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AWARENESS LEVEL, SOURCE OF INFORMATION AND EXTENT OF USE OF EGROGENIC SUBSTANCE AMONG ATHLETES IN TERTIARY INSTITUTIONS IN NIGERIA

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Abstract
This paper investigated the awareness level, source of information and extent of use of ergogenic substance to enhance performance by athletes in tertiary institutions in Nigeria. A total of 220 athletes (135 male; 85 females) who participated in the 15 accredited sports by the Nigeria University Games (NUGA) Council at the 22nd biannual games held at University of Nigeria, Nsukka consisted the sample for the study. A structured questionnaire designed by the researchers was used to collect data for the study. The result showed that 40.0% of the athletes were aware of some of the ergogenic substances that enhance performance, 11.6% had seen and 2.2% on the average had used the substance at one time or the other. Many of the athletes 97.8% claimed that though they had heard and seen some of the substances, they had never used them. The study concluded that though the extent of ergogenic substance use was not high among the athletes, early intervention can prevent future outbreak since there is sufficient awareness already. It was recommended among others that appropriate measures should be taken to educate the athletes on the dangers and side effects of ergogenic substances.

Introduction

One of the major problems of the world today is that of drug use and drug abuse. Athletes also as social beings pressurized to indulge in the use of toxic substances in their bid to enhance performance. Certain prerequisites are invaluable for the attainment of athletic performance; these include natural endowment of the relevant talents, ability to master the proper techniques; adherence to arduous training protocol and enduring the hardship of training, the use of the most suitable equipment and facilities, optimum health, diet discipline, necessary competitive experience, proper motivation including other psychic factors. According to Salokun and Ogungbenro (2006) certain human traits have been known to be fundamental to excellent performance in sports. These traits include indices of physical fitness such as speed, balance, agility, flexibility neuro-muscular coordination and explosive power. Psychological factors also play an important role in sport performance hypnosis, covert rehearsal; strategies and stress management procedure have been successfully used to improve sport performance.

However the idea of winning in sport competitions by athletes become alarmingly and excessively and commercialized competitive in nature. Winning athletes becomes instantaneous national heroes, the final gains are tremendous, sometimes, and victory has been regarded as evidence of national superiority. Hence the pressure to win at all cost can be overwhelming. The rewards for winning are so high today and the penalties for losing are so severe that sport administrators, coaches and athletes succumb to the temptation of winning at all cost. Adeyanju (2002) opined that increased emphasis on success has resulted in increased pressure on athletes while high level competition has brought more demands on them. The author maintained that they go into the competition carrying with them the hopes and expectations of family, friends, teammates, the public, and

even the state or country. Okonkwor (2006) stated that participation in sport creates enduring legacy for good will and opportunity for sound human relations. Sport, she maintained serves as a great melting pot for people, races and cultures and ipso facto for breaking down the wall of individualism, hatred, and other social characteristics. Sport have played an important role in most societies, this had made modern day sporting activities become a multi-billion naira industry, thereby escalating the price of victory. The public only recognizes the best in any event or game. So much is at stake that the whole of the immediate beneficiaries; coach, manager, physiotherapist and sport psychologists to mention a few, will do whatever is practicable, legal or illegal, including giving the athlete drugs to secure victory. According to Elsass (2010), it is this need to win and gain a competitive edge that drives athletes to seek a variety of ergogenic aids.

Ergogenic aids are generally classified into five categories:

1. Mechanical aids, such as aerodynamic devices on bicycles;
2. Psychological aids, which could include hypnosis
3. Physiologic aids, such as "blood doping", which is designed to increase red blood cell content;
4. Pharmacological aids, which includes anabolic steroids; and nutritional aids (Elsass, 2010).

The focus of this study was on pharmacological drug aids.

Calfee and Fadale (2006) noted that ergogenic drugs that are commonly used by youths today include anabolic-androgenic steroids, steroid precursors (androstenedione and dehydroepiandrosterone), and growth hormone, creatine, and ephedra alkaloids. Elsass (2010) observed that anabolic steroids are popular among athletes and body-builders because they increase muscle mass. He noted that a variety of types are combined in a process called "stacking", which athletes use to gain the best attributes from each particular drug. According to Calfee and Fadale (2006),

commonly used anabolic-androgenic drugs include Anadrol (oxymetholone), Oxandrin (oxandrolone),Dianabol (methandrostenolone), Winstrol (stanozolol), Deca-durabolin (nandrolonedecanoate), Durabolin (nandrolonephenpropionate), Depo-testoterone (testosterone cypionte), and Equipoise (boldenoneundecylenate).

Drug and supplement use is not uncommon today especially among students in institutions of learning. Drug use among athletes is also a global concern. It is estimated today that 1 to 3 million US athletes are taking steroids, and 2500 metric tons of creatine were consumed in 1999 (Calfee & Fadale, 2006). Durant, Rickert and Ashworth (1993) surveyed 224 boys who were in the 10^{th} grade to assess high school growth hormone use. Nearly 5% agreed using growth hormone, with 10 students indicating explicitly that it was for improving sports performance. More than half used growth hormone in conjunction with steroids, and 70% reported use more than once per month. Of concern was the fact that half of the students could not name a single risk associated with taking growth hormone. Estimates of high school steroid use range from 4% to 11% in boys and up to 3.3% of girls (American Academy of Pediatrics Committee on Sports Medicine and Fitness, 1997). National Collegiate Athletic Association (NCAA) (2001) reported a 3.9% incidence of ephedrine use in the past 12 months for men and women athletes.

Verroken (2006) stated that drug use in sport is contrary to the very principles upon which sport is based. Sport is considered as character building, teaching the virtue of dedication, perseverance, endurance and self-discipline. Doping circumvents these requirements, producing a "short cut" effect, given significant unmerited advantage in-terms of concentration, endurance, strength etc. Ergogenic aids, drugs or doping in athletics or doping in athletics or sport are terms used to refer to the administration of any product by athletes to artificially augment

performance. According to Mottram (2006), doping is defined in rule 144 of the International Amateur Athletic Federation (I.A.A.F.) as the employment of drugs with the intention of increasing athletic efficiency by their stimulating action upon muscles or nerves or by paralyzing the sense of fatigue. Ergogenic aids are substances that some athletes use to improve strength and endurance (Elsass, 2010). Drug use is potentially the most serious threat to the credibility of competitive sport. It concerns the deliberate, illegitimate use of drugs in an attempt to gain unfair advantage over fellow competitors. Francis (1990) stated that drug misuse today has increased in sophistication; athletes are seeking out ways to improve performance using the most advance technology. The author cited the former coach of Ben Johnson who claimed that "there are thousands of possible synthetic permutations of the testosterone molecules. The great majority of these steroids remain an un-explored frontier. Private laboratories stand ready to synthesis any number of these steroids and keep the athletes ahead of the game.

Verronken (2006) maintained that "Today's athlete may simply be following previous traditions. At the Ancient Olympic Games, athletes had special diets and were reported to have taken various substances to improve their physical capabilities. According to Finlay and Plecket (1976) the winner of the 200m sprint at the Olympic Games of 688B.C was said to have used a special diet of dried figs. The ancient Egyptians used a drink made from the hooves of asses, which had been ground and boiled in oil then flavored with rose petals and rose hips to improve their performance. In Roman times gladiators used stimulants to maintain energy levels after injury. Similar behavior by Medieval Knights has also been noted (Donohoe & Johnson, 1986). Various societies since ancient times have attempted the use of stimulants to improve physical performance and suppress the feeling of fatigue. The Romans gave their racing horses a

mixture of honey and water to increase their speed, while the Indians of South American chewed coca leaves (Astrand, & Rodahl (1977). Weinberg (2003) stated that it is no secret that performance enhancing drugs have been used by world-class athletes and Olympians for decades or that some athletes will do almost anything to gain a competitive advantage. He maintained that the disqualification of athletes in recent Olympics and Tour de France competitions for using performance enhancing drugs bears witness to the potential negative sport related consequences of substance abuse.

Adrain Mutu was given a seven moth ban for his positive test in 2004, Mark Bosnich another Chelsea player was banned in 2003; Martina Hingis retired after testing positive for cocaine at Wimbledon in 2007, Diego Maradona suffered an overdose in 2004, Mark Lewis-Francis sprinter was stripped of his silver medal at the 2005 European indoor championships when he tested positive for cannabis (Somefun, 2009). Within the Nigeria contest, it has been confirmed that the use of drugs among athletes is not new, while Nigeria was preparing for the 1992 Olympics in Barcelona, the National Sport Commission (NSC) ordered an investigation into the alleged drug use scandal amongst some of the Nigerian athletes (Daily Times, 1992) the athletes; ChiomaAjunwa, Clement Chukwu, Tina Iheagwam, Charity Opara, Innocent Asonze and Daniel Philips were consequently dropped from the Olympic team after testing positive for drug use. The African record set by Chioma Ajunwa in the sprints was cancelled by the Athletic Federation of Nigeria (Daily Times, 1992).

Aside sports related side effects of ergogenic substances; they are also associated with a number of serious adverse health effects. For instance, continuous anabolic-androgenic steroids use results in acne, balding and reduced sexual urge (Maisto, Galizo & Connors, 1999);

multiple organ systems, infertility, gynecomastia, female virilizaiton, hypertension, atherosclerosis. Physical closure, aggression, depression (Calfee & Fadale, 2006). Continuous use of some nutritional supplements are found to increase estrogens in men, cause dehydration, muscle cramps, gastrointestinal distress, and compromised renal function; while ephedrine alkaloids cause cerebral vascular accident, arrhythmia, myocardial infarction, seizure, psychosis, hypertension, and death (Calfee & Fadale 2006). Effects of large consumption of caffeine include muscle twitching, rambling flow of thought and speech, cardiac arrhythmia, periods of inexhaustibility and psychomotor agitation (Maisto, Galizio & Connors, 1999). In addition to physical effects, a number of psychological effects of ergogenic drugs exist. According to Maisto, Galizio and Connors (1999) most users of steroids report mild euphoria, withdrawal symptoms and dependence, increased irritability and aggressiveness, sometimes leading to violent behavior as well as mood swings and psychotic reactions. Maisto, Galizio and Connors (1999) reported a study of 41 body builders and football players who had used steroids. Nine of the subjects (22%) experienced emotional disturbance associated with the steroid use, and five (21%) developed psychotic reactions during their steroid regimens.

Despite the identified sports and health related negative effects of ergogenic substances, athletes persist in their use of them, and Maisto, Galizio and Connors (1999) predicted that the use of steroids by athletes will continues as long as athletes believe their fellow competitors are competition is using them. Better testing methods are regularly being introduced by international sporting bodies. These may reduce cheating by the use of ergogenic aids. But what of the thousands of young men and women who are not Olympic-caliber athletes who are taking ergogenic substances to improve their performance at the college and university level? It is in doubt whether these young athletes receive any drug education

to prepare them to make informed decision concerning this unethical and unhealthy practice. How far drug education has been infused into the present schools' curriculum in Nigeria remains uncertain. It is against this backdrop that this study was conceived.The purpose of this study is to investigate the awareness level, source of information and extent of usage of ergogenic drugs or substances by athletes in tertiary institution in Nigeria.

Methodology

This is a descriptive survey. Respondents for this study were two hundred and twenty (220) randomly selected athletes irrespective of gender and sport who were representing their institution at the 22nd biannual Nigeria University Games (NUGA) held 2009 at the University of Nigeria Nsukka. Data for this study were collected using a structured questionnaire designed by the researchers. It has two sections. Section A deals with the demography of respondents while Section B contain 17 items that elicited information on the level of awareness, extent of use and sources of information on ergogenic drugs. The validity of the designed questionnaire was established usingseasoned sports and health professionals from the Department of Physical and Health Education, ObafemiAwolowo University Ile-Ife, Nigeria. The Pearson product moment correlation coefficient was used to calculate for reliability of the questionnaire and a correlation coefficient value of 0.72 was obtained. Data collected was analyzed statistically using frequency and percentages.

Table 1: Awareness and Extent of Ergogenic Drugs use by Respondents

Types of Drugs	Heard aboutfrag -(%)	Seen	Used But discontinuedf reg. (%)	Used as occasionallyf reg. (%)	Used currentlyf reg. (%)	Never usefrag (%)
Morphine	89(40.5)	9(4.1)	1(0.5)	1(0.5)	1(0.5)	217(98.6)
Nandrolone	30(13.6)	2(0.9)	0	0	0	220(100)
Stanozolol	74(33.6)	11(5.0)	0	0	1(0.5)	219(99.5)
Heroine	150(68.2)	22(10.8)	0	1(0.5)	1().5)	217(98.6)
Dianabol	63(28.6)	11(5.0)	2(0.9)	3(1.4)	3(1.4)	212(98.6)
Ephedrine	109(49.5)	45(20.1)	1(0.5)	10(4.5)	8(3.6)	201(91.4)
Cocaine	161(73.3)	46(20.9)	1(0.5)	4(1.8)	1(0.5)	214(97.3)
Opium	82(37.3)	16(7.3)	0	0	0	220(100)
Caffeine	97(44.1)	44(20.0)	1(0.5)	6(2.7)	5(2.3)	208(94.5)
Methamphetamine	62(28.2)	16(7.3)	0	0	0	220(100)
Methadone	62(28.2)	9(4.1)	2(0.9)	2(0.9)	2(0.9)	214(97.3)
Amphetamines	81(36.8)	22(10.0)	1(0.5)	1(0.5)	1(0.5)	217(98.6)
Barbiturates	78(35.5)	22(10.0)	1(0.5)	1(0.5)	0	218(99.1)

The data in table 1 reveals that majority of the respondents had heard about cocaine (73.3%), heroin (68.2%), and ephedrine (49.5%). Only 13.6% has heard that about nandrolone. Majority of the athletes claimed to have seen cocaine (20.9%), ephedrine (20.1%) caffeine (20.0%), heroine (10.8%), while 10% of the respondents respectively had seen amphetamine and barbituarates. Ephedrine was the most commonly used ergogenic drug (0.5% used but discontinued, 4.5% used occasionally and 3.6% were currently using) followed by caffeine (0.5% used discontinued, 2.7% used occasionally and 2.3% were currently using). None of the respondents had ever used nandrolone, opium and methaphitamine. The overall result shows that while 40% of the respondents had heard about the ergogenic drugs studied and 11.6% had seen them, only 2.2% had actually used them (97.8% had never used).

Table 2: Source of Awareness of Ergogenic Drugs by sex of Subjects

Source of Information	M (N = 135)	F (N = 85)	Total (N = 220)
Friends who are not athletes	19(8.8)	12(5.6)	31(14.4)
Other athletes	52(24.1)	24(11.1)	76(35.2)
Mass media	33(15.3)	33(15.3)	66(30.6)
Coach	9(5.2)	4(1.9)	14(7.1)
Sport organizer	4(1.9)	22(0.9)	6(2.8)
Books	7(3.2)	6(2.8)	13(6.0)
Doctors	11(5.1)	4(5.1)	15(6.9)

Table 2 above shows the sources from which the respondents became aware of the identified ergogenic drugs. The respondents indicated that co-athletes (35.2%) mass media (30.6%); were their highest sources of information, while friends who are not athletes (14.4%); coaches (7.1%) and sport organizers (2.8) were the least sources of information on ergogenic aid / drugs. Also male (24.1%) more than female (11.1%) consulted co-athletes on performance enhancing drugs. More male respondents (8.8%) than female respondents (5.6%) reported to have consulted their friends who were not athlete.

Discussion

Many of the respondents in this study were not ignorant of performance enhancing drugs. More than half of the respondents have heard about anabolic steroids, heroin, cocaine, amphetamines and caffeine. Furthermore, the present results showed that the respondents in this study were not only aware of drugs that could improve sports performance; they were also able to identify such drugs. However, with regards to use, the findings of the present study which showed that only 0.04% of the respondents had tried and discontinued different forms of ergogenic drugs;

1.0% used them occasionally and 0.8% were in the habit as at the time of the study (totaling 2.2%). This is an indication that ergogenic drug use, among the athletes was not high,even though should be given attention. This varies with the findings made by American Academy of Pediatrics Committee on Sports Medicine and Fitness, (1997) and National Collegiate Athletic Association (NCAA) (2001) which found drug use among young school athletes to be 4%-11% and 3.9% respectively.

Majority of the respondents indicated that their commonest source of drug knowledge were co-athletes (35.2%) and mass media (30.6%) respectively. The least source of drug awareness was the sports organizers (2.8%); and that they easily obtained on demand from other athletes, coaches and physicians. These findings are not unexpected since people would normally seek to obtain advice from those who share a common goal or problem with them. Also the mass media including electronic and print media readily carry news of athletes who are banned from substance use. This source of information may have both positive and negative impact by deterring athletes who may not want to risk being caught and banned as well as open the eyes of those who may believe they are invincible to try the substances to enhance their performance. These findings have some similarity with a study regarding anabolic androgenic steroid(AAS) use by football players in Indiana High School which indicated that 6.3% were either current or former users of AASs. Further, half of the respondents also stated that AASs were easily obtained on demand from other athletes, coaches and physicians (Baker,Cleveland and Heyneman, 2008). In another study, friends, peers, parents, siblings, members of the community, school and the media were all noted as sources of information about drugs (Dillon Chivite-Mathews, Grewal, Brown, Webster, Weddell, Brown and Smith, 2007).

Conclusions

Based on the findings of the present study, the following conclusions were drawn; that appreciable percentage of the respondents in the study were aware of what ergogenic drugs are, not as many had seen them and few use them. Also, the major sources of information about drugs in sports included co-athletes, the mass media, non-athletes and the team doctor.

Recommendations

Based on the conclusions drawn from the present study, the following recommendations were made:

1. Drugeducation should be an integral part of the school Health Education curriculum at all levels of the educational system.
2. Appropriate authorities should educate athletes about the effects of drug abuse
3. Educatorsmust be informative and accurate regarding the negative side effects of the various performance enhancing drugs.
4. Coaches and handlers should provide a supportive environment that discourages incidences of drug or substance use through the use of punishable measures on offending athletes
5. The expertise of a sport psychologist should be harness to work with athletes in training them on some psychological cues that promote peak performance during training and completion
6. Document and circulate information on athletes who had used drugs and its effects on their career
7. Educate athletes on the legal implications or legal sanctions against drug use

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