
KNOWLEDGE, PRACTICE AND EFFECTS OF ERGOGENIC AIDS AMONG AKWA IBOM STATE
ATHLETES.

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ABSTRACT

The study investigated the knowledge, practice and effects of ergogenic aids among Akwa Ibom State athletes. The five objectives within the scope of the study, and their corresponding research questions and hypotheses included knowledge of ergogenic aids, knowledge of types of ergogenic aids, knowledge of negative effects of ergogenic aids, knowledge of WADA and WADA's sanctions on use of PEDs and the practice of ergogenic aids in sports. A sectional ex post facto survey design was used for the study. From a population of 300 athletes distributed into 12 sports, a sample size of 280 subjects, selected by simple random sampling procedure was taken for the study. A researcher-structured questionnaire, validated by experts and reliability tested with 20 athletes accordingly was used for data collection. The data generated were treated with the Descriptive (frequency, mean and percentage) Statistics to answer the research questions while the Chi-square statistical analysis was used to test the hypotheses, set at probability alpha significant level of $P \leq 0.05$. The results showed that the majority of the athletes has significant knowledge of ergogenic aids, but the majority does not have significant knowledge of types of ergogenic aids, and does not have significant knowledge of negative effects of ergogenic aids. The majority of the athletes have the knowledge of WADA and WADA's sanctions on use of PEDs; and the majority has significantly practised ergogenic aids in sports. The study concluded that despite having reasonable knowledge of ergogenic aids, the Akwa Ibom State athletes are ignorant of types of and negative effects of ergogenic aids. The athletes know the anti-Doping organization but lack knowledge of punishments meted on defaulting athletes by the Organization. The study hereby recommended among others that the athletes be closely monitored for possible doping practices to maintain healthy sports participation; and Coaches and athletes be sensitized with anti-doping workshops and seminars to acquaint them of banned items in sports.

KEYWORDS: Knowledge, Practice, Ergogenic Aids and Akwa Ibom State Athletes

INTRODUCTION

Sports and games are activities for physical, mental, social and psychological health attainment. They promote motor skills in performances that would bring prestige and economic gains to individuals, families and nations in the forms of competition medals (Brown, Heesh and Miller, 2021). In Nigeria, sports competitions could begin from the lowest levels of schools sports, through State levels; to the highest levels of national, continental and global Olympic Games. In these competitions athletes have produced spectacular performances that sometimes are beyond human expectation in an attempt to win and set new records at all cost and by all means (Famuyiwa and Olubiyi, 2020). The use of extraneous performance

enhancing aids also called Performance Enhancing Drugs (PEDs) , in any form, mechanical and physiological to maintain the fitness of the body so as to win in sports competitions have been most challenging to Coaches, Sports Administrators and Sports Organizers. These performance enhancing aids according to scientific understanding, are substances, devices, techniques, or phenomena that are work-sustaining and are believed to increase human performance (and or recovery), directly or indirectly (Famuyiwa and Olubiyi, 2020).

Authors had done related studies on PEDs. These included Mota and Marocolo (2022) who assessed the knowledge, awareness and use of PED by Bolivian amateur boxers at Las Pas central Province and concluded that PEDs knowledge and usage of PEDs was high among amateur boxers in Las Pas central Province. Famuyiwa and Olubiyi (2020) studied its implications on sport performance among Nigerian athletes in Oyo State, Nigeria and concluded that ergogenic aids usage is inimical to health and overall performance of athletes and well-being of people living in society. Jakubczyk *et al*, (2022), studied the knowledge and practice of doping among athletes and the coaches in elite Hungarian swimming sports clubs and concluded that swimmers who involved in serious doping were not yet top national athletes, and those about to retire. There was evident of swimmers' sufficient knowledge of effectiveness, safety, and health benefits of dietary supplementation and risks of performance-enhancing drugs.

Nigeria is a member of the International Olympic Committee (IOC); is a member of WADA, with a national WADA office (NADA) in Abuja and Lagos. The duty is to monitor Nigerian athletes and officials; and ensure that Nigerian athletes comply with doping tests before and after participation in sports championships. Despite that, many Nigerian athletes have been caught in doping practices. Those caught have been punished resulting in bringing shame and disgrace to themselves, their families, and the nation (Famuyiwa and Olubiyi, 2020).

It becomes necessary for Coaches and athletes to be aware of ergogenic aids and to have knowledge of what illegal substances are and to avoid doping in sports. The Akwa Ibom State Sports Council is a Governmental Department set up for sports development under the State Ministry of Youth and Sports. From time to time athletes are caught in doping practices and many would give excuses of not being aware of the drugs used; or having no knowledge of the drugs given to them by their Coaches; or being given by fellow athletes and sometimes, by their parents (Kench and Selvadurai, 2020). Some of the Akwa Ibom State athletes have been reported by the Sports Council of being caught in doping. These included late Master Ndubisi Sunday (weight lifter), late Joseph Archibong (boxer) and Miss Blessing Okoro (weight lifter); who have died from drug-doping related causes (after the use of excessive anaerobic steroids over a period of time).

Globally notable world class athletes like Ben Johnson of Canada (sprinter); Mary Decker of United States of America (middle distance runner); Dennis Alekseyev of Russia; and Folashade Abugan of Nigeria (sprinter); are but few of thousands of shamefully banned athletes due to doping in sports competitions (WADA, 2019; WADA, 2021). Doping has been known to have serious side-effects to athletes and over the years, the establishment of WADA has helped to bring the problem of use of banned ergogenic aids to the attention of athletes, officials and the public; and the dangers of cheating in using drugs to enhance sports performances in competitions.

The study sought to find out the extent of knowledge, practice and effects of ergogenic aids among the Akwa Ibom State athletes.

SPECIFIC OBJECTIVES OF THE STUDY

- To find out the extent of knowledge of ergogenic aids among Akwa Ibom State Sports Council athletes
- To assess the extent of knowledge of types of ergogenic aids used for enhancing sports performance among Akwa Ibom State Sports Council athletes?
- To determine the extent of knowledge of the negative effects of ergogenic aids among Akwa Ibom State Sports Council athletes?
- To appraise the extent of knowledge of WADA and WADA's sanctions on PEDs among Akwa Ibom State Sports Council athletes?
- To determine the extent of practice of ergogenic aids in sports among Akwa Ibom State Sports Council athletes?

METHODS AND MATERIALS

The sectional, ex-post facto survey design was used for the study. The area of study is Akwa Ibom State. Specifically at the Ministry of Youth and Sports in Uyo, located in Uyo Local Government Area, that is the State capital and seat of Akwa Ibom State Government. The Sports Council has a population of 300 employed athletes distributed into 12 sports: Basketball, Football, Squash Racket, Table Tennis, Football, Track and Field, and Weight lifting, Judo, Taekwondo, Cycling, Boxing and Wrestling. A total of 280 subjects, by simple purposive sampling procedure were taken, as the sample size for the study. A researcher-structured questionnaire was used after validation by experts in the Department of Human Kinetics and Health Education of the University of Uyo, Uyo. For the test of reliability, twenty (20) athletes were randomly selected from the population of 300; whereby a reliability quotient index of $r.086$ was obtained. The data generated from the questionnaire were treated with the Descriptive (frequency, mean and percentage) Statistics to answer the research questions. The Chi-square statistical analysis was used to test the hypotheses, set at probability alpha significant level of $.P \leq 05$.

The authorities of the Akwa Ibom State Sports Council provided the ethical clearance. The Akwa Ibom State Ministry of Youth and Sports also approved the study. Most crucially, those who agreed to take part in the study signed consent. Respondents were informed of their right to withdraw at any time during the study. In order to protect study participants, the principles of beneficence, respect for human dignity, fairness, and informed consent were followed. Throughout the study, respondents' dignity, privacy, anonymity, and information confidentiality were maintained and preserved.

RESULTS, FINDINGS AND DISCUSSION OF FINDINGS

LIST OF SPORTS COUNCIL'S SPORTS, COACHES AND ATHLETES

S/Nos.	Sports	(N)	S/Nos.	Sports	(N)
1	Basketball	14	7.	Weight lifting	16
2	Football,	110	8.	Cycling	14
3	Squash Racket,	18	9.	Wrestling	14
4	Table Tennis,	20	10.	Boxing	16
5	Handball	14	11.	Taekwondo	16
6	Track and Field	26	12.	Boxing	22

Total = 300 subjects

Table 1: Knowledge of ergogenic aids.

No.	1. Knowledge of Ergogenic Aids	Yes	%	No	%	Total
1.	Are you aware athletes do take ergogenic aids in sports?	268		12		280
2.	Do you know it is taken to enhance sports performance?	272		114		280
3.	Do you think it can enhance sports performance?	180		177		280
4.	Do you know it is cheating in sports to take ergogenic aids?	272		175		280
Summation (Σ)		992	88.6	128	11.4	1120
Mean (\bar{x})		248		32		280

Result:

In Table 1, descriptively, the result is that the majority of the athletes have adequate knowledge of ergogenic aids.

Table 2: Knowledge of types of ergogenic aids used for enhancing sports.

No.	2. Knowledge of Types of Ergogenic Aids	Yes	%	No	%	Total
1.	Do you know that anabolic steroid is used for increasing muscle power?	16		264		280
2.	Do you know that blood doping is to increase muscle endurance?	10		270		280
3.	Do you know that wrestlers rub oil to reduce effective grip on body?	170		110		280
4.	Do you know that masking is done by taking diuretics?	8		272		280
Summation (Σ)		204	18.2	916	81.8	1120
Mean (\bar{x})		51		229		280

Result:

In Table 2, descriptively the result is that the majority of the athletes lack adequate knowledge of type of ergogenic aids.

Table 3: Knowledge of the negative effects of ergogenic aids.

No.	3. Knowledge of Effects of Ergogenic Aids	Yes	%	No	%	Total
1.	Do you know donor- blood doping can mutate red blood cells and result in death?	6		274		280
2.	Do you know consistent use of anabolic steroid can cause death?	10		270		280
3.	Do you know banned ergogenic aids can cause impotency?	28		252		280
4.	Do you know steroids can cause types of baldness in men and women?	8		272		280
Summation (Σ)		52	4.6	1068	95.4	1120
Mean (\bar{x})		13		267		280

Result:

In Table 3, descriptively, the result is that the majority of the athletes lack adequate knowledge of effects of ergogenic aids.

Table 4: Knowledge of WADA and WADA's sanctions on PEDs.

No.	Knowledge of WADA and WADA's Sanctions on Use of PEDs	Yes	%	No	%	Total
1.	Do you know that there is testing of athletes for doping before and after competitions?	190		90		280
2.	Do you know of existence of NADA (National Anti- Doping Agency) for Sports)?	78		210		280
3.	Do you know that athletes could be suspended or banned for life if caught in using banned performance enhancing drugs (PEDs) and other items?	164		116		280
4.	Do you know that use of the PEDs constitutes acts of cheating in sports competitions?	176		104		280
Summation (Σ)		608	54.3	512	45.7	1120
Mean (\bar{x})		152		128		280

Result:

In Table 4, descriptively, the result is that a slight majority of the athletes have adequate knowledge of WADA and WADA's sanctions on use of PEDs.

Table 5: Practice of ergogenic aids.

No.	5.Practice of Ergogenic Aids in Sports	Yes	%	No	%	Total
1.	Do you take any stimulant to get you stronger in sports before?	238		42		280
2.	Do you consume supplements regularly to feel fitter for sports?			8		280
3.	Do you consume power drinks regularly to feel fitter for sports?	256		24		280
4.	Have you ever taken anabolic substance (s) before?	144		136		280
Summation (Σ)		910	81	210	19	1120
Mean (\bar{x})		228		53		280

Result:

In Table 5, descriptively, the result is that the majority of the athletes do practice ergogenic aids in sports.

TEST OF HYPOTHESES

Table 6: Chi-square analysis of no significant difference in knowledge of ergogenic aids.

is.	1 .Knowledge of Ergogenic Aids	-Fe	$\frac{(O-Fe)^2}{Fe}$	Decision			
1.	Are you aware athletes do take ergogenic aids in sports?	8	0	8	7	6.4	Significant
2.	Do you know it is taken to enhance sports performance?	2	0	2	4		
3.	Do you think it can enhance sports performance?	0	0		.4		
4.	Do you know it is cheating in sports to take ergogenic aids?	2	0	2	4		
					6.4		

*Significant at $P \leq 0.05$, $df 3 = 7.82$ X^2 critical value.

Finding:

In Table 6, The hypothesis of no significant difference in knowledge of ergogenic aids among Akwa Ibom State Sports Council athletes is rejected, as the calculated X^2 value of 376.4 is greater than the X^2 critical value of 7.82 (df 3). The majority of the athletes have significant knowledge of ergogenic aids.

Table 7: Chi-square analysis of no significant difference in knowledge of types of ergogenic aids used for enhancing sports performance

qs.	2. Knowledge of Types of Ergogenic Aids	O	-Fe	$\frac{(O-Fe)^2}{Fe}$	Decision	
	Do you know that anabolic steroid is used for increasing muscle power?	0	4	9.8	1.4	Significant
	Do you know that blood doping is to increase muscle endurance?	0	0	0.7		
	Do you know that wrestlers rub oil to reduce effective grip on body?	0	0	0		
	Do you know that masking is done by taking diuretics?	0	2	4.5		
					1.4	

*Significant at $P \leq 0.05$, $df 3 = 7.82$ X^2 critical value.

Finding:

In Table 7, the hypothesis of no significant difference in knowledge of types of ergogenic aids among Akwa Ibom State Sports Council athletes is rejected, as the calculated X^2 value of 361.4 is greater than the X^2 critical value of 7.82 (df 3). The majority of the athletes do not have significant knowledge of types of ergogenic aids.

Table 8: Chi-square analysis of no significant in knowledge of the negative effects of ergogenic aids

qs.	3. Knowledge of Negative Effects of Ergogenic Aids	O	-Fe	$\frac{(O-Fe)^2}{Fe}$	Decision	
	Do you know donor- blood doping can mutate red blood cells and result in death?	0	34	8	2	Significant
	Do you know consistent use of anabolic steroid can cause death?	0	30	0		
	Do you know banned ergogenic aids can cause impotency?	0	12	0.6		
	Do you know steroids can cause types of baldness in men and women?	0	32	4.5		
					2	

*Significant at $P \leq 0.05$, $df 3 = 7.82$ X^2 critical value.

Finding:

In Table 8, The hypothesis of no significant difference in knowledge of negative effects of ergogenic aids among Akwa Ibom State Sports Council athletes is rejected, as the calculated X^2 value of 462 is greater than the X^2 critical value of 7.82 (df 3). The majority of the athletes do not have significant knowledge of negative effects of ergogenic aids.

Table 9: Chi-square analysis of no significant difference in knowledge of WADA and WADA's sanctions on PEDs

S.	Knowledge of WADA and WADA's Sanctions on Use of PEDs			-Fe	$\frac{(O-Fe)^2}{Fe}$	Decision	
	Do you know that there is testing of athletes for doping before and after competitions?	0	0	4	9.8	1.5	Significant
	Do you know of existence of NADA (National Anti- Doping Agency) for Sports)?	0	0	0	0.7		
	Do you know that athletes could be suspended or banned for life if caught in using banned performance enhancing drugs (PEDs) and other items?	4	0	0	1		
	Do you know that use of the PEDs constitutes acts of cheating in sports competitions?	6	0	2	4.5		
					1.4		

*Significant at $P \leq 0.05$, df 3= 7.82 X^2 critical value.

Finding:

In Table 9 The hypothesis of no significant difference in knowledge of WADA and WADA's sanctions on use of PEDs among Akwa Ibom State Sports Council athletes is rejected as the calculated X^2 value of 361.4 is greater than the X^2 critical value of 7.82 (df 3). The majority of the athletes have knowledge of WADA and WADA's sanctions on use of PEDs.

Table 10: Chi-square analysis of no significant difference in practice of ergogenic aids in sports

S.	i. Practice of Ergogenic Aids in Sports	O	E	-Fe	$\frac{(O-Fe)^2}{Fe}$	Decision
	Do you take any stimulant to get you stronger in sports before?	8	0	0	16	8.7 Significant
	Do you consume supplements regularly to feel fitter for sports?	2	0	2	4	
	Do you consume power drinks regularly to feel fitter for sports?	6	0	6	6	
	Have you ever taken anabolic substance (s) before?	4	0	4	4	
					8.7	

*Significant at $P \leq 0.05$, $df 3 = 7.82$ X^2 critical value.

Finding:

In Table 10, the hypothesis of no significant difference in practice of ergogenic aids in sports among Akwa Ibom State Sports Council athletes is rejected as the calculated X^2 value of 288.7 is greater than the X^2 critical value of 7.82 (df 3). The majority of the athletes have significantly practised ergogenic aids in sports.

DISCUSSIONS

- Knowledge of ergogenic aids among Akwa Ibom State Athletes.

The study finding is that the majority of the athletes have significant knowledge of ergogenic aids. The same trend was found by Mota and Marocolo (2022) among Bolivian amateur boxers; by Famuyiwa, and Olubiyi (2020) among Oyo State athletes in Nigeria, and by Jakubczyk *et al.* (2022), investigating knowledge and practice of doping among elite athletes and coaches in Hungarian swimming sports clubs in Budapest. Knowledge and practice of doping would involve monitoring and controlling of the athletes; informing the athletes of the dangers of doping because allowing them on their own will encourage doping tendencies. Knowledge creates awareness and is valuable to healthy practices for training to compete without cheating.

- Knowledge of Types of Ergogenic Aids.

The finding is that the majority of the athletes do not have significant knowledge of types of ergogenic aids. Fleming *et al.* (2019) had found same trend among athletes but not among coaches in their perception of use of ergogenic aids for running performances. Similarly Barbara, *et al.* (2021), in analysis and evaluation of the knowledge and prevalence of using effective ergogenic aids (creatine, caffeine, isotonic drinks, carbohydrates, and proteins) in a group of Polish professional athletes noted inadequate knowledge of types of ergogenic aids. It is important that athletes and coaches have knowledge of types of ergogenic aids. It is common for the defaulting athletes to blame the doctors or coaches when they are caught.

Knowledge of types of ergogenic aids will help the athletes to avoid banned PEDs. Athletes will differentiate between ordinary nutrient products and banned substances. Akwa Ibom State athletes therefore must be so counseled

- **Knowledge of Negative Effects of Ergogenic Aids.**

The study finding is that the majority of the athletes do not have significant knowledge of negative effects of ergogenic aids. The fact that the athletes do not even know the types of ergogenic aids supports the fact that they would not have knowledge of the negative effects of PEDs. Famuyiwa and Olubiyi (2020) while studying Oyo State athletes in Nigeria and by Jakubczyk *et al.* (2022), investigating knowledge and practice of doping among elite athletes and coaches in Hungarian swimming sports clubs in Budapest found that these athletes and coaches do not know the side effects of PEDs. It is very important as some of the effects have led to morbidity and mortality among athletes

- **Knowledge of WADA and WADA's Sanctions on use of PEDs.**

The present study showed that the majority of the athletes have knowledge of WADA and WADA's sanctions on use of PEDs. This was however encouraging in that they would know the Organizations that controls doping in sports in the country and would know they could be punished as defaulting athletes. However, Jakubczyk *et al.* (2022) while investigating knowledge and practice of doping among elite athletes and coaches in Hungarian swimming sports clubs in Budapest found the athletes actually know their countries controlling Doping Authority but did not know the types of punishments meted out to defaulting athletes. Mota and Marocolo (2019) while studying the effects of PEDs on human exercise performance warned against the negative effects as being capable of resulting in death. Woods (2020) while discussing the social issues in sports ethics declared that doping is cheating and is morally wrong and is no more entertaining to the spectators who had come to see clean, free and fair sporting competitions. According to Kumar (2020) athletes are virtually competing against doping; which should not be so. The WADA office should make available the list of banned PEDs to guide coaches, sports administrators and athletes.

- **Practice of Ergogenic Aids in Sports.**

The present study showed that the majority of the Akwa Ibom State athletes significantly practised ergogenic aids in sports. The present study found they do consume PEDs regularly. Similar trends are found among many athletes in various studies all over the world because from time to time athletes are caught and banned at competitions. These include Famuyiwa and Olubiyi (2020) while studying Oyo State athletes in Nigeria; by Jakubczyk *et al.* (2022), while investigating knowledge and practice of doping among elite athletes and coaches in Hungarian swimming sports clubs in Budapest; and Barbara *et al.* (2021) while analysis and evaluating the knowledge and prevalence of using effective ergogenic aids (creatine, caffeine, isotonic drinks, carbohydrates, and proteins) in a group of Polish professional athletes. Henry (2020) had studied the dangers in practicing doping especially the harmful effects of Anabolic steroids on the body composition of the doping athletes. Bishop (2020) however advised that dietary supplements could boost the health of athletes, therefore should be given to athletes during training and after competitions.

From these findings and discussion, despite having reasonable knowledge of ergogenic, the athletes of Akwa Ibom State still went on to practice use of PEDs. Coaches need to train their athletes to play clean and fair without cheating in sports. By this they will avoid the stigma



and shame that usually accompanied the punishments to doping athletes.

CONCLUSION

The study concluded that despite having reasonable knowledge of ergogenic aids, the Akwa Ibom State athletes are ignorant of types of and negative effects of ergogenic aids. The athletes know the Anti-Doping body but lack knowledge of punishments meted on defaulting athletes

RECOMMENDATIONS

The study hereby recommended that the athletes be closely monitored for possible doping practices to maintain healthy sports participation. The Coaches and athletes be sensitize with anti-doping workshops and seminars to acquaint them of banned items in sports. Nigerian WADA should provide anti-doping information in tracts and flyers to Sports Administrators, Coaches and athletes for their readership and knowledge. Regular internal testing be conducted on athletes before and during training to fish out defaulting doper.

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