

## ERGOGENIC AIDS AND SPORTS PERFORMANCE

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### ABSTRACT

Recent developments in sports show that most of the players and athletes do not again follow the normal course of winning competitions which is the traditional glamour in sports. More often than not, authorities in sports have been over whelmed by different methods players and athletes adopt in order to better their performance through illegal use of drugs. This paper takes a look at what ergogenic aids are, the origin of drug use in sports, reasons why athletes abuse drugs, categories of drugs abused and the current happenings and danger inherent in the use of these drugs by sportsmen and women.

### INTRODUCTION

The use of ergogenic aids has been a tradition among athletes. Initially, it was more pronounced among weight lifters who were known to use drugs in order to perform endurance exercises. Before now, sports managers and administrators thought only western or orthodox drugs were abused in sports. As time went on, it became obvious that the ingesting, injecting, inhaling and doping of blood or applying to the skin of one form of substance or the other, to enhance performance has been as old as man

Agwubuike (1992) confirmed that there never has been a period in the history of man where some form of ergogenics was not use for improving man's various physical engagements, though the cause and effect relationship was not subjected to critical scientific study. Rash (1962) noted that it was not until the 19<sup>th</sup> century that training for strength and muscular hypertrophy took its first steps towards a scientific rationale. This means that before the scientific steps were adopted, athletes might have used one form or the other of ergogenic aids unnoticed.

The use of illegal drugs in sports has become an every day occurrence and a social problem in the world of sports. Be it as it may, to compromise the negative effect of this in sports is to put the future of our teeming youths in total jeopardy knowing that the effects are rather damaging. The consequences of the use of these drugs are quite obvious. This paper reviews some of the available literature on drugs and sports, and also examines the current trend of drug use in the sports industry.

## WHAT ERGOGENIC AIDS ARE

Ergogenic aids, which are forms of drugs, are as old as man. Originally, man was not taking notice of forms devised by athletes to better their performances during competitions. But as time went on and technology developed to advanced stage, the effect of the use of the ergogenic aids among athletes became very noticeable.

Drug abuse in sports is defined as the unwarranted intake of any chemical reagent for other purposes other than medical inhabitation (Owolabi, 1992). Another name of drug abuse in sports is "Doping". The concept of ergogenic aids or doping as defined by the Council of Europe that took a look on athletes who abused drug, is very glaring. In 1982, the council defined doping as:

1. The administration of a chemical not normally present in the body, to a healthy athlete with the purpose of artificially modifying competitive performance.
2. The administration of substance normally present in the body but given by an abnormal route for the purpose of enhancing competitive performance.

Sharp (1984) however, opined that doping is the administration to a temporary or permanently injured or diseased athlete, of any chemical which though necessary for the disease or injury, may by its secondary effect artificially improve performance. Ergogenic aids are chemicals or drugs used by the sportsmen and women to either promote recovery from fatigue or to delay the onset of fatigue thereby intensifying performance. They are drugs used with the aim of edging out opponents using an external aid. Most athletes use both orthodox and traditional ergogenic aids to better and intensify their performance because of the perceived advantage users have. Hackey (1989) observed that coaches and national sports federations have been implicated in the use of drugs by athletes to enhance sports performance.

## GENESIS OF ERGOGENIC AIDS

As earlier indicated, the use of drugs started long ago before attracting national and international attention. Records have it that some chemical substances were used in connection with sports in ancient times. For instance, Kuroda (1975) reported that the Romans gave their racing horses a mixture of honey and water to increase their speed. While Astrand and Rohdahl (1972) revealed that the Indians of South America chewed cola leaves to increase their endurance and speed. The Athenians were not left out in the use of drugs in sports. They massaged their competitors with chemicals before the competitors went to compete in the paneratrium (Rayan and Allman, 1974).

The ancient Greek who were very sportive in nature and training used stimulants to enhance and promote their physical performance. The development of amphetamine-like central stimulants drugs reached (Mottram 1988) its peak around the time of the second world war, when the drugs were administered on combat troops to enhance their mental awareness to delay the onset of fatigue.

Amphetamine which is one type of drug used by elite athletes in the early 1940s and 1960s was the main drug used in cycling where the drugs are perceived to enhance performance. The first legislation to combat drug use in sports was introduced by

the French in 1963 (Mottram 1988) and was followed by the Belgian government two years later, while drug testing of Olympic athletes began during the 1968 Olympic Games in Mexico-city.

The World Health Organization (1979) confirmed that the fermented juice of grape has been used since written history began, whether as a social lubricant or deliberately to lower inhibitions and create a cheerful mood. Africans, and indeed Nigerians knew many years ago the existence of effective substances contained in plants, leaves and roots for effective use when physical strength, endurance and courage were needed for travelling, hunting, fighting, etc. (Oloyede, 1992).

Percy (1978) noted that because most athletes are superstitious, impressionable, gullible and extremely susceptible to suggestions, they take to all sorts of drugs from coaches, doctors, friends, trainers and some commercial agents or organizations that wish to sell their products through advertisement. The use of ergogenic aids is no more news in international sports. Several players and athletes have been caught to have either doped or used one form of ergogenic aid or the other. The International Olympic Committee has however taken certain steps to curtail the excesses of athletes who want to make name at all cost. Most of them have been suspended while in some serious cases, they remain banned from such sport.

### **REASONS WHY ATHLETES ABUSE DRUGS**

Players and athletes have been advancing reasons why they take to drugs. In the past, instances of drug abuse have been traced to coaches, team managers, team doctors as well as sports administrators and friends to athletes in question. Since sports administrators know that athletes who win a particular competition are well rewarded, they go to any length to support and encourage the use of ergogenic aids among athletes.

In our advanced world, the quest for fame, "fat" money, prestige and recognition are some factors why athletes dope. It is not an exaggeration that the use of money has come to stay in sports. It is on record that professional players and athletes are well paid world over. Of our time, big names like Austin Okocha of Nigeria, David Beckham of England, Ronaldo and Rivaldo of Brazil and other professional players and athletes are well paid and rank high among those making wealth in the world today. Infact, David Beckham of England is the highest paid player in the world. This is one reason why athletes want to better their performance by all means, which negates the principles of fair play in sports.

Sports which aim to appreciate both winners and losers, have indeed turned to be something else. Owolabi (1992) noted that failure seems to be unacceptable in the modern society. A situation in which everybody wants to win for fear of failure is capable of pushing youths into drugs in sports.

The prestige and recognition team officials, athletes and nations who win are accorded is worthy of note. The money spinning stage of African League Competition is a good example. A lot of dollars are paid to players and teams at a given stage. And this goes to improve the economic status of players and such nations. More so, such nations feature prominently in the world politics and given the

necessary recognition. Proponents of ergogenic aids go at length to meet their target in order to be accorded excellence, fame and money.

Apart from enhancing performance, athletes (Onifade and Adeniran 1992) use drugs for some other reasons such as to heal sports injuries fast, cure illness and overcome stress and anxiety. Anxiety plays a prominent role in sports performance. Anxiety is needed on moderate level for a good performance, but when this goes above average it becomes detrimental to the athlete. Most athletes use drugs when they feel they may be tensed up to save face. Agwubuike (1992) opined that proponents of ergogenics believe that when performance approaches championship levels or record time, depending on normal training approaches or methods alone means operating within mediocre level of performance

## **CATEGORIES OF DRUGS ABUSED IN SPORTS**

Drugs are not just used in sports. The use of ergogenic aids depends on the perceived benefits and the physiological demand of such sport. Several drugs are abused in sports. Owolabi (1992) grouped these drugs into six. These are: Psycho-Stimulants, Beta Blockers and Pscho-Depressant, the Analeptives and Vasodilators, the Narcotics-Analgesics, Anabolic Steroids and Blood Doping.

### **1. Psycho-Stimulants:**

Drugs in this group make the body to be less fatigued. They work on the body system thus reschedule or postpone both mental and physical fatigue which is a bad omen for body physiology. As fatigue is a usual alarm signal which is a response for body task and normal stress.

Drugs in this group include cocaine, ephedrine, amphetamines and caffeine. Contrary to the perceived improvement in performance by users, these stimulants apart from suppressing the strength and power of the central nervous system (CNS) to put in place a "hold" when the body's energy is being depleted beyond the normal level, the physiological functions of the body are accelerated.

Apart from the work of amphetamines as an appetite suppressant, they reduce the power of pain which ordinarily is normal to the body. Stimulants also increase confidence and keep the body very alert. On its own part, cocaine elevates and increase mood and also shortens recovery time from strenuous activities. However, the danger inherent in the drugs are more than the perceived benefits to athletes. Evidence by Haupt (1989) suggested that effects on improving performance on athletes are minimal and short-term.

Stimulants as they are known are both habituating and addicting. The likelihood of causing dependence is also there. Yesalis (1990) observed that cocaine in large doses causes uncontrollable hyper-activity followed by hypertermia, abdominal cramps, collapse, convulsion and coma. These situations can enhance self destruction and eventual death of the athlete. The drugs can cause over use of the system's reserves and result in drastic reduction of glucose level, the consequences of which are reduction in skill level of the athlete and erratic behaviour that may lead to poor

performance. Most of these drugs are abused by athletes who are involved in the endurance sports.

Amphetamines being (Haupt 1989) appetite suppressants may also be abused by athletes who must maintain their weight as in gymnastics, wrestling and boxing. It accounts for the major causes of sudden death during intense sports.

## **2. Beta-Blockers and Psycho-Depressant:**

The work of Beta-blockers and psycho-Depressants is to reduce nervous activities of the central Nervous system. The drugs have power and potential of reducing anxiety and enhance accuracy thus, calming nerves. They enhance relaxation after an event. On their part, Beta Blockers lower the heart rate of the athlete during performance. Owolabi (1992) confirmed that this group of drugs is normally abused by the athletes requiring alertness, concentration and accuracy e.g. shooting and archery. Examples of these drugs are alcohol, nicotine, barbiturates, acebutolol, marijuana, nadolol and solalol.

However, the claim of athletes that some of the drugs enhance performance stands doubtful. In a research carried by Haupt (1989) on marijuana, it has been shown to seriously hinder psychomotor functions. Alcohol on its part impairs the body's thermoregulatory functions and decrease muscle strength, endurance and reaction time. Apart from the fact that they are habituating and addicting, the prolonged use of barbiturates can result to mental confusion, dizziness and loss of memory as recorded by Anspaugh, Ezel and Goodman (1983).

## **3. Analeptics and Vasodilators:**

Analeptic and vasodilators have effects on the hearts, lungs and the circulatory system. They stimulate the cardiovascular and respiratory process of life through the central nervous system (CNS). The danger inherent in these drugs is that the prolonged use may result to drastic (Catlin 1987) fall in blood pressure and sometimes causing major break down and death. Owolabi (1992) asserted that the drugs mainly abused by cyclists were indeed responsible for the death of a cyclist at the 1960 Rome Olympics. Examples of drugs in this group are: Nitrate and Ronitol.

## **4. The Narcotics:**

These are analgesics and are used to relieve pains and stresses. Athletes especially in endurance sports undergo a lot of stresses and pains. Competition increases with training and intensity thus producing pains to the body system. Narcotics are used as pain killers.

Reverting to this drug is an artificial way of suppression of natural outcome and feelings of pains and stress during sports. The resultant effect may have irreversible consequences. This may even affect the athletes later in life. In alternative of using these drugs, athletes are advised to seek medical intervention since further usage of damaged organs may result in permanent consequence.

Instead of the use of drug, athletes should make use of rest and medical treatment since pains and stresses are natural occurrence during exercises. Examples of such drugs include Morphine, Codeine, Pethidine, Heroine and Methadone.

### **5. Doping:**

Doping is the transfusion of real blood cells or related blood products that contain red blood cells. It is the administration of blood or related blood products to an athlete other than for legitimate medical treatment.

Blood doping is commonly used by athletes in long distance and for events and activities that are continuous in nature. The side effects of doping are very glaring. Owolabi (1992) affirmed that increase in aerobic power of the athlete following blood doping was not matched with accompanying increase in endurance performance as in long distance race. Thus, increasing the dangers of blood doping.

Apart from training being a good substitute for doping, the hazards of blood doping include: the transmission of infectious diseases like hepatitis and the dreaded HIV/AIDS. In some cases, there is overload of blood in the process. This alone can cause metabolic shock. Doping can result in fever and acute haemolytic reaction with kidney damage if incorrectly typed blood is used (Haupt, 1989). Fever, jaundice and rashes are highly associated with blood doping.

### **6. Anabolic Steroids:**

Anabolic steroids are synthetic derivatives of the male sex hormone called testosterone, which has two main group functions in man. The two functions are; anabolic and androgenic. While anabolic function is responsible for nitrogen retention and protein synthesis in skeletal muscles, androgenic functions to promote growth development and maintenance of male reproductive tissue. Haupt (1989) emphasized that all anabolic steroids have been implicated by some masculinizing androgenic side effects. It is on record that the synthetic derivatives increase the rate of protein synthesis, muscle mass, body weight and the accompanying increase in muscle strength and muscle energy stores which is vital in event of short duration, requiring maximal and supra-maximal efforts such as in power events. This was confirmed by Owolabi (1992). Athletes therefore, think that the usage create room for power physical training building the body and for maximal strength.

Aggression is needed on a certain level in sports for good performance. Anabolic steroids are thought to provide aggressive tendencies. Athletes of short distance races use these drugs for more explosive start as they are said to amass muscle strength and trigger aggression. However, Izumi (1990) maintained that these drugs have their side effects. The dangers include; females become more masculine with the enlargement of their clitoris, reduction in libido sex power and premature ossification of bones. Other problems associated with the usage among woman are: the suppression of ovarian function and menstruation thus, leading to infertility.

Impotence is the result in males as the testicles are shrunk. Besides the problems of physiological and psychological addiction, liver cancer and disorders are being implicated with the use of ergogenic aids.

## CURRENT TRENDS AND HAPPENINGS WORLD OVER:

Right from the time it was discovered that some athletes adopt easy and cheap means to win competition, individuals, sports authorities and nations started speaking against drug use in sports. Though, difficult and expensive to detect athletes using drugs to better their performance, a high level of psychology is needed by sports officials to deal with the rising spat of this problem.

Though in time past, some athletes succeeded in using drugs for better performance, of late, soccer stars like Diego Maradona of the Argentine national team, Ben Johnson, the former world 100m champion in 1988 Olympics were caught using drugs at one time or the other. A five times World Boxing Champion and self-confessed drug user, Sugar Ray Leonard was also caught in the dragnet of the drug use.

Besides a U.S. based Nigerian athletes, Joseph Taiwo who tested positive to a performance enhancement drugs, the National Concord, a Nigerian daily in (1991) observed that Butch Ronalds of the U.S. who was the world 100m champion was found to have enhanced his performance through drug use. At the 1991 5<sup>th</sup> All African Games, Emod El-Shafe, an Egyptian swimmer tested positive to drugs, an indication that a problem thought to have emanated from the western world has filtered into Africa. Earlier in 1952, Melsink Olympics, Kuroda (1975) reported that the drinks of some marathon runners were tested and found to contain chemicals capable of enhancing physical process.

Among others, in 1981, the world record holder in discuss was suspended indefinitely from participating in International Amateur Athletic Federation competitions after his urine tested positive for using anabolic steroid (Adegboyega and Ogundari; 1992). Cocaine was found to have enhanced the stamina of Diego Maradona, an Argentine football star after a football outing and was subsequently sanctioned by the World Soccer body, FIFA. Drug use has caused deterioration of his health. Daily Sketch of Nigeria of May 21, (1991) reported that Patrick Nwankwo, a Nigerian athlete was caught with a consignment of heroin concealed in his stomach while Sunday Glory, a U.S. based athlete was arrested for drug trafficking.

The quest to earn more money and to be in the apex of events has caused many footballers and athletes to become drug cheats and use banned substances. The need to become famous and earn more money has made world known stars to indulge in these anti-social behaviours. The most recent sports cheats caught were Darryl Strawberry, top British sprinter Dwain Chambers, United States Calvin Harrison, Sierra Leonean stricker, Muhammed Kallon and son of Libyan president, Saadi Gaddafi.

While addressing his country, the U.S. president, George W. Bush (Jnr) pledged the support of his government in combating this bad trend. Sometime early February, 2004, a federal grand jury in the United State of America charged four men with supplying illegal performance enhancing drugs to sports competitors. These were two coaches, the president and vice president of Ballo, a San Francisco laboratory. Already, the U.S. anti-doping Agency had named the laboratory as a possible source of these illegal drugs. Investigations about the company also revealed that steroids

## REFERENCES

- Adegboyega, J.A. and Ogundari, T.T. (1992): Drugs and sports performance: A Review. In L.O. Amausa (Ed). Sport Science and Medicine (2) pp 165-170.
- Agwubike, E.O. (1992): The use of Trado Ergogenic Aids in sports by selected Nigerian football clubs. Sports Science and Medicine. P.p 154-162.
- Anspaugh, D.J. Eze, G. and Goodman, K.N. (1983): Teaching Today's Health. Ohio: Bell and Howell Co.
- Anstrand, P.O. and Rohdahl, K. (1977): Textbook on work Psychology: Psychology Bases for Exercise. New York: McGrew Hill Book Co.
- Catlin, D.H. (1987): Detection of Drug use by athletes. In Straus R. (Ed). Drugs and performance in sports. London: W.B. Saunders Co. pp 106-120.
- Daily Sketch of Nigeria, (1991) May, 21.
- Hackey, R. (1989): A personal view on drugs in sports. British Journal of Sports Medicine, 23 (2), 80.
- Haupt, H.A. (1989): Drugs in Athletics Clinics in Sports Medicine 8 (3): 560.
- International Olympic Committee (1972); Reports on Drugs. I..O. C. Drug Education Committee Report.
- Izunmi, H. (1990): Anabolic Steroids use among athletes and the future athletic Training 25 (1): 57-61.
- Kuroda, T. (1975): Problems of Doping in Sports. Problems of Sport Medicine, Training and Coaching P. 233.
- Mottaram, D.R. (1988): Drugs in Sports, Human Kinetics Books: Champaign, Illinois.
- National Concord (1991): Reyhold's fights Ban. Monday April, 1.p55.
- Oloyede, E.O. (1992): Drug and sports performance: Athletes' Quest for Ergogenic Aids. In L.O. Amusa (Ed). Sports Science and Medicine (2) pp 180-184.
- Onafade, A. and Adenira, S.A. (1992): Drug use among University Soccer Players. In L.O. Amusa (Ed). Sports Science and Medicine (2) pp 147-148.
- Orhewere, V.O. (1995): Best series on Physical Education. Abeokuta: Rhema Comm. Nig. Ltd.
- Owolabi, E.O. (1992): Drug Types commonly Abused by Sports Groups. In Amusa L.O. (Ed). Sports Science and Medicine pp 139-146.

Percy, E.C. (1978): Ergogenic Aids in Athletes Med. Science Sports 10 (4) 396-300.

Radio Rivers Port Harcourt Editorial Commentary (2003): American Government and Drug Cheats in Sports, Feb., 18.

Rash, P.J. (1962): Kinesiology and Applied Anatomy. 6<sup>th</sup> ed. Philadelphia: Lea and Febiger.

Ryan, A.J. and Allman, F.L. (1974): Sport Medicine; New York: Academic Press.

Sharp, N.C. (1984): Personal Communication Dept. of Physical Education and Sports Science, University of Birmingham, Birmingham, U.K.

World Health (1979): A Magazine of the World Health Organization, June.

Yesalis, C.E. (1990): Winning and performance enhancing drugs over dual addition. The Physician and Sports Medicine 18 (3) 165-167.

