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Use of ergogenic aids among athletes in Maiduguri, Nigeria

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Abstract

Background: Sports has become very popular and big business, hence to succeed and remain relevant is highly valued and very competitive. Consequently, athletes, in addition to pursuing rigorous training programmes, engage in alternative ways to improve their performances in sports.

Purpose: To determine the use of ergogenic aids among athletes in Maiduguri.

Methods: Two hundred and thirty-two copies of duly completed questionnaire out of 250 copies administered to the participants were used for data description and analysis. The questionnaire which was self-administered underwent face and content validation by experts in sports physiotherapy, and physical and health education. To ensure reliability of the instrument, test re-test was carried out two weeks apart on 20 randomly selected athletes who did not participate in the study.

Result: The age range and mean age of the participants were 15 - 39 years and 26.4±4.2 years respectively. Out of the 232 participants, 163 (70.3%) were found to use one form of ergogenic aids or the other. Male ergogenic aids users were significantly higher ($p = 0.007$). Significant difference ($p = 0.029$) existed in the use of ergogenic aids among athletes of different age groups, with those between the ages of 20 and 29 years constituting the majority. There was a weak but significant association ($p = 0.047$) in the use of ergogenic aids among athletes in different categories of sports.

Conclusion: Overwhelming number of participants in this study used one form of ergogenic aids or the other to improve their sports performances.

Keywords: Ergogenic aids; Face and content validation; Sports physiotherapy; Physical and health education

1. Introduction

The pressure and craze to succeed, and remain on top gear have made many athletes to use any substance or means to boost their sports performances no matter the cost. Such cost may among other things, include loss of life or permanent physical, mental and physiological impairments. Globally, sports has become very popular and big business, hence to succeed and remain relevant is highly valued and very competitive^[1]. Successful athletes instantly become celebrities with lucrative commercial opportunities^[1], and awards and rewards from both governments and individuals. In addition, these successful athletes are seen as role models in the society, hence many people, especially the youths try to emulate their actions^[2].

It is on this search to remain relevant and successful that many athletes, in addition to pursuing rigorous training programmes, engage in alternative ways to improve their performances in sports^[3]. These alternative ways are termed ergogenic aids. "Ergogenic" is derived from a Greek word, "ergogennan", ergo means work, "genna" means to produce. According to Corbin *et al.*^[4], ergogenic aids are substances, strategies and treatment that seem to improve performance in sports or competitive athletics. Fox *et al.*^[5] And Agwubike^[6] view an ergogenic aid as anything that improves or is thought to improve physical performance. The use of ergogenic aids, especially drugs started innocently when athletes used them to treat inflammatory reactions (mostly pain) from injuries sustained during training. As these athletes trained harder, the doses of these analgesics were increased or changed to stronger ones, thus the evolution of drug use and abuse in sports^[7].

There are various types of ergogenic aids used by athletes all over the world with the sole aim to "knock off" an opponent when pressure to succeed and stay on top becomes intense^[8]. The most common used is pharmacological ergogenic aids (drugs), others are nutritional,

mechanical, physiological, psychological and traditional ergogenic aids. The use of ergogenic aids is reported to be dependent on age and categories of sports, while reports on sex differences vary. Younger athletes have been found to involve in the use of ergogenic aids more than their older counterparts [9, 10]. Athletes involved primarily in power or strength dependent activities, such as weight lifting, use anabolic steroids to increase muscle mass. Some endurance athletes, such as marathon runners use blood doping to increase their oxygen-carrying capacity [7, 10].

Also, empirical data from Nigeria have shown that the use of ergogenic aids is geographically dependent [10, 11]. These authors reported that athletes from the Southern part of Nigeria use ergogenic aids more frequently than their Northern counterparts. In addition, Owolabi [7] and Maduagwu [10] reported that nutritional supplement is the most common ergogenic aids used by athletes in Nigeria. In terms of categories of sports, athletes involved in endurance sports were found to be the most ergogenic aids users in Nigeria [10]. Boroffice (1993) [12] and Maduagwu [10] found no sex difference in the use of ergogenic aids, while Ogunjimi [9] reported that male athletes use ergogenic aids more than their female counter parts.

Studies on the use of ergogenic aids among athletes had been conducted in the South-west [7, 11, 9], North-west [10] and South-south³ Nigeria. However, there seems to be dearth of information in literature from the North-eastern Nigeria regarding the use of ergogenic aids among athletes. This seemingly paucity of data on the subject from this part of Nigeria prompted the authors to conceptualize this present study in Maiduguri, a North-eastern Nigerian city. In addition, Nigeria is a heterogeneous society in terms of geography/region, ethnicity, religion and cultural norms and values. Hence, lifestyle behaviour is expected to vary across the nation.

2. Materials and Methods

The study was conducted at Elkanem stadium situated inside the Sports Center, Maiduguri, North-eastern, Nigeria. The Sports Center is located in the center of Maiduguri, the biggest and most commercial city in the North-eastern Nigeria. The Elkanem stadium is situated at this Sports Center and every sports activity (either training or completion) takes place at this arena.

Every athlete aged between 15 years and above who volunteered and consented to participate was recruited for the study. The instrument for the study was a self-administered questionnaire which underwent face and content validity by experts in sports physiotherapy, and physical and health education. To ensure reliability, test re-test of the instrument was carried out two weeks apart on 20 randomly selected athletes who did not participate in the study. The interval of two weeks was necessary to reduce memorization and potential problems with the wording of the items, which according to Smith *et al.* [13] are the impetus for test-retest. The obtained correlation coefficient, r was 0.71. The questionnaire had three sections: A, B and C. Section A contained information on sociodemographic data; section B comprised information on sports participation while section C sought to know the types of ergogenic aids used by the athletes.

Ethical approval for the study was obtained from the lead author’s institution’s Research and Ethical Committee. The

authors officially introduced themselves to each of the coaches of different sports, and the protocol and benefits of the study were explained to them. The coaches then instructed the athletes who were willing to participate to co-operate with the authors. The authors explained to the athletes every detail that was involved in the study and ensured them that any information given would be kept confidential and anonymous. Two hundred and fifty copies of the questionnaire were administered to the athletes. Two hundred and thirty-two copies were duly completed, and were used for data description and analysis; hence a response rate of 92.8% was recorded.

2.1 Statistical data analysis

Descriptive statistic was used to summarize the socio-demographic variables of the participants. Inferential statistic of Chi-square (X^2) was employed to analyze the use of ergogenic aids between male and female athletes, among athletes of different age groups, and athletes involved in different categories of sports. Alpha value of $p < 0.05$ was considered significant. Data were analyzed using Statistical Package for the Social Sciences (SPSS) version 17.0 software (SPSS Inc., Chicago, Illinois, USA).

3. Results

Two hundred and thirty two athletes participated in the study. The ages of the participants ranged from 15 to 39 years with mean age of 26.4 ± 4.2 and most (78.0%) were in the age range of second decade. Male participants accounted for 81.9% and those that were not married 85.3%. Participants that had secondary school education constituted the majority (53.9%) (Table 1).

Table 1: Frequency Distribution of Participants by Socio-Demographic Variables

Variables	Categories	Frequency(N=232)	% Total
Gender	Male	190	81.9
	Female	42	18.1
Age group	15 – 19	14	6.0
	20 – 24	91	39.2
	25 – 29	90	38.8
	30-34	29	12.5
	≥35	8	3.5
Marital status	Single	198	85.3
	Married	34	15.7
Education	Primary	7	3.0
	Secondary	125	53.9
	Tertiary	100	43.1

Out of the 232 participants, 163 (70.3%) were found to use one form of ergogenic aids or the other. Majority (84.0%) of the ergogenic aids users were males and most (44.8%) fell in the age range of 20-29 years. The ratio of unmarried ergogenic aids users to the married ones was 5.3:1. Athletes with secondary school certificates comprised the highest (50.9%) ergogenic aids users in the educational level (Table 2). The male ergogenic aids users were significantly higher ($p = 0.007$) than their female counterparts. Significant difference ($p = 0.029$) also existed in the use of ergogenic aids among athletes of different age groups, with those between the ages of 20 and 29 years constituting the majority. There was a weak but significant association ($p = 0.047$) in the use of ergogenic aids among athletes in different categories of sports (Table 3).

Table 2: Socio-Demographic Distribution of Total Sample and Group of Athletes Using Ergogenic Aids

Category	Frequency in total sample (N=232)	Ergogenic aids users within each variable	% of Erg. aids users within each category	% of Total number of erg. aids users (n=163)
Gender				
Male	190	137	72.1	84
Female	42	26	61.9	16
Age group				
15 – 19	14	4	28.6	2.4
20 – 24	91	56	61.5	34.4
25 – 29	90	73	81.0	44.8
30 – 34	29	25	82.6	15.3
≥35	8	5	62.5	3.1
Marital status				
15 – 19	14	4	28.6	84
20 – 24	91	56	61.5	34.4
30 – 34	29	25		
≥35	8	5	62.5	3.1
Marital status				
Single	198	137	69.2	84
Married	34	26	76.5	16
Education				
Primary	7	2	28.6	1.2
Secondary	125	83	66.4	50.9
Tertiary	100	78	78	47.9

Table 3: Effect of Age, Gender and Categories of Sports on the Use of Ergogenic Aids

Variables	n = 163	X ² Value	p-value
Gender			
Male	137	21.713	0.007*
Female	26		
Age group			
15 – 19	4		
20 – 24	56		
25 – 29	73	23.788	0.029*
30 – 34	25		
≥35	5		
Categories of events			
Power	62		
Endurance	54	23.200	0.047*
Intermittent	47		

Keys: * = significant at p<0.05.

4. Discussion

The objective of this study was to determine the use of ergogenic aids among athletes in Maiduguri, a North-eastern city in Nigeria. An overwhelming number of the participants in this study were found to use one form of ergogenic aids or the other to improve their sports performances. This is somehow in agreement with the report of Ogunjimi [9] in which all the athletes that participated in his study used ergogenic aids to boost their sports performances. The findings of this study contradict those of Boroffice [12], and Onifade and Adeniran [14] that showed zero tolerance in the use of ergogenic aids among athletes that participated in their studies. This surge in the use of ergogenic aids found in this study may be attributed to the importance attached to winning in sports. According to Silver¹ sports has become very popular and big business, hence to succeed and remain relevant is highly valued and very competitive. Silver¹ also noted that successful athletes instantly become celebrities with lucrative commercial opportunities, and awards and rewards from both governments and individuals.

The finding of this study also brought to lime light the involvement of unmarried athletes in the use of ergogenic aids compared to their married counterparts. This is in conformity

to that of Maduagwu [10] in which married athletes were reported to have used ergogenic aids to a lesser extent than the unmarried ones. This is not confounding, since married athletes assume much more responsibilities for their households. Married women athletes in addition, are saddled with domestic chores, which include child bearing and up-bringing and home making among other things. Moreover, the number of married athletes in this study was quite lower than that of the singles. Male athletes participated more in this study than the females. This is not unexpected because studies [15, 16, 17] in Maiduguri or the North-eastern Nigeria had shown male preponderance in participation. This male predominance in studies in this part of Nigeria is always attributed to socio-cultural and religious factors which may restrict women to public or work life. Thus, the significance association (p < 0.05) in the use of ergogenic aids found between male and female athletes in this study may not be astounding, for it may be partly explained by this male to female bias in participation in studies conducted in this part of the country. Although previous studies in Nigeria which assessed sex differences in the use of ergogenic aids gave contradictory results. Ogunjimi [9] found significant association (p < 0.05) in the use of ergogenic aids between male and female in favour of the males. The findings of Onifade and Adeniran [14], Boroffice [12] and Maduagwu [10] showed no significant association (p > 0.05) between sexes. Although, the geographical locations where these studies were conducted might had played vital roles in these variations. The results of this study showed that athletes between the ages of twenty to twenty nine were the highest ergogenic aids users. This finding supports the view of Kleinshmidt and Hossler [8] that the younger athletes remained skeptical if no magic substance is involved to boost sports performance. Ogunjimi [9] documented that 95% of 80 secondary school athletes he enrolled in his study used one form of ergogenic aids or the other. These findings in these present and past studies may be attributed to youthful exuberance that is usually associated with this age group. It could also be explained based on the fact that majority of the participants in sports fall within this age. Hence the significance association (p < 0.05) found in the use of ergogenic aids based on age group may be explained by

either or all of the aforementioned reasons.

This study found a very weak but significant association ($p = 0.047$) in the use of ergogenic aids among athletes in different categories of sports. Athletes that participated in power events (such as boxing and weight lifting) were found to be the highest ergogenic aids users. In essence, the use of ergogenic aids depends on the type of sports the athletes are involved in. This finding agrees with those of Owolabi⁷ and Maduagwu¹⁰ that the use of ergogenic aids is related to the category of sports. Although the authors reported respectively that those athletes in endurance and intermittent sports used ergogenic aids most. This finding on categories of sports should be interpreted with caution since participants were volunteers who were not recruited by probability sampling technique which was a limitation to the study.

5. Conclusion

Overwhelming number of participants in this study used one form of ergogenic aids or the other to improve their sports performances. Male athletes, athletes in the second decade and athletes that were involved in power and endurance sports in this study used ergogenic aids more than their respective counterparts.

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