

Original Paper

A Historical Timeline of Doping in the Olympics (Part II 1970–1988)

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Abstract

This article is part II of *A Historical Timeline of Doping in the Olympics*. The timeline is divided into three sections for analysis: Section 1 timelines the science of doping with special emphasis on the East German doping program. Section 2 timelines drug testing. Section 3 timelines positive drug tests and the sanctioning of athletes. The science of doping highlights the development of scientific awareness of the effectiveness of performance enhancing drugs when used by highly trained Olympic athletes. Drug testing shows how the International Olympic Committee (IOC) slowly began to deal with doping through testing and also how national and international Olympic organizations have dealt with these doping tests over time. Positive drug tests and the sanctioning of athletes highlight doping violations by athletes but also the variegated system of sanctions for athletes who test positive. The timeline makes clear that athletes have been more than willing to experiment with any drug that they believe will enhance their performance. It also shows how physicians, doctors, national Olympic organizations and even countries have sometimes helped athletes to cheat or turned a blind eye to the cheating in order to win more Olympic glory for their countries.

Introduction

Part II of *A Historical Timeline of Doping in the Olympics* covers the period from 1970–1988. During this time drug use for performance enhancing purposes becomes more widespread and organized. Also, for the first time, some scientists admit to the efficacy of steroid use by athletes for improved performance. Tests to detect drug use are also improved but no tests for some drugs make these new tests negligible at best. As no central organization to fight drug use exists, countries, national sports organizations and the IOC deal with this increased drug use and improved testing in different ways; and in the case of East Germany, to catastrophic effect for its athletes. It will take a cataclysmic doping event for sports authorities to take this problem seriously. 1988 is chosen as an end point for just this reason. At the Seoul Summer Olympics the Canadian sprinter Ben Johnson tests positive for steroids. It forces officials to make a choice: get serious about doping or allow it to take over the sport.

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This paper is divided into three timeline sections. Section 1 of the timeline covers the science of doping and how this was used so effectively by the East German sponsored doping program. Section 2 of the timeline covers drug testing. The timeline will show how athletes are able to get around any new test devised for catching them using performance enhancing drugs. Section 3 covers positive drug tests and the sanctioning of athletes. The East German doping program is attached to section 1 because its coaches and physicians take the science of doping athletes to extremes for performance enhancement.

The Science of Doping

The 1970's and 1980's saw incremental advances in the willingness of Olympic sports organizations to fight doping, improvements in drug testing equipment and also scientific research which backed up claims by athletes that doping could improve their athletic performance. The 1970's also saw the establishment of the East German doping program.

The East Germans systematically used the advances in performance enhancing drugs and drug testing to build a countrywide government sanctioned Olympic sports program. The goal of this program was to develop athletes by any means necessary in order for them to win gold medals for the glory of the East German state.

The timeline opens with the science of doping in the 70s:

In 1972, in an experiment conducted at the University of Massachusetts and published in the 1972 edition of *Journal of Applied Psychology* Dr. Gideon Ariel performs a double-blind study using an oral anabolic steroid and a placebo.

“The subjects were divided into two equal groups. Group A received the anabolic steroid the 1st four weeks and the placebo the last four weeks, while Group B received the placebo and steroid in reverse order.

Results: The subjects improved their voluntary muscular force both with and without the anabolic steroids, but all showed greater improvement during the drug period.”

“Many people refused to acknowledge the findings,” he said [1].

In 1976, the most prominent sports physicians in West Germany-Wildor Hollmann, Armin Klumper, Herbert Reindell, Wilfried Kindermann and Joseph Keul- publicly endorse the medically supervised steroid doping of elite athletes. Keul serves as the chief physician for West German Summer Olympic teams for two decades [2].

In 1977, the American College of Sports Medicine (ACSM) publishes an article stating its position on anabolic steroids: “There is no conclusive scientific evidence that extremely large doses of anabolic-androgenic steroids either aid or hinder athletic performance” [3]. The report is ridiculed by many Olympic athletes.

Some scientists still cannot get around the fact that athletes are different from the public at large. There is an unwillingness amongst scientists to accept the effect exercise and diet, combined with these drugs, has on athletic performance. On the other hand, there are scientists and doctors who naively think they can control athletes' drug use. All this lack of consensus does in the end is it gives sports authorities a convenient reason to not pay close attention to drug use.

As we move into the 80s, the disconnect between the IOC and scientific research is still wide as seen in the following example of the effectiveness of blood doping on athletic performance:

At the February 10–13, 1980 IOC Meeting at Lake Placid, New York, Prince de Merode is asked about blood doping. He responds that, “this practice was not thought to be very widespread or of much assistance

to an athlete” [4].

In 1980, in tests conducted at Old Dominion University’s Human Performance Laboratory, 11 of 12 runners bettered their performance after blood re-infusion or blood doping. Also, in research conducted at York University in Toronto, Dr. Norman Gledhill reports that muscles performing beyond normal limits do not cause the heart to overwork. There is also an increase in cardiac output because of extra oxygen to the myocardium, the muscle of the heart itself. There is also no increase in blood pressure [5]. Both studies confirm for athletes the benefits of blood doping and its safety, as long as the doping is reinfusion and not transfusion. Transfusion opens the user to possibly contracting diseases from the donor like hepatitis, mononucleosis and AIDS.

Clearly, the lack of any coherent program or policy on doping continues into the 80s:

In 1982, reports of serious side effects prompt the pharmaceutical company Ciba-Geigy to stop production of Dianabol. However, it is still available on the black market.

In 1982, bodybuilder Dan Duchaine publishes the *Underground Steroid Handbook*. Duchaine, not a doctor (he has a bachelor’s degree in theatre directing), is one of the leading authorities on how to find, use and administer steroids to athletes [6].

In 1982, Robert Kerr, a Los Angeles area physician, becomes well known for claiming to write steroid prescriptions for athletes and for his book *The Practical Use of Anabolic Steroids with Athletes*. Kerr says the following:

Anabolic steroids will never be viewed by the public and athletic officials as anything but a hazard to the athlete’s health until the drugs are strictly controlled by physicians. Only with adequate, safe controls can the anabolic steroids be viewed in the same light as antibiotics, anti-asthmatic, and other medications used in daily life.

In 1982, Physicians who object to steroid use on ethical and medical grounds lack the experience required for understanding the proper dosing and side effects of the drugs [7].

In September, 1983 the USOC “Task Force on Drug Control” calls for help, “from the medical profession in policing the ethics of physicians who help athletes get these drugs” [8]. By “drugs” the task force means mainly steroids.

In 1984, 25 scientific studies have been conducted up to 1984 to determine whether anabolic steroids improve athletic skills. 12 studies conclude that anabolic steroids improve athletic performance, 13 do not [9].

In 1984, the ACSM reverses its position on the efficacy of steroids and announces that: “The gains in muscular strength achieved through high intensity exercise and proper diet can be increased by the use of anabolic-androgenic steroids in some individuals.” This statement corroborates what athletes have known since the 1960s [10].

In 1986, Dr. Robert Kerr reports that he has given up prescribing steroids to athletes because he finds they cannot be trusted to limit their consumption in accordance with his instructions [11].

In 1988, a prominent Swiss sports physician, Hans Howald, head of research at the elite Swiss Sports School (ESSM), says in an interview that sports physicians are the most entrenched opponents of doping control. He is eventually dismissed from ESSM [12].

In 1988, the pharmaceutical company Searle takes its steroid Anavar off the market on account of its “misuse” in sport. However, the steroid remains on the black market for years at high prices because of its reputed “safety” when compared with other steroids.

By 1988 scientists have proved through research the effectiveness of performance enhancing drugs on athletic performance. There is also a realization that physicians cannot control the use of these drugs

once athletes realize their effectiveness. And there is still a large community of sports physicians who see nothing wrong with the use of these performance enhancing drugs.

Only East Germany, however, has taken the use of performance enhancing drugs and made it into a nationwide sanctioned program. The timeline for the East German drug program sees a country taking advantage of the Olympic sports world's ambiguous stand towards doping:

On September 29, 1970 Dr. Manfred Hoppner, now director of sports medicine for East Germany, authorizes a program using performance enhancing substances to prepare East German athletes for the 1972 Munich Olympics [13].

At the 1972 Munich Olympics East German female swimmers win four silver and two bronze medals. In 1973 at the inaugural World Swimming Championships East German female swimmers break seven world records and win 10 golds out of 14 races contested. Deena Dearduff, an American record holder in the 100 meter butterfly and contestant in 1973 says she notices the East German swimmers have very deep voices, look masculine and have a body structure completely different from the American swimmers. The East Germans are twice as big as the Americans and have developed muscles the Americans don't have [14].

After the Montreal Olympics, a group of scientists from the University of Leipzig are honored for their excellent results in the doping of their athletes and given a monetary prize [15].

In January, 1979 Renate Neufeld, an East German athlete who defected to the West, tells about the sport school system in East Germany. Part of the program had doctors giving her steroid pills and calling them "vitamins".

The East German sports doping program reveals the weaknesses in the IOC drug testing program. The IOC and other international sporting organizations like the IAAF try new tests for new drugs but they are not sponsoring the research. Everytime a new test for a previously untestable drug is announced, however, athletes are able to seamlessly move to other drugs, both old and new, that they know are undetectable. This cat and mouse game will continue ad infinitum:

East German swimmer Rica Reinisch wins three gold medals at the 1980 Moscow Summer Olympics. However, she retires two years later and is subsequently diagnosed with Ovarian cysts due to high levels of testosterone in her system. Even later she is diagnosed with heart arrhythmia. This also is blamed on the heavy testosterone loads she is given when training as a swimmer [16].

In 1982, East German swimmer Catherine Menschner retires early because of complications from steroid use. Menschner is 14 when she is paralyzed from an overload of testosterone [17].

In early 1985, Manfred Ewald, in charge of the whole East German doping program, publishes a book, *I Was Sport*, admitting widespread use of performance enhancing drugs [18].

In 1986, East Germany makes "substance P", a code name for neuropeptides. They are given to fencers and gymnasts. Neuropeptides are useful in dealing with stress and emotions, particularly for risk taking events [19].

In March, 1988 the experimental drug androstenedione, a precursor to testosterone, is introduced as a nasal spray. It proves unsuccessful and destroys the nasal system of East German swimmer Raik Hannemann [20].

The East German athlete was seen as a usable commodity by the East German sports program. He/she was sacrificed for the greater glory of the country. Athletes were experimental guinea pigs for performance enhancing drugs and were discarded when no longer useful. Sports authorities felt no obligation to see to their athletes' safe physical and mental return to everyday life. Cries for help by the athletes themselves would not be heard and answered until the unification with West Germany after the fall of communism in 1989.

Drug Testing

The timeline shows that new tests are constantly being developed. At the same time, however, new drugs and doping procedures are appearing that no drug test can capture; and some drugs already in existence remain untestable. Athletes, their coaches, and even their federations and countries know this and take advantage of it.

The IOC tests 211 athletes at the 1972 Sapporo Winter Olympics. One hockey player is found positive for the stimulant ephedrine.

In 1972, Dr. Bjorn Ekblom of the Institute of Gymnastics and Sports in Stockholm announces a blood re-infusion procedure that reveals a 25% increase in endurance. Called “blood packing” or “blood doping”, Ekblom takes a quart of blood from each of four subjects, removes the red blood cells and puts the blood in cold storage for a month. He then increases the red blood cell concentration in a centrifuge, restores it to the same athletes (re-infusion) and finds the subjects’ have an increased oxygen carrying capacity in their blood. This allows the subjects to run longer on a treadmill before reaching exhaustion. The theory behind the research is that muscles require oxygen, which is carried by red blood cells. The more red blood cells, the more oxygen, and the longer muscles can go on after reaching “normal” exhaustion [21].

2049 drug tests are carried out at the 1972 Munich Summer Olympics. 12 of the urine samples come back positive [22].

In October, 1973 a group of British scientists affiliated with London University, led by Prof. Raymond Brooks and Dr. Arnold Beckett, announce they have developed a urine test that will show, for a short time, the presence of anabolic steroids. Two procedures are adopted to secure the accuracy of the tests. The first process screens the urine by means of radioimmunoassay. If the screening reveals the presence of anabolic steroids, further tests using gas chromatography and mass spectrometry will reveal the type and amount of the banned substances involved. This test will be used at the 1976 Montreal Olympics [23].

From October 5–7, 1973 the IOC Medical Commission announces that the list of banned substances will “close” six months before the beginning of the Olympics. Also the second, the confirmation test, will be carried out automatically in order to speed up the testing process.

In April, 1974 at the yearly meeting of the IOC Medical Commission it is announced that testing for anabolic steroids will be carried out at the 1976 Olympics. However, no test for testosterone is to be conducted [24].

At the October 21–24, 1974 IOC Congress, the Medical Commission, in a report to the IOC, explains that the new steroid test will be able to detect steroids if taken within three weeks prior to the test. The steroid test will not be carried out at Innsbruck. It will only be carried out at Montreal because the commission believes more athletes will use steroids for the summer than winter Olympics [25].

At the 1976 Innsbruck Winter Olympics, 356 drug samples are analyzed. Two are positive. The drugs are ephedrine and codeine, one in Nordic skiing and ice hockey, respectively [26].

In 1976, testosterone is coming into vogue again thanks to the new steroid test. Testosterone cannot be detected in drug tests [27].

At the May 21–23, 1976 IOC annual meeting, Prince de Merode reports on doping procedures for the Montreal Summer Olympics. He announces that in addition to amphetamine testing, anabolic steroids, ephedrine and alcohol (for fencers and modern pentathletes only) will be tested for [28].

At Montreal, 12 gas chromatographs will be used. They are to be controlled by two data systems capable of recognizing over 200 banned substances [29].

275 drug tests are carried out for steroids at the 1976 Montreal Summer Olympics. Eight come back positive, seven weightlifters and one woman discus thrower.

In 1977, U.S. strength athletes (mostly from track & field) begin to regularly use testosterone. The reason is that testosterone, as a naturally occurring substance, isn't on the IOC's banned list of drugs. This is called the "testosterone loophole." This allows the athletes to beat the drug testing procedures for anabolic steroids that are put in for the 1976 Olympics [30].

On June 11, 1977 the West German sports federation announces that it has approved a ban on the use of steroids by its athletes who compete in international competitions [31].

From June 15–18, 1977 at an IOC meeting in Prague, Prince de Merode discusses for the first time the concept of IOC approved drug testing laboratories [32].

In November, 1978 the United States Olympic Committee (USOC) Medical Committee recommends that drug testing be carried out at all national sporting championships.

In a December 6, 1980 article for Time magazine, Drs. Robert Dugal and Michel Bertrand, in charge of drug testing for the 1980 Lake Placid Winter Olympics, discuss their work. 16 gas chromatographs, four linked to mass spectrometers, are to be used. These machines can pick up from urine samples one trillionth of a gram of amphetamine, detect other stimulants and painkilling narcotics taken 72–96 hours before the test and steroids used as long as six to seven weeks before a competition. Urine is placed in the gas chromatograph and if found to be positive is then identified using the mass spectrometer [33]. There are now 300 drugs on the IOC banned list.

No official drug positives at the 1980 Moscow Summer Olympics are found. The continued existence of the "testosterone loophole" is thought to be the reason for the "clean" Olympics [34]. However, IOC drug testing expert Manfred Donike, head of the IOC approved drug lab in Cologne, West Germany, unofficially screens urine samples for exogenous (originating from outside the body) testosterone. Donike's new test measures the ratio of testosterone to epitestosterone in the urine. The ratio is 6:1 testosterone to epitestosterone. 20% of all athletes would have failed his test. The 20% figure includes 16 gold medalists. Donike convinces the IOC to add testosterone to its banned list and add the test as well [35].

In a February, 1982 interview, Professor Manfred Donike says that the increase in the use of testosterone is a direct result of the test for anabolic steroids [36].

In July, 1982 exogenous testosterone is added to the IOC's banned list of drugs. Procedures to differentiate between endogenous (originating from inside the body) and exogenous testosterone and to establish limits of the former at a level that would prevent false positive test results are developed [37].

On April 28, 1983 the Los Angeles Olympic Organizing Committee (LAOOC) announces it will not test for testosterone unless scientific proof is available that the tests are indeed valid.

In August, 1983 the IX Pan American Games are held in Caracas, Venezuela. Drug testing analytical procedures are said to be significantly refined. But according to Dr. Manfred Donike, in charge of the drug lab, the equipment is virtually identical to that he used in Helsinki and the World Cup in Madrid. Still, the gas chromatography and mass spectrometry procedures, refined with new computer software, lead to improved testing when compared to the last Olympics. The machines can now pick up traces of compounds taken as much as six months earlier. Testing weaknesses, however, include substituted urine samples, a cessation of drug use to allow drugs to leave the body before the drug test is conducted and inadequate technology that still fails to pick up drugs like testosterone. 15 athletes at the 1983 Pan American Games test positive for ephedrine stimulants or anabolic steroids. The steroid test, a testosterone/epitestosterone screening not available for the last Olympics, and the test for stimulants, catches 11 weightlifters, including triple gold medalist American Jeff Michels and Cuban record holder Daniel Nunez, 1 cyclist, 1 fencer, 1 sprinter, and 1 shot putter test positive. This is the largest sports drug scandal [38].

Also at Caracas, 12 members of USA Track & Field leave the games before their competitions (one athlete subsequently returns) after the weightlifting positives are published. Part of the problem is that

USA Track & Field athletes are not tested in America. For example, The Athletics Congress (TAC), the U.S. governing body for track & field, refuses to test athletes, even at national championship meets [39].

In the aftermath of the 1983 Pan American Games drug scandal the USOC funds a drug control program. Set up by sports physicians and athletes appointed by the USOC, the testing is divided into two categories: formal and informal. If in a formal drug test the athlete tests positive for a banned substance, he/she is subject to exclusion and future ineligibility from Olympic competition subject to action by the USOC executive director. If in an informal drug test the athlete tests positive for a banned substance, the result remains confidential between athlete and physician. Only a sport's national governing body (NGB) can request informal testing. It is used primarily as an educational tool, so athletes can become more familiar with the testing procedures, and to show athletes the risks in taking over-the-counter (for example Dristan, Contac and Sudafed) and prescription medication that have banned substances. Boxing was the first NGB to use the informal testing at its National Boxing Tournament in November 1983. The 1984 U.S. Olympic Hockey Team was the first to use formal drug testing. All U.S. athletes who competed at Sarajevo took formal or informal drug tests. All passed [40].

In the same year in Great Britain, the newspaper the *Times of London* charges that sports officials help their athletes to circumvent tests and arrange for some athletes to avoid testing at international competitions in Britain. British officials also strike deals with athletes from foreign countries. The East Germans are promised no testing at a track meet in England. The U.S. receives similar assurances for an indoor meet in Cosford. And a Soviet team is allowed to provide its own urine samples and then is allowed to take them home. The British set up a board of inquiry to review its administration of testing [41].

In 1983, Norway adopts a strict anti-doping program that includes random unannounced testing for its athletes anywhere in the world [42].

One of the most talked about test-proof substances in 1983 is Human Growth Hormone (hGH). It stimulates protein manufacture, thereby accelerating the growth of muscles, bones and cells, while at the same time creating less body fat. hGH is extracted from the pituitary glands of human cadavers and is expensive to acquire. However, genetically engineered hGH is soon to be widely and "affordably" available. Natural hGH is rumored to be widely used by top athletes in strength sports [43].

In February, 1984 the IOC withholds certification of the Sarajevo drug testing laboratory until two days before the opening ceremonies. The IOC Medical Commission is concerned about the inexperience of the Yugoslav technicians who operate the lab and is dissatisfied with the ability of the equipment to quickly process tests. The Sarajevo laboratory uses equipment - gas chromatographs and mass spectrometers - that is larger and takes substantially more time to process each specimen than the equipment for the Summer Games. The drug testing laboratory at Los Angeles is able to process test results in minutes. In Sarajevo the tests could take days. No athlete has ever tested positive for a banned substance at the Winter Olympics. The lab for Los Angeles, based at UCLA, is certified in November 1983 [44].

There is one positive drug test at the 1984 Sarajevo Winter Olympics.

In 1984, USA Track & Field uses the USOC drug testing program to teach its athletes how to time their drug-taking so as to be tested as if they are drug free for the Olympics [45]. The USOC announces no positive test results leading up to the 1984 Summer Olympics. Only after the Games does it report that 86 pre-Olympic drug tests come back positive. Two athletes, from track, are removed from the Olympic team. No sanctions are handed out against the others. Even so, the possibility of getting caught leads athletes to use hGH more and more since no test for its detection exists [46].

On July 23, 1984 Tony Daly, member of the LAOOC Medical team, says about 1500 urine drug tests (20% of all athletes) are scheduled for the LA Summer Olympics. Among the drugs being tested are codeine, anabolic steroids, amphetamines and over the counter medication for colds, hay fever and other

allergies. The first four finishers in all individual competitions will be tested along with others at random. In team sports, testing of the members on winning squads is entirely random. eight mass spectrometers and gas chromatographs will be used and this will allow tests results to be announced within 24 hours. The equipment is so sensitive that it can pick up one part in a billion. If a sample tests positive than a second sample (taken at the same time as the first) is checked in the presence of the athlete and medical representatives from his or her delegation. The second analysis is final and if positive the athlete is stripped of his or her medal [47].

Despite the elaborate testing lab being prepared for the 1984 Summer Games rumors abound of athletes taking hGH and the synthetic forms of the natural hormone testosterone [48]. No drug lab in the world is capable of testing for these two performance enhancing drugs.

11 athletes test positive for banned substances at the 1984 Los Angeles Summer Games. 10 positives are for anabolic steroids, the highest number so far . In January, 1985 USA Cycling medical support team staff member Dr. Tom Dickinson says that at least three and possibly seven American riders (almost one-third of the 24 member team) used blood doping before races in the 1984 Olympics. Included in that number are five medal winners. Cyclist Pat McDonough, silver medalist in the team pursuit competition, claims nothing illegal was done because blood doping has not been banned.

On June 6, 1985 Prince de Merode states that blood doping will be added to the banned substances list. However, no test yet exists for blood doping [49].

In 1986, recombinant erythropoietin or rEPO (called EPO from now on) is developed by Amgen, a California biotechnology company. Amgen researchers duplicate erythropoietin, the hormone responsible for the production of red blood cells. Red blood cells transport the oxygen that fuels muscles. EPO's real use is for patients with anemia due to kidney failure. Because EPO is produced by the kidneys, when they malfunction the result is a lack of red blood cells. For athletes, having extra red blood cells increases the amount of oxygen reaching muscles, which improves performance in endurance sports. EPO increases the red blood cell count and sustains it for 120 days (blood doping lasts from 10–15 days) Amazingly, the drug only stays in the body about a day [50].

From October 12–17, 1986 the IOC Medical Commission adds diuretic drugs to its list of banned substances because they help to both lose weight and increase urine production and thus mask the presence of other banned substances.

In 1987, five Dutch pro and amateur racers die suddenly. In 1988 a Belgian and two more Dutch riders die. In 1989, five more Dutch die. In 1990, three Belgians and two Dutch die. While there is no proof, all the riders' deaths were caused by coronary problems, and EPO is widely suspected [51].

In May, 1987 Prince de Merode reports to the annual IOC meeting that all doping tests examined from 1986 show that two-thirds of all drug-positives were for anabolic steroids and two-thirds of the steroid-positives were for nandralone.

In 1987, the IAAF adopts rules classifying two levels of drug use. If the athlete fails a drug test in the 1st category (for example anabolic steroids), he/she faces a two year suspension for a 1st offense and a lifetime ban for a second offense. If an athlete fails a drug test in the second category (for example medication), he/she faces a three month suspension for a 1st offense, two years for a second offense and a lifetime ban for a third. The IAAF is also joining other federations like weight lifting and proposing the adoption of random year-round out of competition tests. But already the TAC rules that it cannot apply this in the U.S. The IAAF also institutes a novel penalty for athletes who commit drug violations. Working with the World Sporting Goods Federation, clothing and shoe contracts are to be canceled for all athletes who test positive [52].

Masking agents are becoming popular among athletes in 1987. As drug tests become more sophisticated

athletes are turning to drugs that “mask” these banned substances and allow them to pass the drug tests. At both The Athletics Congress championships and the Pan American Games at Indianapolis a total of at least seven athletes are found to be using the masking agent probenecid. Probenecid is legally prescribed as a gout medicine. Athletes use it to slow the secretion of the banned drugs into the urine. The IOC has now placed probenecid on its banned list [53].

In 1988, 21 IOC accredited drug testing laboratories release figures showing that on average in 1987 only 2% of all drug tests come back positive. However, the number of athletes sanctioned is below 2%. Reasons given for the low positive rate and even lower sanctions rate are two-fold: 1. Testing athletes only at competitions, where they are masking or no longer using banned substances, is not solving the problem. 2. Many sports officials fail to report positives or don't sanction the athletes who do test positive. 3. Athletes legally challenge the positive tests and win. 4. Drug labs are sloppy and lose their accreditation. And some drug labs have been known to test athletes in order to teach them how to AVOID positive tests [54].

Also in 1988, custom designed steroids are also rising in popularity. Chemists know that changing the four-ring molecular structure of a steroid does not eliminate the drug's pharmacological action. Existing tests only identify old molecular arrangements. They do not recognize modified substances [55].

In 1988, at the Pepsi International track meet at UCLA the meet organizer notifies athletes in men's throwing events that there will be testing. Organizers cancel the event after most of the competitors withdraw [56].

For the 1st time a two-tiered drug penalty is to be used at the 1988 Seoul Summer Olympics. The penalty system differentiates between deliberate drug use (anabolic steroids, masking drugs) and inadvertent drug use (ephedrine, codeine) with drugs found commonly in over the counter medication. For deliberate drug use, proposed penalties include three years for a 1st offense and a life ban for a second offense. For inadvertent use, three months for a first offense, two years for a second and a life ban for a third. Previously the IOC left punishments to the athletes individual sports organization [57].

On Sept. 27, 1988 the Canadian Track & Field Association announces that it will begin random, unannounced monthly testing. It also has an agreement with Norway, allowing either country to test the other country's athletes.

The timeline shows that for each new drug test there is another undetectable drug that will take its place: for example, testosterone hGH and custom designed steroids substitute for steroids, and EPO substitutes for blood doping. The timeline also reveals the complicity of sports authorities in helping athletes cheat the drug tests. The lack of uniform testing and the inability of testers to develop competent testing for all drugs allow athletes, officials, and federations to make up their own minds on the ethics of using performance enhancing drugs.

Drug Positives and Sanctioning of Athletes

Positive drug tests and the sanctions that follow them do not have a unified enforcement mechanism. Sanctions are haphazard. A good lawyer is more important than the severity of the drug used.

There is no unified testing or sanctioning system in Olympic sport. Some countries and sports federations punish drug cheats while others do not. Countries and sports federations even help their athletes dope or teach them how to pass the tests.

In September, 1970 at the World Weightlifting Championships held in Columbus, Ohio, USA nine weightlifters test positive for amphetamines (Dexedrine) and are disqualified. The urine samples are tested using the Beckman DK-2A ratio recording ultraviolet spectrophotometer [58].

In 1971, West German hammer thrower Uwe Beyer wins the European Championship and also breaks

the world record. Newspaper reports state that he admits to using anabolic steroids in his training for the Munich Olympics [59].

At Munich, American swimmer Rick DeMont, the winner of the 400-meter freestyle, tests positive for ephedrine. Ephedrine is found in Marax, a drug DeMont is taking for asthma, and as required, lists the drug on the assigned form that is given to all Olympic athletes, but the IOC disqualifies him and takes away his medal, anyway. No one on the U.S. medical staff consults with the IOC to arrange an acceptable substitute for Marax, which is listed on his form. The 1972 Olympics are the first Olympics where widespread drug testing is carried out. It is also the first time that the IOC issues a long list of banned substances to be tested for.

The banned substances list only lists the drug's generic name, so it takes a dedicated medical staff to sift through all the brand name medications that might contain a banned substance and alert the athlete accordingly [60].

On February 9, 1973 the IOC refuses to return Rick DeMont's gold medal. The IOC rules that it has to follow the decision of its Medical Committee.

In 1974, Great Britain's leading shot putter, Jeffrey Teale, is suspended for life by the British Amateur Athletic Board after admitting in a newspaper interview that he uses steroids [61].

In February, 1974 at the British Commonwealth Games in New Zealand the new British test for steroids is carried out on 55 athletes. Nine test positive but no sanctions are imposed [62].

The first sanctions for positive steroid tests at competitions are carried out at the 1975 European Cup, a track & field event. Two athletes test positive for steroids and are disqualified from the competition and later suspended by the IAAF [63].

At the 1976 USA Olympic Track & Field Trials at Eugene, Oregon, 23 athletes fail drug tests [64].

In 1976, seven U.S. swimmers test positive for banned substances before the Montreal Olympics [65].

On July 25, 1976 weightlifter Dragomir Ciroslan is the first weightlifter to be disqualified under the random steroid drug testing system [66].

On July 30, 1976 weightlifters Mark Cameron and Phil Grippaldi of the USA and Petr Pavlasek of Czechoslovakia are disqualified for anabolic steroid use. Discus thrower Danuta Rosani of Poland is also disqualified for anabolic steroids [67].

In August, at the 1977 European Cup, Ilona Slupianek, an East German woman shot putter, and four other athletes are suspended by the IAAF for 18 months for steroid violations. The suspensions are appealed and reduced to one year, allowing the athletes to compete at the European championships in Prague. Slupianek wins the gold medal. She also wins the gold medal at the Moscow Olympics and is named Woman Athlete of the Year [68].

In late 1979, the IAAF bans 7 women for life for testing positive for anabolic steroids. Those punished include a long jumper, a hurdler, two discus throwers and three middle distance runners. The middle distance runners include Romania's Natalia Marasescu, the world-record holder in the mile [69]. The middle distance and hurdler positives are significant because they document the movement of steroids from field to track events. Also, as in the case of Slupianek, many of the athletes are able to get the bans lifted so they can participate in the Moscow Olympics.

In 1981, the IAAF withdraws its ban on athletes' accepting outside money. This enables top stars to demand large appearance fees.

U.S. discus thrower Ben Plunkett's drug tests taken January 31 and February 1, 1981 at the Pacific Conference Games in New Zealand come back positive for steroids. Plunkett, who later sets world records at meets in Modesto, California and Stockholm, Sweden, becomes the first athlete to have his world record stripped for using steroids [70].

Sports psychologist Jack Scott says of the 1983 World Track & Field Championships that, “over 50 people tested positive at Helsinki.” He goes on to say that track officials can’t afford to suspend athletes. Top athletes threaten officials if their drug tests turn up positive. The IAAF deals with all of this by arguing that not suspending athletes is good for track & field [71].

Only two months after the drug scandal at the 1983 Pan American Games, four Canadian weight lifters are arrested at the Montreal airport for smuggling testosterone and anabolic steroids across the border upon return from the world championships in Moscow [72]. A short time later, at the same airport, two top super heavyweight lifters, Anatoly Pisarenko and Alexander Kurlovich, are found with \$10,000 worth of steroids in their luggage [73].

In December 1983 the IAAF announces lifetime suspensions for eight athletes who violated drug regulations in 1983 competitions [74].

By the end of 1983, 51 track and field athletes have been penalized within the last 19 years for illegal drug use. Steroids make up most of the cases [75].

In January, 1984 the Swedish speed skater Johan Granath is suspended for 15 months for taking anabolic steroids. He is the 1976 world sprint speed skating champion and a competitor in the 1972, 76, and 80 Winter Olympics. He says he took anabolic steroids to avoid an operation from a foot injury suffered in June, 1983 [76].

Within a week of the start of the 1984 Summer Olympics three Yugoslav athletes fail drug tests and are not allowed to compete [77].

In 1984, U.S. Olympic cyclist Alexi Grewal tests positive for a stimulant at a July 18 bike race in Colorado. The stimulant is a common one found in cold medicines and some herbal teas. Grewal draws a suspension that will keep him out of the Olympics. However, the penalty is lifted because officials believe the test, taken in Denver, does not precisely identify the banned stimulant allegedly taken by Grewal [78].

On August 5, 1984 Greco-Roman super heavyweight silver medalist Thomas Johansson of Sweden becomes the first medal winner to test positive for steroids.

In August, 1984 Finnish 10,000 meter runner Marti Vaino is stripped of his silver medal for testing positive for anabolic steroids. He claims he was given testosterone and anabolic steroids without his knowing it.

On Jan. 18, 1985 USA Cycling becomes the 1st national federation to officially ban blood doping and sanctions three officials (including the coach, Eddy Borysewicz) involved in administering the doping at the Olympics. The president of USA Cycling resigns. However, no athletes will lose medals or be considered responsible [79].

On April 10, 1987 Birgit Dressel dies of complications from anabolic steroid use. She was a 26 year old heptathlete from Germany. In 1986 she finished fourth in the European Championships and was ranked No. 6 in the world. Her official cause of death is recorded as an acute allergic reaction, the result of overloading the immune system with hundreds of drugs [80].

At the 1988 World Sprint Speedskating Championships, held just before the Winter Olympics, Chinese speed skater Ye Qiaobo tests positive for anabolic steroids and is suspended, missing the Games. In 1992, at a press conference after winning a gold medal at Albertville, she says the entire speed skating team was told to take medicine, but that they didn’t know what kind of medicine it was [81].

In 1988, U.S. Nordic skier Kerry Lynch reveals that he competed in the 1987 World Championships using blood doping. His silver medal is the first medal ever won by an American at a world championship Nordic combined event. It is revealed that Lynch was aided in his blood doping by the U.S. ski team. The team flew a physician into Europe to handle Lynch’s blood transfusions before the competition. Lynch is suspended for one year by the International Ski Federation. Jim Page, director of the U.S. Ski Association’s

Nordic program at the time is given a new job on the U.S. Olympic Committee staff [82].

On Feb. 22, 1988 Jaroslaw Mirowecki, a Polish hockey player, is banned for testosterone at the Calgary Winter Olympics. He was chosen at random. His positive test is the only one.

From June 26–29, 1988 the First Permanent World Conference on Anti-Doping in sports is held under IOC sponsorship in Ottawa, Canada. The primary concern of the conference is the lack of any standardization about any aspect of the drug problem. 28 countries work on creating an international anti-doping charter. A couple of the proposals are year round unannounced random out of competition testing for all Olympic sports and blood doping tests in addition to urine tests [83].

On Aug. 1, 1988 the Canadian track & field championships are held. Ben Johnson wins the 100 meters automatically qualifying for the Seoul Summer Olympics. However, he is not tested for drugs after the race. Two of the top three racers are chosen at random after each race.

In August, 1988 at a race in Zurich, Ben Johnson and Carl Lewis are each paid a reported \$250,000 for racing in the 100 meters. This is more than twice the amount paid to Mary Decker Slaney and Zola Budd for their match race at London in 1985 [84].

Ben Johnson tests positive for anabolic steroid stanozolol (also known as Winstrol) at the 1988 Seoul Summer Olympics. Winstrol is not known as a strength building aid or as one of the more powerful steroids. Women take it because it is not very androgenic. It's often the kind of drug athletes take in conjunction with other drugs [85]. He loses his gold medal, his 100 meter world record of 9.79 seconds (his old record, however, 9.83 set at Rome in 1987 still stands) and is suspended for 2 years. Johnson also loses a four year \$2.4 million shoe contract and all of his sponsors. Each sponsor has a clause in its contract that allows it to sever the deal if Johnson gets caught using drugs. As an elite racer Johnson can expect at least \$25,000 per outdoor meet and \$15,000 per indoor meet. For a race in Tokyo after the Olympics he is to be paid a minimum \$100,000.

Two Bulgarian weight lifting gold medalists, Anguelov Guenchev and Mitko Grablev forfeit their medals after the diuretic furosemide (intended for quick weight loss in order to hide steroid use) is found in their drug tests. The entire Bulgarian weight lifting team withdraws from the 1988 Seoul Summer Olympics. Two more weight lifters (testosterone and amphetamine) and two pentathletes (beta blockers and caffeine) are caught as well [86]. In total, 10 athletes test positive for drugs at the Seoul Olympics.

Drug positives, and the sanctions that resulted from them, were not uniform. Tests were conducted and sanctions carried out in myriad ways: country by country, sports federation by sports federation and by the IOC at the Olympic games. Depending on the country and federation, emphasis on the kind of tests and the severity of sanctions varied. This resulted in the Olympic movement being viewed as haphazard or not serious about tackling performance enhancing drugs.

Conclusion

Sanctions should make all athletes think twice about using performance enhancing drugs. But without teeth or uniformity they in fact urge on athletes who would cheat because they know the odds of paying any penalty for drug use are minimal at best. This is the crux of the problem. Until athletes and their coaches and federations see more of a benefit from not using performance enhancers as opposed to using them, the system will not change. There will always be scientists who produce new drugs for use by athletes while other scientists will be devising tests to catch them. There will always be coaches and sports federation officials willing to help their athletes cheat by taking doping substances.

Ben Johnson's positive drug test is important because his popularity exposed to the general public the extent of cheating going on in Olympic sport. The Olympic ideal of clean, fair sporting competitions

marketed to the public was exposed as a sham. This threatened the Olympic sponsors with the prospect of the loss of quality and trust in their product. It forced Olympic officials to speak collectively for the first time in first calling for the sanctioning of Johnson and in then thinking of an Olympic wide mechanism for controlling doping in Olympic sport. If for some reason the public became inured to doping by athletes then it would increase and become unstoppable because no one would see any benefit to checking it. If, however, Olympic sport threatens to become irrelevant in the eyes of the public, and the major reason is doping by athletes, then officials will come together to do something about it. As of 1988 this was up in the air. But the positive drug test result of its most famous Olympic athlete scared some officials into at least meeting and discussing the possibility of a future Olympic wide mechanism to take on doping in sport.

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