# Influence of Sports Disciplines and Demographics of Kenya Colleges Athletes on Their Awareness of Doping in Sports

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## Abstract

*Performance-enhancing substances/drugs are reported to have been used by athletes in competition over the years. Ancient Greeks competitors are reported to have used special diets and stimulating potions to enhance performance. Similarly, cyclists and endurance athletes are said to have used caffeine, cocaine and alcohol in the nineteenth century. Effects of drugs and substances were also felt as early as 1886 when a cyclist died after taking an overdose of tri- methyl. By 1904, the modern sport had started to feel the effects of PES when an Olympic champion won with assistance of raw eggs, injection of strychnine and doses of brandy administered into his body. Kenya athletes have equally been implicated with doping and banned and/or suspended from international competitions. Such athletes claimed they were not aware of the substances they had ingested or the anti-doping regulation they had bleached. Lack of awareness of doping regulations has been blamed for accidental bleaches of doping regulations. Teachers are reported to play a crucial role in guiding school athletes in making decision in sports competitions especially because young athletes are influenced by muscularity, and thinness consciousness, recreation as well as the need to recover quickly from injury. School athletes are likely to be influenced by peers, relatives, sports personnel regarding use of performance-enhancing substances. The purpose of the study was to investigate Kenya colleges' athletes' awareness of doping with respect to demographics and sports disciplines they participated. The study was a cross sectional- survey of 696 male and female teacher trainee athletes participating in national ball games and track and field athletics competition. Study found out that teacher trainees were not aware of the World anti- Doping Code and its regulations neither were they aware of the effects of a selected drug/ substances to sports performance and their health. College athletes awareness of doping was not adequate hence the need to educate them and create awareness*

**Key Terms**: Awareness, Doping, Performance- enhancing substances/ drugs, Teacher trainee athlete.

### *Doping Awareness amongst athletes*

Studies on athletes' awareness of performance –enhancing substance use in sports have reported varying degree of information by participants. For example a study by Ama et al., (2003) on African amateur footballers in Yaoundé, Cameroon investigating athletes' use and awareness of lawful and unlawful substances revealed that the footballers' knowledge of doping was vague. Ama et al., 2003 recommended that preventive activities and an epidemiological study on doping among the footballers be carried out. However the study was restricted to only footballers and did not factor in athletes in other games and track and field events participants. Koch (2002) explains that athletes.

Knowingly participate in doping regardless of being aware of the drugs' negative effects on health. In a self-report study on athletes' attitude towards doping involving 446 athletes by Alaranta et al., (2006), 9% of the respondents believed that banned substances have performance effects while 30% of athletes agreed to have personally known an athlete who had doped and 35% of males and 25% of the females reported to personally know an athlete who was using banned drugs at the time of the study. Furthermore, 15% of the athletes noted they had been offered banned substances. Likewise survey by Anshel and Russell (1997) on Australian athletes' knowledge on PES reported majority of respondents being of the opinion that use of PES in sports is unethical and immoral hence unacceptable as a means of gaining a competitive advantage over opponents.

A survey of 503 collegiate athletes and 154 body building athletes by Lubna et al., (2008) aimed at assessing the extent of androgenic steroids (AS) abuse revealed that college athletes had no problems acquiring performance enhancing drugs as they knew where and how to get them. Both students and athletes noted that their friends and coaches were the major sources whereas the main reason for the use of PES was to improve performance and physical appearance. The study recommended the need to implement educational programmes to educate and warn students and mentors about the negative side effects of AS on the health of the user since the vice was becoming a public concern.

Lack of awareness of anti-doping is equally reported by Levent et al. (2005) where 54 % of respondents acknowledged they were not fully aware of the full doping drug potential and effects. The study by Levent et al., (2005) concluded that young athletes are likely to suffer most from health problems associated with the drugs as well as chances of being suspended from sports. Furthermore, a survey of 200 Scottish athletes by Dimeo et al., (2013 ) established that majority of athletes were not aware of the current WADA legislation where article eleven of the WADC states that sanctions such as loss of points and disqualification can be meted on a team if three or more teammates are proven to have violated anti-doping regulations. To this effect Dimeo et al., (2013) recommended that awareness creation on the said legislation was needed because team sport athletes not aware of the consequences might promote anti-doping within their own team and since clean athletes would not want to feel cheated if they lose to a team found to have a number of doped participants. The study also revealed that fear of being caught and shame that may befall the victim was the strongest factor preventing team athletes from considering use of banned sports performance enhancers.

### *Kenyan Athletes Implicated with Doping*

Republic of Kenya (2014) reported 37 kenyan who have tested positive on various drugs/substances. Some of the victims have given Kenya varying reason for using specific PES. Some have displayed ignorance regarding WADA regulations on doping. David munyasia , a boxer who tested positive for cathine as a result of chewing miraa (khat) confessed to having chewed miraa but also reported he was not aware that it contained any banned substance. Consequently he was banned from 2004 Athens Olympic Games Gaffney, (2008). Elizabeth Muthoka, a Kenyan 400 meters sprinter tested positive for nandrolone in July 2008 during the Beijing Olympic trials. The athlete claimed she was treating anemia without having acquired Therapeutic Use Exemption. According to Gaffney (2008), although nandrolone treats anemia and boosts the hemoglobin levels, it should not be the first line of treatment an athlete should take. Other Kenyan athletes who have tested positive on banned substances according to the Republic of Kenya, (2014) include Lydia Cheromei in 2006 for clomiphine, Susan Chepkemei for salbutamol in 2007 and Simon Kemboi in 2000 for anabolic steroid. In the case of Chepkemei she should have obtained a Therapeutic Use Exemption (TUE) for subtamol since there is that provision by the WADC. These cases of doping indicate lack of awareness/ignorance as the main cause of athletes contravening the world anti-doping regulations. The WADA expects the respective national sports federations to educate its bona fide athletes hoping that those who are already doping or planning to, could have their attitudes towards doping changed for the better (WADA, 2015; RADO, 2007).

### *Awareness of Doping by Gender*

Doping in sports affects both female and male athlete. But there are more male athletes (21%) reported to have used PES by Corbin et al., (2004), compared to female athletes (16%). Similarly more male athletes are reported to have doped by petroczi (2007) than female counterparts. Schneider & Morries (1993) have noted that more male athletes are likely to know members of their team who use performance-enhancing substances than female athletes. According to a report by peters (2005) male athletes dope because of peer and coach influence while female athletes noted they used PES to increase levels of energy and weight loss.

However both male and female athletes cited lack of education about doping as the reason why athletes dope. Brenner & Swanik (2007) have observed that male athletes are more likely to engage in heavy drinking episodes than non-athletes. Similar observations are made by Buckman, White & Pandina, (2008) that male athletes engage in substance abuse more than non-athletes while females tend to take less alcohol but engage more in PES and less in prevalence of social drugs usage than non-athletes. However all athletes are reported to be of the feeling that sports competition should be drugs free where female athletes note they would be ashamed and feel guilty if they were to be caught cheating .

## *Materials and Methods*

A total of 696 collegiate athletes participating in Kenya teachers colleges national ball games and track and field athletics completed a self report questionnaire. Athletes were drawn from Rift valley, Central and Coast regions. A total of 622 athletes completed the questionnaire hence a return rate of 89.4%. Of the 622, 48.2% were females and 51.8% males.

**Distribution of Participants by gender and Age**

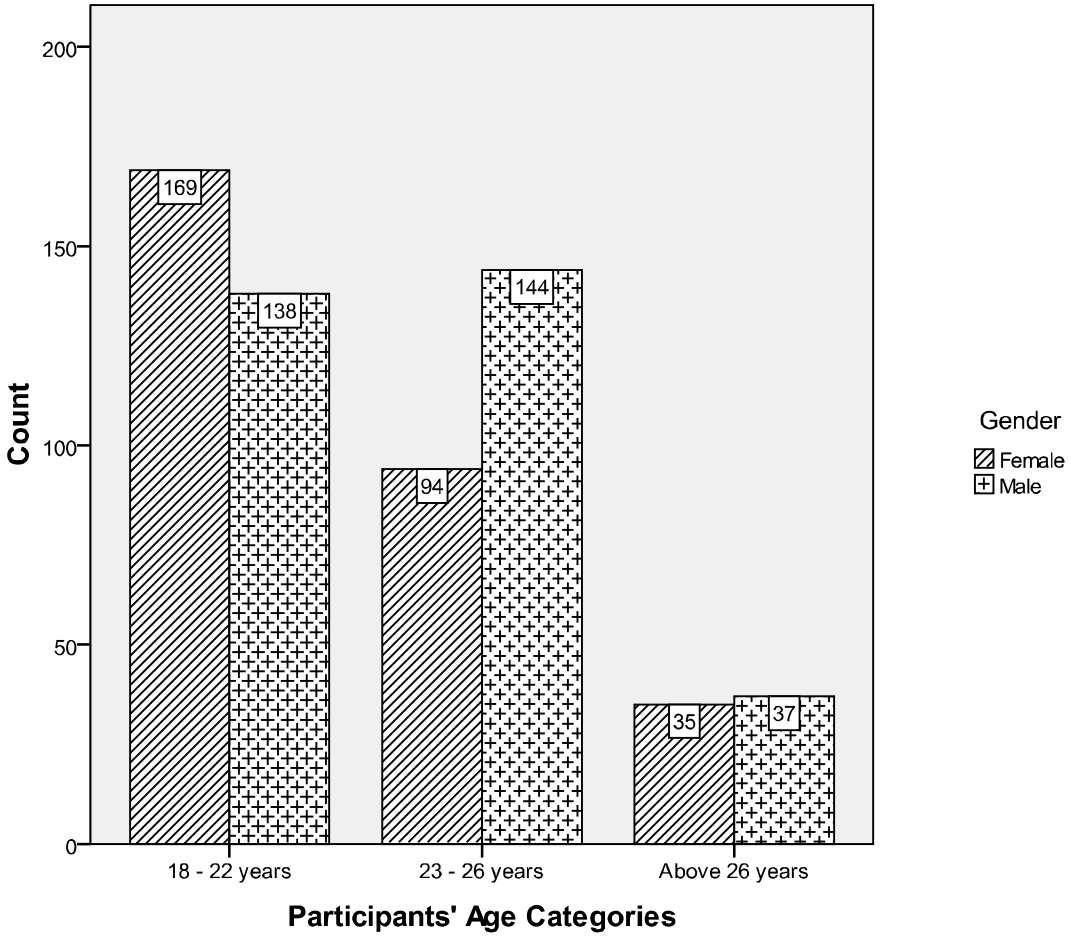


**Figure 1: Distribution of respondents by age categories**

Figure 1 indicate that out of 622 participants, 618 of them indicated their age as follows:307 (49.4%) athletes were aged between 18 to 22 years, 238 (38.3%) aged between 23-26 years, while 73 athletes (11.7%) were above 26 years.

## *Distribution of Participants by Type of College and type of sport*

Athletes participating in both ballgames and track and field events were drawn from public and private teacher training colleges. Out of 622 athletes, 560 (90%) were from public colleges while only 47(7.6%) from private teacher training colleges. College athletes participated in ballgames and track and field athletics as indicated in table 1 below.

**Table 1: Distribution of participants by type of sport**

| Type of sport | N | Percentage |
|---|---|---|
| Ballgames | 410 | 67.3 |
| Track athletics | 135 | 22.2 |
| Field athletics | 64 | 10.5 |
| Total | 609 | 100% |

As shown in Table 1 there were more participants in ballgames competition than in track and field events. Out of the total respondents, 410 (65.9%) participated in ballgames, 135 (21.7%) in track athletics and 64 (10.3%) took part in field athletics.

### *Distribution of Participants according to Participation in Ballgames*

The distribution of players according to the ballgames they were participating during KTCSA national competition is presented in Table 2.

**Table 2: Distribution of participants by type of ballgames**

| Type of Ball Game | N | Percentage |
|---|---|---|
| Soccer | 84 | 20.7 |
| Hockey | 76 | 19 |
| Handball | 63 | 15.5 |
| Netball | 63 | 15.5 |
| Basketball | 60 | 14.8 |
| Volleyball | 59 | 14.5 |
| Total | 405 | 100% |

Table 2 indicates that soccer (84) and hockey (76) had the highest number of participants. These figures however represented both female and male teams i.e. two teams for each sport in the three competition zones.

### *Previous Participation in Primary and Secondary Schools National Competitions*

Participants were asked to indicate whether they had participated in national athletics and ballgames competitions while in primary and secondary schools levels of education. Their responses are shown in Table 3

**Table: 3 Primary and Secondary Athletics and Ballgames**

| | No. of Responses | | |
|---|---|---|---|
| School level games | Yes | No | Total |
| Primary ballgames | 224 (38.2%) | 362 (61.8%) | 586(100%) |
| Primary athletics | 195 (33.2%) | 392 (66.8%) | 587(100%) |
| Secondary athletics | 369 (62.8%) | 219 (37.2%) | 588(100%) |
| Secondary ballgames | 197 (33.6%) | 389 (66.4%) | 586(100%) |

As shown in Table 3, 362 (61.8%) college athletes had not participated in national ballgames when they were in primary school while 224 (38.2%) had participated at a national level competition. Table 3 also shows that 392 (66.8%) athletes had not competed in national athletics competitions while at primary school. This is higher than the percentage of participants who had not participated in ball games where 195 athletes (33.2 %) had such participated at national level.

Table 3 further shows an increase in the number of teacher trainees who had participated in national ballgames competition as they advanced to secondary school level compared to the number that had competed during the primary level of education. However there is no documentary evidence that these athletes had been educated on anti-doping regulations.

### *Teacher trainee athletes doping awareness*

Only 351 (58.4%) of athletes reported to have heard of the world anti doping code compared to 250 (41.6%) who were not aware of the existence of the anti doping code. When asked whether they know a person who have used performance enhancing substances/drugs, 32.9 % of athletes responded to the affirmative while 67.1% were not aware of anyone who had used illegal substance..However 78 athletes (12.7%) reported that they had friends who has doped and 87.3% of athletes were not aware of their friends using banned substances in sports. A large percentage of athletes noted that it is the duty of an athlete to ensure they obey the WADA code while 27.7% felt that athletes have a responsibility regarding staying clean from banned substances/drugs. Majority of athletes 96.6 % (589) affirmed that sports participants need to be educated on anti doping regulations on regular basis compared to only 3.4% who felt that such education is not necessary. Regarding testing athletes for banned substances/drugs 94.3% (576) athletes reported that sports participants should be tested at all levels of competition while 5.7% noted testing for illegal substance and drugs should not be undertaken. This willingness of athletes to be tested is a pointer to the athletics Kenya (AK), National Olympic Committee (NOCK) and all sports federations that they should take advantage and roll out doping awareness campaign against performance – enhancing substance use in sports. Even for the few athletes who think education is not necessary is an indication for an urgent need to create and enhance awareness through seminars since some athletes do not seem to understand the repercussions of doping.

Athletes (71.8%) were aware that alcohol cannot enhance sports performance while 28.2% (141) reported it could. This number of athletes is too large to be ignored since they are potential sports cheats in future hence the need for awareness on anti-doping rules at all levels of schooling. While 322 (71.8%) athletes were aware that miraa (khat) would enhance sports performance 183 (36.2%) were not aware that it is an enhancing substance. Considering that a Kenyan boxer ( David Munyasia) was barred from competition during 2004 Athens Olympic Games after testing positive on cathine a chemical substance emanating from chewing miraa (khat),183 athletes comprise a very large number that cannot be ignored. It is equally a point for concern that 52.8%, 49.8%, 61.5% and 53.7% of athletes reported that marijuana; caffeine, anabolic steroids and cocaine respectively cannot enhance performance. Considering that these responses are from the potential physical education teachers and sports personnel it indicates the need to aggressively address and induct teacher trainee on anti-doping rules and banned drugs and substances long before they graduate from colleges. Teacher trainee athlete is expected to be in charge of the primary and secondary sports participants hence the need to guide them to 'clean' sports participation and the need to avoid health problems associated with the use of the banned substances and drugs as well as safeguard their sporting careers

Quite a large number of athletes, 502 representing 83% of athletes indicated they were not aware of the effects of drugs and substances such as miraa (khat), caffeine, cocaine, anabolic steroids to the consumer neither their effects to sport performance. This means that ignorant athletes are likely to get their health and participation in sports at risk either by getting sick/death or banned from participation. Athletes also indicated that they had not learnt about performance enhancing drugs and substances whereby 442 (73.3 %) athletes responded to the negative and only 169 (27.7% ) athletes) had learnt about doping. Athlete's response to the negative indicates either this content is not taught at all or it is inadequately taught. It could also be an indication of the lecturer not being aware as well of the doping effects in sports. When asked indicate where they learnt about doping, athletes responded as follows; through television=78.6% (427 athletes), school/college=82.6 %( 447 athletes), radio=77.6% (407 athletes), Newspaper=81% (431 athletes), magazine=71. 8% (359 athletes), seminars= 57.3% (278 athletes), friends= 74.2% (385 athletes, parents=59.6% (297 athletes). While a large percentage reported to having learnt about doping through various channels this is a contradiction to their earlier indication that they are not aware of the effects of drugs and substances to sports performance. This can be attributed to lack of exposure and education and/or the inadequacy of teaching and learning at whatever forum the athlete may have sourced for anti-doping information. Contradiction is further noted in the fact that 55.7% (336 athletes) had earlier reported they were not adequately informed compared to 44.3% (267 athletes) who noted they were adequately informed. Overall the results indicate the need to enhance awareness more through seminars and educating parents on the need to talk more about drugs and substance use to their children since they can play an influential role as they spend more time with the children. Schools/ colleges and sorts organizations should also organize seminars for college athletes and lecturers and ensure the resource persons are adequately informed on the doping issues in sports so that the attendees of such forums are adequately educated.

### *Doping awareness in relation to gender, type of sport and competition experience*

Athletes' awareness of doping and PES was measured with the use of 23 statements. A 'yes' response was assigned '1' score and a 'no' response assigned '0'hence the maximum possible score was 23 and the minimum was zero. The participants' responses were aggregated to come up with a composite index on interval scale. Further, the composite index was categorized as shown in table 4.5 in order for the data to conform to other test variables such as gender for the purpose of testing hypothesis. A participant who scored above 12 points was considered to have above average awareness while participant scoring less than 12 points had below average awareness.

**Table 4: Frequencies of Categorized Composite Index on Athletes Awareness of Doping and PES Use in Sports by Gender**

| Gender | Below average | Above average | Total |
|---|---|---|---|
| Female | 149(50.0%) | 149(50.0%) | 298(100%) |
| Male | 144(45.0%) | 176(55.0%) | 320(100%) |
| Total | 293(47.4%) | 325(52.6%) | 618(100%) |

Table 4 shows that the number of female athletes with above and below average awareness was equal (50%) buts lightly more male college athletes had adequate awareness on doping and PES 176 (55.0%) than the female athletes 149 (50.0%). Likewise the number of male athletes lacking awareness on doping stood at 144 (45.0%) while female athletes who felt inadequate on awareness were 149 (50.0%). In total college athletes who reported they had awareness on doping was 325 (52.6%) while the total number of college athletes lacking awareness was 293 (47.4%).

**Table 5: Frequencies of Categorized Composite Index on Athletes Awareness of Doping and PES by Competition Experience**

| Competition experience | Above average | Below average | Total |
|---|---|---|---|
| 1 year | 84 (50.9%) | 81(49.1%) | 165(100%) |
| 2 years | 107(46.9%) | 121(53.1%) | 228(100%) |
| 3 years | 50 (45.9%) | 59 (54.1%) | 109(100%) |
| Above 4 years | 25 (35.7%) | 45 (64.3%) | 70 (100%) |
| Total | 266(46.5%) | 306(53.5%) | 572(100%) |

Results on college athletes' awareness of doping and PES in relation to competition experience are shown in Table 5. As indicated 84 athletes (50.9%) with 1 year of competition experience reported that they lacked adequate awareness whereas 81 athletes (49.1%) reported to be adequately informed on doping in sports. Participants with 2 years exposure to national level competition 107 athletes, (46.9%) lacked adequate awareness while 121 athletes (53.1%) felt they were well informed. Further, 50 (45.9%) and59 (54.1%) of athletes who had competed for 3 years reported having inadequate and adequately information on doping respectively. Amongst athletes with 4 years or more experience in sports participation at national competition, 25 athletes (35.7%) stated they were not well versed with doping information compared to 45 athletes (64.3%) who affirmed they were well informed on PES use in sports. It is evident from Table 5 that athletes who had longer competition experience were also adequately versed with doping information. In total the differences between athletes lacking adequate awareness and those who noted they were adequately informed was not pronounced.

**Table 6: Frequencies of Categorized Composite Index on Athletes Awareness of Doping and PES by Type of sport**

| Type of sport | Below average | Above average | Total |
|---|---|---|---|
| Ball game | 210(51.2%) | 200(48.8%) | 410(100%) |
| Track event | 60 (44.4%) | 75 (55.6%) | 135(100%) |
| Field event | 22 (34.4%) | 42 (65.6%) | 64 (100%) |
| Total | 292(47.9%) | 317(62.0%) | 609(100%) |

Table 6 further shows that based on type of sport, 210 ball games athletes (51.2%) reported they had no adequate information on banned substances/drugs while 200 athletes (48.8%) indicated that they were well informed. In track events, 60 athletes (44.4%) were not sufficiently informed while 75 athletes (55.6%) were aware of PES use in sports performance. Concerning field events participants, 22 athletes (34.4%) affirmed they were lacking in awareness compared to 42 athletes (65.6 %) who pointed that they were adequately versed with doping in sports.

**Table 4.11:Chi-Square on Athletes Awareness on Doping and PES by Gender, Competition Experience and Type of Sport**

| | value | df | sig |
|---|---|---|---|
| Gender | 1.55 | 1 | 0.21 |
| Experience | 4.59 | 3 | 0.20 |
| Type of sport | 7.15 | 2 | 0.03 |

The difference in the number of male and female athletes who noted they were adequate on PES awareness did not differ much. This is further confirmed by statistical test where the computed $\chi^2$ =1.55, $p$=0.21 indicates no statistically significant association between college athletes gender and awareness on doping and PES. To test whether there was a relationship between competition experience and awareness of PES the $\chi^2$ value of 4.59, $p$=0.20 indicated no significant relationship. Therefore, the null hypothesis that there was no significant relationship between the number of years athletes participated at a national competition and awareness of PES use in sports was accepted. The Chi square test for relationship between type of sport and awareness of PES yield a $\chi^2$ value of 7.15 revealing a significant relationship ($p$=0.03) between the type of sport an athlete participated and doping awareness. Thus the null hypothesis that there was no significant association between type of sport athletes participated and doping awareness was rejected.

## *Conclusion*

Kenya teachers colleges athlete's awareness of doping and PES use was not sufficient since some of them were not aware of the existence of the WADC including what the code outlines. Some athletes were not aware it is an athlete's responsibility to ensure they have not doped. Furthermore, athletes' responses showed that they were not fully aware of the effects of the drugs/substances. However, majority of them would like sports participants to be educated on doping and performance enhancing substance use in sports

## *Recommendations*

College athletes should be educated on repercussions of doping so that they will be better informed to advise young athletes. In collaboration with Athletics Kenya and the National Olympics committee of Kenya (NOCK) and other stakeholders, KTCSA, College administrators/ principals should organize anti-doping awareness education for the athletes via various forums such as workshops and seminars.

KTCSA should also embark on testing athletes for substance and drugs use during competitions at zonal and national levels. Teaching of the doping content to trainees should be enhanced to increase college trainees' awareness, of doping and performance-enhancing substance use in sports. Sports governing organizations such as NOCK and AK should endorse and foster research aimed at understanding what drives athletes to use dope/ PES.
Kenyan athletes who have participated and excelled in sports at local, regional and international levels and have not been incriminated in PES may be used as role models as 'clean' sports ambassadors to impress upon college athletes and other upcoming athletes on the importance of drug free sports participation. Athletics Kenya, Football Kenya Limited (FKL), NOCK and other sports federations/associations should start anti-doping programs that comprise education

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