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Doping in sports

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Regardless of one's stance on the topic, drugs are an important issue in sports. Sports pages in newspapers around the globe routinely report on athletes at every level of competition using performance enhancing substances to gain an unfair advantage over their competitors. The level of sophistication in beating drug testing, and developing "next-generation" agents continues to raise. The relative paucity of well designed research has been an additional factor impeding attempts to adequately address the problem. Very limited funds are currently available to conduct the necessary research. Without credible data, athletes are more vulnerable to the claims made by those benefiting from the sales of these compounds. Many younger fans and those dreaming of a similar future admire highly successful professional athletes. A strong, consistent statement admonishing drug use is needed. Actions speak louder than words. Every time a successful athlete is caught using PE drugs, every effort to diminish drug use is negatively impacted. The "win at all cost" and "second place is the first loser" mentality needs to be continually challenged by words and actions in youth sports at every level of competition. Finally, the war on drugs in sports needs to be a coordinated, well organized international undertaking as sports play an important role in virtually every culture. If we are to maintain the integrity of competition and protect the health of the athletes, we must dramatically increase our efforts to eliminate performance enhancing drugs as an acceptable option for any athlete. Sports science professionals and sports psychiatrists need to work with coaches, trainers, athletes, and national governing bodies to educating athletes on the effects of performance enhancing drug use. To achieve this important goal everyone involved in sports needs to be knowledgeable on the negative impact this has on all aspects of organized sports. It is a difficult challenge, but one that must be addressed.

Key words: Doping, sports, athletes.

Dope

The word dope is derived from the Afrikaans term "Dop". Dop was a brandy made from grape skins and was used as a stimulant during ceremonial dances. In 1889 a mixture of opium and other narcotics was given the name "dope". It was given to race horses in an attempt to improve their speed. Today, doping refers to the use of virtually any illegal or banned substance with the intent to improve athletic performance by cheating. Doping is intended to improve strength, speed, endurance, recovery time, relieve pain, or mask the use of other illegal or banned drugs.¹ The most common examples of drugs used in doping include stimulants (amphetamines), narcotic analgesics (morphine), beta-blockers (inderol), and the most commonly used doping agent, anabolic steroids. Not all doping agents are illegal. In fact, many are prescription medications used to treat diseases. When athletes dope for performance enhancement, they consume far greater doses than a doctor would prescribe to treat an illness. Caffeine, found in coffee, tea, and many beverages, is considered doping when taken in large quantities for the purpose of performance enhancement. Another form of doping used by some endurance athletes (i.e. long distance runners, cyclists, cross country skiers) is blood doping, this involves taking out your own blood over time and putting back the oxygen carrying components of the stored blood prior to competing with the intended goal of increasing endurance. Doping is a potentially serious, even life threatening practice and is, by definition, cheating.

Doping Control

These are efforts of organized sports federations or leagues to catch athletes who dope and educate all competitors on the health risks associated with doping. The mainstay of doping control is urine drug testing. This involves the athlete providing a urine sample under strict collection procedures, which is sent to a certified laboratory, which screens the urine for banned drugs. Drug testing can take place at the competition (in-comp testing) or out of competition (out of comp testing). Given the use of masking agents, out of comp, no advance notice testing is the most effective way of catching those athletes

seeking an unfair advantage. Beating drug testing (providing a drug free urine even after doping) has become a lucrative, largely internet based, business. Products sold include drug free urine, which can be inserted into an artificial penis or vaginal pouch and adulterants (see definition).

Clean Urine

A urine sample which does not contain any banned substances.

Dirty Urine

A urine sample that tests positive for banned substances.

In-comp testing

Drug testing performed at the time of an athletic competition.

Out-of-comp testing

Drug testing which takes place before or after a competition, game or match.

Split Sample

A procedure used in drug testing where the urine sample collected is divided into two containers (A and B sample). The A sample is tested for banned substances and the B sample is only used to confirm a positive test found in the A sample. If the A sample is clean, the B is not tested and is thrown out.

Chain-of-Custody

This refers to the protocol carried out in drug testing. Once a urine sample is collected by the Doping Control team it stays in visual contact until it is signed off to the transport service and ultimately delivered to the testing laboratory. The purpose of chain of custody is to ensure the urine sample is not tampered with before being received by the laboratory. A sign-off sheet accompanies the sample, documenting that all parties handling the sample have directly observed it. At no time can the sample be not accounted for. Lapses in the sign-off log could call into question the validity of a positive test result. In fact, the lab will not even test a sample, which has a broken chain of custody.

Adulteration

Tampering with a urine sample in an attempt to invalidate a drug screen. Dopers will adulterate a urine specimen by adding contaminants to alter the pH, specific gravity or other characteristics of the sample.

Stacking

A form of anabolic steroid doping involving a systematic increasing of the dose of steroid taken over a given time frame. Doping with anabolic steroids results in dosing which far exceeds that required to treat medical illness and has serious adverse health consequences for the athlete.

Masking

The taking of a substance by an athlete with the intended goal of covering up the use of a banned drug on a urine drug screen. Masking agents, although not performance enhancing, are banned substances as well.

Theme

The practice of doping to gain an unfair advantage in athletic competition dates back as far as competitive sport itself. Ancient Greek athletes were known to cheat over 2,000 years ago. Unfortunately, doping in sports is a serious concern of virtually every sports federation, professional and amateur league and high school and university sports program. The use of steroids by a well-known athlete is likely to get more media coverage than someone breaking a world record. Doping control policies and programs are often complex. Although most agree that knowingly taking a banned substance to gain an unfair advantage is cheating and should be punished, the issue is often less obvious. For example, would it be considered cheating if an athlete who takes a banned substance for a known medical condition or is given an illegal drug by a coach or trainer and not informed it is banned? The policy of all Doping Control agencies is that the athletes are responsible for everything they put into their body. Although arbitration boards exist, established to evaluate the athletes' explanation of their drug use, ignorance of the rules is rarely a successful defense. The goal of drug-free competition is to maintain fair competi-

tion, safeguard the health of athletes, and maintain the integrity of sport. Drugs in sports are bad for the multibillion euro/dollar sports business. Fans admire the accomplishments of gifted athletes, but are frequently angered when a doping scandal is uncovered. Recently, the American baseball player, Barry Bonds, surpassed the legend Babe Ruth in hitting home runs. At the same time, he has been accused of taking steroids to gain strength and power. Despite denying the allegations, he is ridiculed by fans outside his home city. Many have called for his accomplishments to not be entered into the record books. Another example is the winningest Tour de France champion of all time, Lance Armstrong: despite being cleared of allegations of doping, he has lost virtually all of his lucrative endorsements. The 2006 winner of the Tour was tested positive for testosterone and pending his appeal, will be stripped of his title. Although testosterone is a naturally made steroid, it can be taken to increase strength. Given the fact that these substances are naturally occurring, it is difficult to define them as doping agents. The world loves a winner, but not one who is perceived as a cheat. As the rewards for victory have continually increased, so has the apparent need to win at any cost.

To underscore the importance and current relevance of doping in sports, Bud Selig, the current commissioner of American Baseball ran a full page statement in the most prestigious newspapers in the United States on Jun 16, 2006.² In this "open letter to baseball fans," Mr Selig addressed the use of human growth hormone (hGH) by baseball players. This action was directly related to recent reports of hGH use by a professional baseball player. In his letter, he acknowledged the revelation of a Major League player admitting to using hGH, a performance enhancing drug. He expressed his "anger and disappointment" for someone breaking the rules. He defended the players by pointing out this is a rare event and that it is difficult to test for hGH, but "he is committed to work with testing organizations to develop a reliable test." He emphasized Major League Baseball agreed to the "toughest drug testing and penalty program for steroids in all of professional sports." He proclaimed he was "committed to protecting our game... and the integrity of America's pastime." Of interest, the fact that performance enhancing drug use only recently seemed to become a priority for

Major League Baseball, after Congressional hearings were held following the Balco-Barry Bonds steroid abuse allegations. It is widely acknowledged that drugs have been used by players for many years prior to these public proclamations. Mr Selig's closing statement captures the goal of doping control. He wrote, "the goal of baseball is simple. It's a game that is to be won or lost on the field as a result of the natural talents of the game's remarkable athletes. I will do everything possible to make sure that this one goal can always be met." A skeptic might question the true motivation for this action and how it is related to the business of MLB and its fan base. Regardless, it speaks volumes about the importance of doping in modern day sports.

There are well documented cases of athletes dying from doping, but fortunately this is uncommon. Given the high doses used in doping, it is difficult to determine the short and long term effects on the athlete.³ It would not be ethical to give doses equivalent to those used "in the gym" to athletes in a research study to determine the side effects. What is known about the side effects of many of the drugs of abuse, such as anabolic steroids and growth hormone, is extrapolated from observation and reports of admitted users.⁵ Additional information is derived from the existing medical literature on the effects in patients prescribed these drugs for medical reasons. There is some controversy over the reported side effect profiles of many of these compounds when used in healthy athletes. Steroids, for example, have a large number of documented adverse side effects, but not every user will necessarily experience these problems. There is no way of predicting which adverse effects will develop and to what extent. Much has been written about "roid rage".^{4,5} This refers to the extreme anger reported in some steroid abusers. The clinical studies, which have attempted to study this reaction, have reported inconsistent findings. What has been reported by most users is irritability and mood lability. Aggression is not routinely reported and may be related to other factors, unique to the individual and their current life circumstances. Given all the potential adverse side effects, why do athletes take anabolic steroids? The most obvious answer is to increase skeletal muscle mass (size) and ultimately strength, power and speed. These drugs do not create an athlete. They do allow the conditioned ath-

lete to train harder by improving recovery time from strenuous workouts. The ability to "overtrain" and improve strength, power and speed does give the user an unfair advantage over the non using athlete. Some investigators have reported a prominent placebo effect experienced by athletes taking anabolic steroids. Regardless, there is no doubt that use of high dose anabolic steroids combined with intense workouts will result in physical changes not achievable by training without using steroids. This is why efforts to discourage drug use through testing and education are important not only for the health of the athlete, but to promote fair competition as well.

The majority of competitors never dope and commit themselves to being the best they can be through hard work and dedication. The pressure to use performance enhancing drugs also comes from teammates, coaches, trainers and even parents who develop a distorted perspective on the meaning of competition. Education on the potential dangers of doping needs to include coaches, trainers, and parents (in the case of adolescent athletes), in addition to the athlete.

Virtually all doping agents present a health risk to the user, some more significant than others. Unfortunately, the side effects experienced with many of the other performance enhancing drugs are not well known. Of potentially greater concern, is the long term ill effects on health. By the time these effects are discovered, it will likely be too late for those abusing these drugs to be treated and the damage will be done. For this reason, it is important to research and learn about the short and long term side effects of all doping agents. Eliminating drug use by all athletes is the ultimate goal, but not realistic at this time or in the foreseeable future.

Case Studies

Case 1

Unfortunately, an entire text could be written on modern day athletes and doping. High profile case examples may only represent the tip of the iceberg, no one knows. Data on the prevalence of doping in sports is highly speculative and difficult to interpret. For obvious reasons, the actual number of dopers in any given sport is not known. Cheaters are unlikely to freely admit their actions, and large scale screen-

ing on a regular basis of all athletes is currently not possible. The following real-life cases highlight a few of the issues associated with doping in sports.

A 16 year old adolescent male always dreamed of being a high school football player. Despite an aggressive workout schedule and intense weight lifting, he was only able to get his weight up to 215 pounds. The coach told him after the tryout that he liked his effort, but he would need to put on 25 additional pounds to make the team. The player asked the coach how he could possibly do it. The coach gave him a name of someone who could help him achieve his goal. Eight months later the player returned weighting 255 pounds and looking very muscular. His strength had increased dramatically and he was able to train at a very high level. He made the team and was very pleased. In the third game of the season, he became angry over a penalty called on him and punched the official. He was thrown off the team for his misconduct. He later confided to a teacher he felt close to that he had been given anabolic steroid injections by a strength and conditioning coach. The coach was subsequently fired for his actions when it was discovered he had been sending his players to a known steroid "pusher." Whether the steroids caused the violent behavior is debatable. The increase in weight and strength and the ability to over-train was directly related to his steroid use. The tragic ending to this case is the player was told he had to increase his size in order to fulfill his dream, by his coach. The

high school did not have a drug testing program or any form of drug abuse education available to the athletes prior to this incident, but now does.

Case 2

A 24 year old world class swimmer came to a world championship meet and broke two world records. Despite being an elite swimmer, she had never challenged world records in her career. Her drop in times was remarkable and many of her competitors questioned her dramatic improvement. In addition to her increased speed in the pool, she had a significant change in her physique. Her upper body became much more muscular and her breasts appeared smaller. Her voice was noted to be much deeper than it had been in the past. Given her bodily changes combined with her incredible improvement in her times, many felt she had to be doping. She was drug tested following her world record swims and no performance enhancing drugs were detected. Despite her negative drug test, many felt she had beaten the test and, in fact, had used performance enhancing drugs.

This case highlights a belief of many involved in doping control that the cheaters are often one step ahead of the testers. One athlete confided that current drug testing is little more than an intelligence test, since "only an idiot will get caught." Although a cynical view, it does represent a sense of failure of the doping control process by some athletes.

Το «ντόπινγκ» στα σπόρ

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Ανεξάρτητα από την τοποθέτηση του καθενός μας απέναντι σε αυτό το θέμα, οι ουσίες που βελτιώνουν τις αθλητικές επιδόσεις παίζουν σημαντικό ρόλο στον αθλητισμό. Οι αθλητικές στήλες των εφημερίδων, διεθνώς, δημοσιεύουν τακτικά περιπτώσεις όπου αθλητές χρησιμοποιούν βελτιωτικές της επίδοσης ουσίες για να εξασφαλίσουν πλεονεκτήματα έναντι των αντιπάλων τους. Η εξέλιξη στην ανακάλυψη μεθόδων που αποτρέπουν την ανίχνευση των ουσιών αυτών είναι εντυπωσιακή. Δυστυχώς η έρευνα στον τομέα της χρήσης των ουσιών αυτών δεν χρηματοδοτείται επαρκώς. Χωρίς αξιόπιστα δεδομένα οι αθλητές είναι ευάλωτοι στους ισχυρισμούς αυτών που επω-

φελούνται από τις πωλήσεις των ουσιών. Πολλοί νεαροί οπαδοί των αθλητών και όσοι ονειρεύονται μια λαμπρή αθλητική σταδιοδρομία, θαυμάζουν τους επιτυχημένους και επαγγελματίες αθλητές. Χρειάζεται επομένως μία ισχυρή καταγγελτική διακήρυξη. Ωστόσο, οι πράξεις μετρούν περισσότερο από τα λόγια. Κάθε φορά που ένας καταξιωμένος αθλητής διαπιστώνεται ότι κάνει χρήση ουσιών, η προσπάθεια περιορισμού των ουσιών αυτών χάνει έδαφος. Η νοοτροπία που βασίζεται στην αρχή «νίκη με οποιοδήποτε κόστος» και «η δεύτερη θέση είναι η πρώτη θέση του ηττημένου» πρέπει να αμφισβητείται με λόγια και με έργα στον αθλητισμό των νέων σε όλους τους τομείς άθλησης. Τέλος, ο πόλεμος εναντίον των ουσιών στον αθλητισμό πρέπει να είναι μια συντονισμένη, καλά οργανωμένη διεθνής επιχείρηση επειδή ο αθλητισμός παίζει σημαντικό ρόλο σε όλους τους πολιτισμούς. Αν θέλουμε να διαφυλάξουμε την ακεραιότητα της άμιλλας και να προστατεύσουμε την υγεία των αθλητών θα πρέπει να εντατικοποιήσουμε τις προσπάθειές μας για να αποκλεισθούν οι ουσίες αυτές ως μία αποδεκτή προοπτική για τους αθλητές. Οι επαγγελματίες των επιστημών του αθλητισμού και οι ψυχίατροι του αθλητισμού πρέπει να συνεργάζονται με τους προπονητές, τους αθλητές και τις διοικήσεις στην εκπαίδευση των αθλητών σε σχέση με τις επιδράσεις που μπορούν να έχουν οι ουσίες αυτές. Για να επιτευχθεί αυτός ο σημαντικός στόχος πρέπει όλοι αυτοί που ασχολούνται με τον αθλητισμό να γνωρίζουν την αρνητική επίπτωση που έχουν οι ουσίες σε όλες τις πλευρές του οργανωμένου αθλητισμού. Πρόκειται για μια δύσκολη πρόκληση που πρέπει όμως να αντιμετωπισθεί.

Λέξεις ευρετηρίου: «Ντόπινγκ», αθλήματα, αθλητές.

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