

ETHICAL DILEMMAS IN THE USE OF PLANT BASED DRUGS AS AN ERGOGENIC AID

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Review paper

Abstract

Reviewing the prohibited substances in sport, the ethical dilemmas about the criteria for doping list categorization were considered. Not only prohibited substances, but other methods (for example, psychological relaxation techniques) can make an enhancement of sport performance, what lead to a questionable concepts of the "fair play", as a spirit of sport. Author propose that some plant based drugs as an ergogenic aid could be surely removed from the WADA's prohibited list, which don't produce health risk, don't violate the 'spirit of sport' nor enhance sport performance. The research should be conducted for different types of plant-based drugs in sport situations, considering their influence on health, with respect to athlete's age, sex, type of sport and other relevant variables. On the other hand, except prohibited substances, methods for psychological preparation can be considered as a doping, too.

Key words: *drugs, enhancement, fair play, health criteria, sport*

Introduction

Doping is seen at all levels of sport competition, in all countries, both among amateurs and professionals, and in all sports (from cycling to billiards), with certain preferences by continent for the substances used (Lippi et al., 2008). Doping in sports is multifaceted and all bodily functions are targeted, such as cerebral, metabolic, cardiovascular, respiratory, haematological (Lippi et al., 2008). The first aim of this article is to discuss about attitudes about doping in sport, from the aspect of athletes, non-athletes and sport workers. Then we'll consider ways and directions about coping with doping. Afterwards, the list and the criteria about current prohibited substances in sport will be described, together with exaggerations, myths and misperceptions about doping use in sport. Finally, ethical dilemmas about criteria for prohibition were considered, using two examples: prohibited plant-based drugs and non-prohibited types of psychological doping.

Attitudes towards doping use in sport

Doping in sport, described in terms of the elite athletes' attitudes, beliefs and knowledge of doping in sport, can provide a help in developing practical strategies to efficiently combat doping (Morente-Sánchez, Zabala, 2013). The reasons for using banned substances are mostly: improving performance and recovery, financial gain, prevention of nutritional deficiencies, as well as the idea that others use them ('false consensus effect') (Morente-Sánchez, Zabala, 2013). Team-based sports and sports requiring motor skills could be less influenced by doping practices than individual sports, while the anti-doping controls are less exhaustive in team sports. Athletes are better familiar with anti-doping rules, but there is still a lack of information on dietary supplements (Morente-Sánchez, Zabala, 2013). Athletes in general did not report a significant national doping problem in their sport in the UK, perceiving doping

as 'unnatural', while the shame associated with doping consider to be a significant deterrent (Bloodworth & McNamee, 2010). Athletes don't perceive external pressure to use performance enhancing drugs, but there are 'hidden' potential 'pressure' points, linked mostly with injury recovery and the economic pressures of elite sport. However, a minority of athletes accept the possibility of taking some banned hypothetical performance enhancing drug, under conditions of guaranteed success and undetectability (Bloodworth & McNamee, 2010). Vangrunderbeek & Tolleneer (2011) considered opinions on doping in elite sports by students in human movement studies covering a period from 1998–1999 to 2005–2006. A four-level model was developed to categorize the ethical arguments about doping according to who or what has the opinion: the individual athlete (*the self*), the athlete's opponents and social environment (*the other*), the sport and its fair play essence (*the play*) and the spectator sport and its social role (*the display*). Over the years, it seems that students have developed a more diffuse ethical attitude on the doping issue. At first they had zero tolerance principle, while during years of developing wider views on doping, they developed more complex attitude towards doping in elite sports is observed and discussed (Vangrunderbeek and Tolleneer, 2011). Peretti-Watel et al. (2005) examined attitudes towards doping, their correlates and their relationship with cigarette, alcohol and cannabis use among at 458 French elite student athletes, comparing their characteristics that expressed similar attitudes. Over 90% of all athletes reported that doping was dishonest and unhealthy. Three clusters of subjects were identified: athletes who engage in doping behaviour do so in pursuit of legitimate goals with illegitimate means. However, they justify their behaviour with a legitimate rationale. Stamm et al. (2008) have examined four representative population surveys carried out in 1995, 1998, 2001, and 2004, as well as from a 2005 – 2006 survey of top-level athletes in Switzerland,

showing that the majority of the Swiss population and top-level athletes are strongly against doping. They both support a strategy that combines strict prohibition and sanctioning with informational and educational efforts, what is the current antidoping strategy followed by the Swiss authorities. Shields (1995) performed socio-demographic analysis of drug use among adolescent athletes, perceived by athletic directors-coaches. The percentage of subjects who perceived the drug problem as 'very big' or 'somewhat big' for student athletes was less than for students in the general study body for 10 out of 12 specified drugs (including alcohol, tobacco and marijuana). In Canadian national study of the university athletes drawn from 8 universities, from a range of sports including ice hockey, football, basketball, track and field and swimming, it is shown that 37% of male athletes and 38% of females agreed that there is a problem of illegal drug use by Canadian athletes (Spence & Gauvin, 1996). Students generally supported random drug testing, (85%), while the majority of participants also reported need about drug and alcohol education programmes for athletes. Backhouse, Whitaker & Petróczi (2013) applied an integrated social cognitive approach to examine nutritional supplements (NS) attitudes, beliefs, and self reported doping use behavior across doping users and nonusers. Significantly more NS users reported doping compared with nonusers, while the users presented significantly more positive attitudes toward doping, expressing a significantly greater belief that doping is effective. With the scenario that performance-enhancing substances are effective and increase the possibility of winning, NS users estimate more likely competing in situations that allow doping. This study supports the gateway hypothesis: athletes who use legal NS belong to an "at-risk" group for transition toward doping (Backhouse, Whitaker & Petróczi, 2013). The knowledge about doping among junior athletes was moderate, while the overall knowledge especially regarding potential negative side effects of doping agents is poor (Fürhapter et al., 2013). Except athletes, the attitudes and beliefs about drugs in sport are studied at coaches, physicians and medical professionals. In the published evidence on coaches' knowledge, attitudes and beliefs towards doping in sport and concluded about their limited knowledge of doping effects or governance (Backhouse, McKenna, 2012). Some sports physicians involved in recent positive doping cases are insufficiently aware of the nuances of doping regulations and of the list of prohibited substances: several team doctors showed poor judgment about doping, with the consequence that athletes are punished for doping offences on the basis of doctors' negligence (Dikic et al., 2013). Information about doping awareness among medical professionals (general practitioners and pharmacists) is scarce: fewer than half of respondents were familiar with the formal definition of doping, while the abbreviation WADA was correctly interpreted by 42%, and 65% knew that the European Commission has the

legislation to fight against doping (Auersperger et al., 2012). In general, they have acceptable level of general knowledge, but need more specific information on prohibited substances and legislature (Auersperger et al., 2012).

Coping against doping

In the doping debate has been dominated two opposite positions: doping forbidden (the prohibitionist view) and doping permitted (the ban abolitionist view) (DrugScope, 2004). A philosopher Claudio M. Tamburrini, claiming that bans on performance-enhancing drugs should be ended as they have no real ethical justification (Petersen & Kristensen, 2009). Considering the illegal and illegitimate use of performance enhancing drugs that are used in professional road cycling and the Tour de France in particular, Jones (2010) explores a possible defense of doping in elite cycling, emphasizing thinking carefully about common assumptions about both the nature and purpose of doping. D'Angelo & Tamburrini (2010) analyse a third position starting from the assertion that doping use is a symptom of the paradigm of highly competitive elite sports, reflecting current social paradigms in wider society. The distinction is needed between occasional use, habitual use and addiction, and the accent has to be given on the physical and/or mental dependency caused by the addictive use of a certain drug (D'Angelo & Tamburrini, 2010). D'Angelo & Tamburrini (2010) argue that the prohibitionist view is inappropriate for dealing with doping, but the ban abolitionist view seems inappropriate as well. Contextualising dopers' conduct within sport healthcare and see it strictly in relation to each athlete's personal background, with developing preventive programmes implemented through person-tailored counseling and eventually treatment, could be more efficient way of conducting 'the war against doping', rather than severe sanctions or the public embarrassment (D'Angelo & Tamburrini, 2010). Significant problems have been associated with doping control in sport, because operational inconsistencies exist between countries and between sports federations (Mottram, 1999). First, at endogenous substances, such as testosterone, human growth hormone (hGH) and erythropoietin (Epo), it is hardly to determine what constitutes 'normal' levels in athletes (Mottram, 1999). There is no reliable method available for the detection of hGH and Epo through urine testing. Widespread use of substances popular in society (such as marijuana use), without intent to enhance performance is becoming evident (Mottram, 1999). The World Anti-Doping Agency (WADA) (2003) conducted a review of research with the aims for provide a base for developing evidence-based anti-doping education programs and interventions. The main peer reviewed publications in the social sciences cover the fields regarding predictors and precipitating factors in doping; attitudes and behaviours towards doping and anti-doping education or prevention programs (Backhouse et al., 2007).

One hundred and three articles met the inclusion criteria and were considered in this review. Attitudinal research is largely descriptive and typically fails to establish causal relationships between attitudes and behaviour. Understanding of the precipitating factors for drug use is dominated by studies focused on anabolic steroids among young people. A wide range of factors have been identified about processes when drug use begins, is sustained or stops. The drug use follows a process (for example, mediated by complex social matrix) and it is more than an all-or-nothing behaviour. The research about the interplay of motivation, context and skills could be probable the next generation of research design with drug prevention. Education and intervention research are limited by possibility to transfer findings across settings, populations or communities, but randomized controlled trials can be the best design to confirm 'which type of intervention works best'. It can be concluded that the weak evidence base undermines strategic planning and limits the capacity to target appropriate and efficacious education programmes to reduce doping in sport (Backhouse et al, 2007). The most important area for change the list of doping substances is the need for international collaboration between the International Olympic Committee (IOC) (1999), governments and sports federations. It is important to keep the uniformity in the rules and regulations, with the consistency in the application and level of sanctions and cooperation about the dissemination of information and development of education policies (Mottram, 1999). To prevent false positive drug tests (caused by interpersonal differences in body changes), to gain the aim about preserving athlete's health, with undermining inequalities caused by using enhancing but currently not prohibited substances at wealthier athletes, one solution can be that health should be tested instead of drug testing. For example, one of the alternative criteria instead of drug testing can be keeping progressive logs of each athlete's PCV (packed cell volume) and hormone concentrations (Ashenden, 2002). He thinks that significant deviations from the expected value would require follow up testing. That's why the Italian Cycling Federation decided in 2000 that all juniors would be tested to provide a baseline PCV, which can be used as a 'Hematologic Passport'. Ashenden (2002) considered this strategy in many ways preferable to the prohibition of doping, which does nothing to correct the dangers facing an athlete who has an unsafe baseline PCV or testosterone concentration. Savulescu, Foddy & Clayton (2004) point out that the welfare of the athlete must be primary concern. They have an attitude that if a drug does not expose an athlete to excessive risk, it should be allowed, even if it enhances performance. Similarly suggested the president of the International Olympic Committee, Juan-Antonio Samaranch: he thinks that athletes be allowed to use non-harmful performance enhancing drugs, because the performance enhancement is the spirit of sport (International

Olympic Committee, 1999). Taking drugs is not necessarily cheating, so the legalization of drugs in sport may be fairer and safer Savulescu, Foddy & Clayton (2004). To achieve sustainable doping-prevention effects, focus has to be generally set on education within the frame of junior competitive sport (Fürhapter et al., 2013). Developing efficient doping prevention strategies is to identify relevant target groups and to evaluate the state of knowledge about doping, together with motivations behind using prohibited substances. Measures to prevent doping substances abuse have to be supported in early stages of childhood (Fürhapter et al., 2013). Kayser, Mauron & Miah (2007) emphasize that striving for eradication of doping in sports appears to be an unattainable goal, while more pragmatic approach can be aimed at controlled use and harm reduction to cope with doping and doping-like behaviour. The concept of doping control must be supported by high quality research, effective education and international collaboration. More research is needed into the factors which induce an athlete to take drugs and into the effect, if any, that education on drugs is having on competitors (Mottram, 1999). In studies about beliefs and attitudes about doping use at athletes, a combination of qualitative and quantitative measurements are recommended (e.g. interviews, questionnaires biomedical tests), with exploring possible geographical and cultural differences. Controls of the effects of educational educational programmes aimed at discouraging the use of banned substances are obviously needed, as well as finding more efficient educational strategies (Morente-Sánchez, Zabala, 2013). A normative framework has to draw the line between valuable, acceptable, and nonacceptable technologies in sport (Loland, 2009). Loland (2009) suggested a tentative categorization of sport technologies, with three ideal-typical normative views and their implications for technology. World Anti Doping Code, antidoping governance fails to define clear the role of medical doctors: a new approach which emphasize urgent educational and training of medical doctors is needed prior to the revision of the next World Anti Doping Code (Dikic et al., 2013).

Prohibited substances in sport

IOC definition of doping is linked with two meanings: the use of an expedient (substance or method) which is potentially harmful to the athlete's health and/or capable of enhancing their performance (a) and the presence in the athlete's body of a prohibited substance or evidence of the use thereof or evidence of the use of a prohibited method (b) (IOC 1999). World Anti-Doping Agency added that The World Anti-Doping Code states that athletes are responsible for any banned substance found in their body, regardless of how it got there (WADA, 2003). However, it is possible to have a banned substance in someone's body for innocent reasons. Some substances are produced naturally by the body (like testosterone, EPO,

Human Growth Hormone, nandrolone) and there are problems in determining appropriate 'cut off' points to ensure that sports people are not being punished because endogenously produced substances are present in their bodies. Some substances are present in over-the-counter medicines (for example, in cold and flu remedies), while some otherwise legitimate nutritional supplements used by athletes have been contaminated by prohibited substances (British Olympic Association, 2003). The WADA (World Anti-Doping Agency) (2003) prohibited list defines substances and methods *prohibited in competition*. Prohibited substances are: stimulants (for example amphetamine, cathine (in high concentrations), cocaine, strychnine); narcotics (buprenorphine, heroin, morphine, methadone, etc.); cannabinoids (hashish, marijuana, etc.); anabolic agents (nandrolone and testosterone); peptide hormones (including insulin, erythropoietin and Human Growth Hormone); Beta-2 agonists; agents with anti-oestrogenic activity; masking agents (diuretics); glucocorticosteroids. Prohibited methods are: enhancement of oxygen transfer (blood doping), pharmacological, chemical and physical manipulation (e.g. urine substitution and catheterisation) and gene doping. Substances *prohibited out of competition* are: anabolic agents, peptide hormones, some Beta-2 agonists in high concentrations, agents with anti-oestrogenic activity and masking agents, while all methods identified above are prohibited, too. Finally, *substances prohibited in particular sports* are alcohol and Beta-blockers (WADA, 2003). From these lists, there are drugs that are associated with sport and where there are grounds for believing that they could be used as a means of enhancing performance, while other drugs that are not obviously performance enhancing, but are illegal (notably cannabis). Third type of substances has only a marginal impact on performance and is used by people in other walks of life (DrugScope, 2004). One critique of the *United States Anti-Doping Agency (USADA)* is that it undermines the integrity of its fight against doping by taking advantage of a nominally private character and an inadequate standard of proof (McCaffrey, 2006). For a substance or method for the WADA Prohibited List, *three criteria* must be met: (1) the potential to enhance, or enhances, sport performance; (2) representing an actual or potential health risk to the athlete; and (3) violation the 'spirit of sport' (Loland & Hoppeler, 2012).

Ethical dilemmas - exaggerations, myths and misperceptions

DrugScope (2004) describes ten claims that express exaggerations, myths and misperceptions about doping use in sport. First, drug use in sport is not a modern phenomenon: over two thousand years ago, there is evidence that the very earliest Olympians used mushrooms and plant seeds to give them an advantage over competitors.

Second, drug use is not always against the 'spirit of sport': in modern sport, which is multi-billion dollar global business, the temptation to cheat is human, because over half of a group of elite athletes say that they would take a drug that guaranteed success but might subsequently kill them. Third, belief that there must be a level playing field in sport, and drug use by a small minority is undermining this, is a myth. There are many other inequalities in modern sport, except drug use: wealthier athletes have access to better facilities, resources, equipment and support services. Fourth, there is a lack of compelling and conclusive evidence that many of listed banned drugs enhance performance: for example, cannabinoids showed no link with better performance (Shapiro 2004). Fifth, the use of drugs to enhance performance is not unique to sport; it is ubiquitous in modern society. The candidates for the examination may use beta blockers to be calmer, while the actors going to auditions may have taken cold cures to clear their heads. Sixth, in spite of the fact that the current doping regulations have a purpose to protect the health and welfare of the athletes, that's not always true: many drugs that are legitimately (and routinely) used to treat athletes can be more harmful to health than a lot of prohibited drugs. This is, for example, the non-steroidal anti-inflammatory drugs (NSAIDS) used to enable competitors to recover from sports injuries. Seventh, belief that sport is a special case because sports people act as role models for young people can't be supported. For example, there is no evidence that cannabis use by a small minority of athletes is having any important impact on overall prevalence rates among the wider population. On the other hand, it's no reason to think that top snow boarders will have a greater influence as a model over the behaviour of impressionable young people than musicians, actors or starlets. Eighth, belief that athletes who use drugs know the rules and have nobody to blame but themselves is sometimes wrong. Sometimes the athletes are under pressure from coaches to use supplements, while in the other cases their body is producing banned substances naturally: problems persist in distinguishing exogenous and endogenous (naturally produced) hormones in the human body (nandrolone was especially controversial). Ninth, claim that athletes have spoken in favour of drug testing and it is therefore inappropriate for "outsiders" to complain about the system is true on the public level. However, in many sports, non-drug use tends to equate with no success at the highest level. So, athletes involved do not particularly want to take drugs but feel that have to in order to stay in competition' (Korkia, 1999). Finally, for the claim that drug testing and tough sanctions work, there is no evidence that it is reducing the problem, or that 'drug free' sport is a realistic objective. An interesting point of view about cheating and doping is given by Vorstenbosch (2010): he considers the claim that doping is cheating with the argument that doping is only cheating when

one accepts that the use of doping is unjustified in itself. The Scanlon's principle of fidelity, the morally acceptable matter is based on the reciprocal expectations, raised between parties to the practice, in this case between athletes and institutional authorities in sport practices (Vorstenbosch, 2010).

Ethical dilemmas about prohibition criteria

First dilemma raise from doping use in sport and other types of *enhancements*. Bostrom & Roache (2008) described dilemmas about the human enhancement, a blossoming topic in applied ethics. Hoyte, Kennon & Heard (2013) explored the use of performance enhancing substances (energy drinks, dietary supplements, and prescription medications) in the general population (at college students) showing that vast majority of survey respondents used energy drinks (80.1 %), (64.1 %) and prescription medications (53.3 %): use was high at intercollegiate athletes (89.4 %), club (88.5 %) and intermural (82.1 %) athletes. The enhancement of basic human capacities becomes feasible within the lifespan of many people alive today, but it opens considering the normative questions raised by such prospects (Bostrom & Roache, 2008). Enhancement is typically contraposed to therapy, but the distinction between therapy and enhancement is problematic. First, many enhancement interventions occur outside of the medical framework, while it is hard to distinguish preventative and curative enhancements. Problematic is a definition of a normal healthy state, too. Then, capacities vary continuously not only within a population but also within the lifespan of a single individual. Also, we don't know the level that can say us how "internal" an intervention has to be in order to count as an enhancement (or a therapy). Finally, if we consider a concept of enhancement as some sort of unified phenomenon in the world, it is hard to justify the claim that the moral status of enhancements is different from that of other kinds of interventions that modify or increase human capacities to the same effect (Bostrom & Roache, 2008). However, performance-enhancing drugs are used by a far larger section of the population than professional athletes (Petersen & Kristensen, 2009). Second dilemma is linked with doping use in sport and the concept of *fair play*. The concept of fair play is central to the "spirit of sport". With an argument of unfair advantage, Corlett, Brown & Kirkland (2013) argue that doping ought to remain banned from human competitions, unless and until the medical costs of doping can be made to be borne only by those who should bear them. The "spirit of sport" is explained with reference to a series of ideal values: ethics, fair play, and honesty; health; excellence in performance; character and education; fun and enjoyment; teamwork; dedication and commitment; respect for rules and laws; respect for self and other participants; courage; community and solidarity (Loland & Hoppeler, 2012).

One possible way how to redefine doping list can be interpreting the 'spirit of sport' in terms of a combination of the fair opportunity principle, together with a biological and evolutionary understanding of athletic performance (Loland & Hoppeler, 2012). However, defining 'spirit of sport' and unfair advantage is not so simple as it seems at the first sight, what will be discussed in further chapters. Third ethical dilemma is connected with doping use in sport and potential *health risks*. This ethical dilemma can't be solved that way because some performance-enhancing drugs have a negative impact on health and well being. In current nature of modern competitive sport, young athletes could want to take extremely damaging substances. On the other hand, a 'free for all' is a formula beyond the current policy horizon and this extreme position can polarize debate, keeping the status quo. So, this attitude can distract attention from practical, useful and achievable reforms (DrugScope, 2004). However, this attitude supports the health criteria as the most important in considering which methods and substances have to be allowed to use and which are not. Ethical dilemmas about criteria for prohibition some substances as a doping could be overviewed also through two examples: using plant-based drugs in sport and psychological doping.

First example: plant-based drugs in sport

Using some 'benign' plant-based drugs (such as hallucinogens like cannabis) is connected with dilemma about the concept of *fair play*, but very often and most probably can't be considered as an *enhancement* which improves athlete's sport performance directly. On the other hand, these types of plant-based drugs rarely can have negative effect on athlete's health. In this article we'll consider the status of plant-based drugs as a doping, consumed by athletes in competitive sport. First, it is unavoidable to have an insight into an issue of doping in sport, together with belonging ethical problems. In a literature review, the mostly researched plant-based drugs is cannabis (sometimes associated with consuming alcohol and tobacco). Marijuana, stimulants and anabolic steroid abused the most frequently detected substances in doping tests dissatisfies (D'Angelo & Tamburrini, 2010). Lorente, Peretti-Watel & Grelot (2005) examine prevalence of cannabis use at French students, for the purpose to enhance sportive and non-sportive performance and identify factors associated with both kinds of use. Fifteen percent of males and 12% of females reported using cannabis to enhance sporting performance, while 66% of respondents indicated use of cannabis at some point in their lifetime. Use of cannabis for sporting or non-sporting performance was highly correlated. Cannabis use to enhance sporting performance positively correlated to competitive level and sliding sports: windsurfing, skiing and snowboarding. Evans, Weinberg & Jackson (1992) conducted research on college athletes about their consuming alcohol, marijuana and barbiturates and psychological

correlates. High alcohol users scored significantly higher on POMS (Profile of Mood States) subscales of anger, fatigue and vigour than low/ non-users. No significant differences were found between marijuana users and non-users in stress measures or POMS subscales. The conclusion can lead us to a previously mentioned statement that marijuana (cannabis) in general didn't show the correlation with better sport performance. So, from all three criteria (Loland & Hoppeler, 2012).

Second example: psychological doping

As we have mentioned above, there are big differences among athletes to have access to equal facilities, resources, equipment and support services. Some of these facilities can be methods of „psychological doping“, which are linked with dilemmas about other types of *enhancements* and the concept of *fair play* as well. All methods of psychological doping that we'll describe here are natural and without using special substances. On the other hand, it's very hardly that an individual can be able to learn using these techniques, without help of special coaches or sport psychologists. There are few types of more natural and holistic forms of therapy (or enhancement) as alternatives to pharmacological approaches in a variety of conditions. For example, combining music with relaxation therapy or some other intervention can be useful in facilitate sleep onset, or to improve the duration or quality of sleep (Fried, 1990_a, 1990_b; Lai & Good, 2005). Physiological changes associated with listening to classical music are correlated with reduced stress in one session of a combined progressive relaxation, classical music and guided imagery condition (McKinney, 1990). Hardy, Jones & Gould (1996) describe few relaxation psychologically based techniques, used in increasing sport preparedness. Hypnosis is a technique that can be extremely useful for athletes and performers. Hypnosis is usually defined as an altered state of consciousness that has been brought about by a procedure that involves the individual becoming progressively more relaxed. This state may be induced by the individual himself (self-hypnosis) or by some other person. During the hypnotic state, the individual seems particularly responsive to suggestions for making changes in perceptions, feelings, thoughts or actions (Kirsch, 1994). Imagery is a cognitive-behavioural technique, used to help people cope with psychological /behavioural problems, e.g. anxiety attacks, phobias and depression. Similar as the other cognitive-behavioural techniques, it is based on the assumption that cognitive techniques can be used to change behaviour, and to improve performance in the case of sport. Imagery can take various forms: it is an attempt to feel the shot (the example from basketball), to feel the ball in your hands, to feel the position of your body, the smell of gym, or hearing the crowd. The more real experience can have influence on the better outcome. Imagining myself undertaking the task in this way is known as internal imagery. Another form of imagery involves trying to see

yourself as others do is known as external imagery (Hardy, Jones & Gould, 1996). Autogenic training is based on feelings associated with the limbs and muscles of the body. It is very similar to autohypnosis; it is based on early research with hypnosis, with variety of different exercises and self-statements, suggested by different authors. Autogenic training is composed of three component parts: in the most important first part, the athlete suggest to him/herself to feel warmth in the body and heaviness in the limbs; in the second, the subject is encouraged to visualize images of relaxing scenes with keeping focus of the attention on warmth and heaviness; the third component includes the use of specific theme to assist in bringing about the relaxation response, with addition of suggestive self-statements about keeping the body relaxed (Hardy, Jones & Gould, 1996). Meditation is a form of relaxation, tied directly to the concepts of selective attention and it can be easily adapted to the general medical setting and in the sport. During the meditation, the individual attempts to uncritically focus his attention on a single thought, sound or object. The most common used method in transcendental meditation is the silent repetition of a mantra, a type of self-suggestion. Various forms of meditation can reduce anxiety and tension by evoking the relaxation response (Hardy, Jones & Gould, 1996). For example, mindfulness meditation is a meditation best represented in modern medicine, which emphasizes an open awareness to any contents of the mind that are emerging (Kristeller, 2007). Biofeedback training is based on the assumption that people can voluntarily control functions of the autonomic nervous systems. It is a relatively modern technique that improves method of training with using instruments to help people control responses of the autonomic nervous systems. A subject can follow an auditory signal of his/her own heart rate and can have an insight in influence of different thoughts, feelings and sensations. Then he/she can manage to slow the heart rate: when someone recognizes the feelings associated with the reduction of heart rate, individual tries to control the heart rate without instrument (Hardy, Jones & Gould, 1996). Segal, Teasdale & Williams (2002) showed that mindfulness-based cognitive therapy can be effectively used for an athletic population (elite shooters). They concluded that meditation might enhance competitive shooting performance. The effectiveness of meditation training may reduce the lactate response to a standardized exercise bout at elite runners (Solberg et al., 2000). Reviews of the literature have found that majority (more than 85% of studies till 1978) showed important improvement in performance after the period of mental training (McCloy, 1978). Resuming these findings, methods for psychological preparation of the athletes much stronger have influence on sport performance, so they can be considered as types of non-natural *enhancements* that also damage the concept of *fair play* as well (these methods are not in same extent available to all athletes).

Conclusion

WADA Prohibited List considers three criteria for evaluating doping substances: the potential to enhance sport performance, representing health risk to the athlete and the violation the 'spirit of sport' or 'fair play' (Loland & Hoppeler, 2012). If going back, resuming these abovementioned health criteria and reviewing list of prohibited substances by WADA but also belonging ethical dilemmas, author's opinion is that some plant

based drugs which are an ergogenic aid can be for sure removed from the WADA's prohibited list (for example cannabinoids and especially marijuana). Those substances don't produce health risk, don't violate the 'spirit of sport' nor enhance sport performance. On the other hand, except prohibited substances, methods for psychological preparation can be considered as a doping, too. Namely, those methods can be considered as types of non-natural *enhancements* that also damage the concept of *fair play* as well.

References

- Ashenden M. (2002). A strategy to deter blood doping in sport. *Haematologica*, 87, 225–234.
- Auersperger, I., Topič, M.D., Maver, P., Pušnik, V.K., Osredkar, J., & Lainščak, M. (2012). Doping awareness, views, and experience: A comparison between general practitioners and pharmacists. *Wiener Klinische Wochenschrift*, 124(1-2), 32–38.
- Backhouse, S., & McKenna, J. (2012). Reviewing coaches' knowledge, attitudes and beliefs regarding doping in sport. *International Journal of Sports Science and Coaching*, 7(1), 167–175.
- Backhouse, S., McKenna, J., Robinson, S., & Atkin, A. (2007). *2007 International Literature Review: Attitudes, Behaviours, Knowledge and Education – Drugs in Sport: Past, Present and Future*. Leeds: Carnegie Research Institute, Leeds Metropolitan University.
- Backhouse, S.H., Whitaker, L., & Petróczi, A. (2013). Gateway to doping? Supplement use in the context of preferred competitive situations, doping attitude, beliefs, and norms. *Sc J Med Sci Sports*, 23, 244–252.
- Bloodworth, A., & McNamee, M. (2010). Clean Olympians? Doping and anti-doping: The views of talented young British athletes. *International Journal of Drug Policy*, 21, 276–282.
- Bostrom, N., & Roache, R. (2008). Ethical Issues in Human Enhancement. In *New Waves in Applied Ethics*, eds. Ryberg, J., Petersen, T. & Wolf, C., (pp. 120–152). Basingstoke: Palgrave Macmillan.
- Corlett, J.A., Brown, V., & Kirkland, K. (2013). Coping with Doping. *J of the Phil of Sport*, 40(1), 41–64.
- D'Angelo, C., & Tamburrini, C. (2010). Addict to win? A different approach to doping. *J Med Et*, 36, 700–707.
- Dikić, N., McNamee, M., Günter, H., Samardžić-Marković, S., & Vajgić, B. (2013). Sports physicians, ethics and antidoping governance: between assistance and negligence. *British journal of sports medicine* 47(1), 701–704.
- Evans, M., Weinberg, R., & Jackson, A. (1992). Psychological factors related to drug use in college athletes. *The Sport Psychologist*, 6, 24–41.
- Fried, R. (1990_a) Integrating music in breathing training and relaxation: I. Background, rational, and relevant elements. *Biofeedback and Self-Regulation*, 15, 161–169.
- Fried, R. (1990_b) Integrating music in breathing training and relaxation: II. Applications. *Biofeedback and Self-Regulation*, 15, 171–177.
- Fürhapter, C., Blank, C., Leichtfried, V., Mair-Raggautz, M., Müller, D., & Schobersberger, W. (2013). Evaluation of West-Austrian junior athletes' knowledge regarding doping in sports. *Wiener Klinische Wochenschrift*, 125 (1-2), 41–49.
- Hardy, L., Jones, G., & Gould, D. (1996). *Understanding psychological preparation for sport: Theory and practice of elite performers*. Chichester, UK: Wiley.
- Hoyte, C.O., Kennon, D.A., & Heard, J. (2013). The Use of Energy Drinks, Dietary Supplements, and Prescription Medications by United States College Students to Enhance Athletic Performance. *J Com Health*, 38, 575–580.
- Jones, C. (2010). Doping in Cycling: Realism, Antirealism and Ethical Deliberation. *Journal of the Philosophy of Sport*, 37(1), 88–101.
- Kayser, B., Mauron, A., & Miah, A. (2007). Current anti-doping policy: a critical appraisal. *BMC Medical Ethics*, 8(2).
- Kirsch, I. (1994). Defining hypnosis for the public. *Contemporary Hypnosis*, 11, 142–143.
- Korkia, P.K. (1999). Drugs in sport. *Journal of Substance Use*, 4, 125–127.
- Kristeller, J.L. (2007). Mindfulness Meditation. In P. Lehrer, R.L. Woolfolk & W.E. Sime: *Principles and Practice of Stress Management*. 3rd Edition, (pp. 17–45). New York: Guilford Press.
- Lai, L.H., & Good, M. (2004). Music improves sleep quality in older adults. *Journal of Advanced Nursing*, 49(3), 234–244.
- Lippi, G., Banfi, G., Franchini, M., & Guidi, G.C. (2008). New strategies for doping control. *Journal of Sports Sciences*, 26(5), 441–445.
- Loland, S. (2009). The Ethics of Performance-Enhancing Technology in Sport. *Journal of the Philosophy of Sport*, 36(2), 152–161.
- Loland, S., & Hoppeler, H. (2012). Justifying anti-doping: The fair opportunity principle and the biology of performance enhancement. *European Journal of Sport Science*, 12(4), 347–353.
- Lorente, F.O., Peretti-Watel, P., & Grelot, L. (2005). Cannabis use to enhance sportive and non-sportive performance among French sports students. *Addictive Behaviours*, 7, 1382–1391.

- McCaffrey, P.C. (2006). Playing Fair: Why the United States Anti-Doping Agency's Performance-Enhanced Adjudications Should Be Treated as State Action. *Journal of Law & Policy*, 22, 645-676.
- McKinney, C. (1990). The effect of music on imagery. *Journal of Music Therapy*, 27, 34-46.
- McCloy, L.E. (1978). Meditation and sports performance. In: Straub W.F., ed. *Sport psychology: an analysis of athlete behaviour*, (pp. 169-176). New York: Movement Publications.
- Morente-Sánchez, J., & Zabala, M. (2013). Doping in Sport: A Review of Elite Athletes' Attitudes, Beliefs, and Knowledge. *Sports Medicine*, 43(6), 395-411.
- Mottram, D.R. (1999). Banned Drugs in Sport. Does the International Olympic Committee (IOC) List Need Updating? *Sports Medicine*, 27(1), 1-10.
- Peretti-Watel, P., Guagliardo, V., Verger, P., Mignon, P., Pruvost, J., & Obadia, Y. (2004). Attitudes toward doping and recreational drug use among French elite student athletes. *Sociology of Sport J.* 21, 1-17.
- Petersen, T.S., & Kristensen, J.K. (2009). Should Athletes Be Allowed to Use All Kinds of Performance-Enhancing Drugs?—A Critical Note on Claudio M. Tamburrini. *J of the Philosophy of Sport*, 36(1), 88-98.
- Savulescu, J., Foddy, B., & Clayton, M. (2004). Why we should allow performance enhancing drugs in sport. *British Journal of Sports Medicine*, 54, 666-670.
- Segal, Z., Teasdale, J., & Williams, M. (2002). *Mindfulness-Based Cognitive Therapy for Depression*. New York: Guilford Press.
- Shapiro, H. (2004). *Sports doping controls – failing the test*. *Druglink*, 10-11. London: DrugScope.
- Shields, E.W. (1995). Sociodemographic analysis of drug use among adolescent athletes: Observations perceptions of athletic directors-coaches. *Adolescence*. 30, 849-861.
- Solberg, E.E., Ingjer, F., Holen, A., Sundgot-Borgen, J., Nilsson, S., & Holme, I. (2000). Stress reactivity to and recovery from a standardised exercise bout: a study of 31 runners practising relaxation techniques. *British Journal of Sports Medicine*, 34, 268-272.
- Spence, J.C., & Gauvin, A. (1996). Drug and alcohol use by Canadian university athletes: A national survey. *Journal of Drug Education*, 26, 275-287.
- Stamm, H., Lamprecht, M., Kamber, M., Marti, B., & Mahler, N. (2008). The public perception of doping in sport in Switzerland, 1995 – 2004. *Journal of Sports Sciences*, 26(3), 235-242.
- Vangrunderbeek, H., & Tolleneer, J. (2011). Student attitudes towards doping in sport: Shifting from repression to tolerance? *International Review for the Sociology of Sport*, 46(3), 346-357.
- Vorstenbosch, J. (2010). Doping and Cheating. *Journal of the Philosophy of Sport*, 37(2), 166-181.
- * * * (2003). /British Olympic Association/. BOA Press Release 1 May 2003, *Advice to UK athletes on the use of supplements*. Retrieved from: www.olympics.org.uk.
- * * * (2004). /DrugScope/. *The Doping Scandal – A Question for Sport*. London: DrugScope.
- * * * (1999). /International Olympic Committee/. *Olympic movement anti-doping code*. Lausanne: IOC.
- * * * (2003). /World Anti-Doping Agency/. *World anti-doping code*. Montreal: WADA.

ETIČKE DVOJBE KOD KORIŠTENJA BILJNIH DROGA KAO ERGOGENIČKIH SREDSTAVA

Sažetak

Kroz pregled zabranjenih supstanci u sportu, razmotrene su etičke dvojbe o kriterijima za doping listu. Ne samo zabranjene supstance već i drugi postupci (npr. tehnike psihološke relaksacije) mogu povećati sposobnost sportske izvedbe, što void prema upitnom konceptu "fair play-a" kao duhu sporta. Autor smatra da neke droge temeljene na biljkama kao ergogenička sredstva sigurno mogu biti uklonjene s WADA liste zabranjenih sredstava, jer ne donose zdravstveni rizik, ne narušavaju 'duh sporta' niti povećavaju sportsku izvedbu. Treba provesti istraživanje za različite biljne droge u sportskim situacijama, uvažavajući njihov utjecaj na zdravlje, uvažavajući sportašev uzrast, spol, vrstu sporta i druge relevantne varijable. S druge strane, osim zabranjenih supstanci postupci psihološke pripreme također se mogu smatrati doppingom.

Ključne riječi: droge, proširenje, fair play, zdravstveni kriteriji, sport

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