balance and Peak Performance*. Washington, DC: American Psychiatric Publishing, 86.
6. Yusko DA, Buckman JF, White HR, *et al.* (2008). Alcohol, tobacco, illicit drugs, and performance enhancers: a comparison of use by college student athletes and nonathletes. *Journal of American College Health* 57, 281.

7. Hoberman J (2002). Sports physicians and the doping crisis in elite sports. *Clinical Journal of Sports Medicine* 12, 203–208.
8. Buckman JF, Yusko DA, Farris SG, *et al.* (2011). Risk of marijuana use in male and female college student athletes and nonathletes. *Journal of Studies on Alcohol and Drugs* 72, 586–591.
9. Ford JA (2007). Alcohol use among college students: a comparison of athletes and nonathletes. *Substance Use & Misuse* 42, 1367–1377.
10. Ford JA (2008). Nonmedical prescription drug use among college students: a comparison between athletes and nonathletes. *Journal of American College Health* 57, 211–220.
11. Dunn M, Thomas JO, Swift W, *et al.* (2011). Recreational substance use among elite Australian athletes. *Drug and Alcohol Review* 30, 63–68.
12. Hendrickson B. (2011) NCAA drug-use study shows large majority have not used banned drugs. <http://www.ncaa.org/wps/wcm/connect/public/ncaa/resources/latest+news/2012/january/ncaa+drug-use+study+shows+large+majority+have+not+used+banned+drugs/>. Accessed on 28 April 2012.
13. Pinkerton R, Hinz L, Barrow J (1989). The college student athlete: psychological considerations and interventions. *Journal of American College Health* 37, 218–226.
14. Parham W (1993). The intercollegiate athlete: a 1990's profile. *The Counseling Psychologist* 21, 411–429.
15. Swoap RA, Murphy SM (1995). Eating disorders and weight management in athletes. In: Murphy SM. *Sport Psychology Interventions*. Champaign: Human Kinetics, pp. 307–329.
16. Currie A, Morse ED (2005). Eating disorders in athletes: managing the risks. *Clinical Journal of Sports Medicine* 24, 871–883.
17. Morse ED (2011). Professional boundaries in sport psychiatry. *Journal of Clinical Sport Psychology* 4, 173–174.
18. World Anti-Doping Agency (2012). List of prohibited substances and methods, January 1. <http://list.wada-ama.org>. Accessed on 12 May 2012.
19. NCAA guidelines to document ADHD treatment with banned stimulant medications. Addendum to the January 2009 guidelines (July 20, 2010). <http://www.ncaa.org/drugtesting> (with a login and password). Accessed on 12 May 2012.
20. Miller WR, Rollnick S (2004). Talking oneself into change: motivational interviewing, stages of change, and therapeutic process. *Journal of Cognitive Psychotherapy: An International Quarterly* 18 (4), 299–308.
21. American Psychiatric Association (1994). *Diagnostic and Statistical Manual of Mental Disorders*, 4th edition. Washington, DC: American Psychiatric Association.
22. Jones AR, Pinchot JT (1998). Stimulant use in sports. *American Journal of Addictions* 7, 243–255.
23. NCAA study of substance abuse habits of college student-athletes (2001). <http://www.ncaa.org/wps/wcm/connect/public/NCAA/Resources/Research/NCAA+Studies+of+Substance+Use+Habits+of+College+Student-Athletes>. Accessed on 18 January 2013.
24. O'Brien CP, Lyons F (2000). Alcohol and the athlete. *Sports Medicine* 29, 295–300.
25. Nelson TF, Wechsler H (2001). Alcohol and college athletes. *Medicine and Science in Sports and Exercise* 33(1), 43–47.
26. What happens when you stop using anabolic steroids? <http://taylorhooton.org/steroid-ed-faq/>. Accessed on 12 May 2012.
27. Kanayama G, Brower KJ, Wood RJ, *et al.* (2009). Anabolic-androgenic steroid dependence: an emerging disorder. *Addiction* 104, 1966–1978.