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Athletes' Use of Chewing-Gum as Psychogenic Aid in Sports Performance

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Abstract: The paper focuses on athletes' use of chewing gum as an ergogenic aid in their sports engagements. Descriptive survey design was used for the study. Four each of research questions and hypotheses were raised to guide the study. A sample of 276 (164 males and 112 females) was purposively drawn from a population of athletes that participated during NUGA preliminaries in 2006. A self-structured validated questionnaire was used for the collection of data. The data collected were descriptively and inferentially analyzed. The findings revealed that: Athletes perceive chewing gum as an efficacious psychological means of adjusting to sports stress and conditions. The level of use of chewing gum by athletes as a psychogenic aid is dependent upon the importance attached to the sports engagement, the less the importance the less the use. Assorted reasons are projected by athletes for using chewing gum as a psychogenic aid. The use of chewing gum as a psychogenic aid favours female athletes more than their male counterparts. The degree of use of chewing gum by athletes as a psychogenic aid discriminates among various sports types.

Key words: Athletes, chewing gum, sports

INTRODUCTION

Sports performances in recent times have evolved a lot of scientific approaches to find solutions to the problems associated with the preparation and perfection of athletes before, during and after training and competitions. This is with a view to enhance athletes' performance capacity, effectiveness and efficiency. It is on this search for victory that athletes, in addition to pursuing rigorous training programmes, engage in alternative ways to improve their performances. Since athletes enjoy or suffer from physiological, psychological and social influences that impact on their preparation and performances, they, on one part, become associated with heightened stress, emotions, anxiety, fear, frustration, feeling of failure and other psychological characteristics. On the other part, they may be motivated into taking more risks to perform better. It is believed that anticipation to participate or actually participating in sports involves physiological adjustments that allow some psychological covert and overt actions and reactions in athletes. In effect, any psychological action or reaction of athletes has some physiological underpinnings (McArdle *et al.*, 1991).

In order to enhance sports performance, minimize or avert some adverse states or conditions arising from engaging in sports, some athletes resort to the use or application of ergogenic aids classified as either nutritional, pharmacological, physiological, psychological, or mechanical (Fox *et al.*, 1993; Agwubike and Nwajie, 2004) and trado-ergogenics (Agwubike, 2005). According to Corbin *et al.* (2001), ergogenic aids are substances, strategies and treatment that are intended to improve performance in sports or

competitive athletics. Fox *et al.* (1993) and Agwubike (2005) view an ergogenic aid as anything that improves or is thought to improve physical performance. It is on the basis of conceptualizing an ergogenic aid as such that Agwubike (2005) defines psychogenic aids as various psychological measures applied by athletes to enhance performance in sports, such as music and cheering supporters. The use of chewing gum by athletes to enhance performance during training or sports' competitions therefore becomes relevant as perhaps a psychological booster. Although one may be tempted to doubt the efficacy of chewing gum as an ergogenic aid in sports, we cannot afford to ignore its functional (or dysfunctional) importance as a psychogenic aid with some psychological cleansing for calming and or boosting effects. There are, however, individual athlete's physiological and psychological reactions and variations in the nature and mode of their use of chewing gum in sports.

There is, however, dearth of information in literature on empirical evidence regarding athletes' use of chewing gum as performance enhancing agent in sports. In effect, there seems not to have been readily available empirical studies on athletes' use of chewing gum as an ergogenic aid in Nigeria despite its general use by athletes and coaches in sports. The lack of knowledge and the fact that the use of chewing gum as ergogenic aids in sports has not received the attention of any serious scientific investigation justify the need for the present study.

MATERIALS AND METHODS

Research questions: The following research questions are raised to guide the study:

- a) Do athletes engage in chewing-gum as aids to sports performance?
- b) What reasons or factors predispose athletes to chewing gum in sports engagements?
- c) Are there gender differences in the use of chewing-gum as ergogenic aids in sports?
- d) Does the level of use of chewing gum by athletes or players discriminate among various sports?

Hypotheses

The following hypotheses were formulated and tested

- 1) There is no significant difference between those that use and those that do not use chewing gum as ergogenic aids in enhancing their sports performance
- 2) There is no significant difference in the reasons/factors that predispose athletes to the use of chewing-gum as ergogenic aids in sports.
- 3) There is no significant difference between male and female athletes' use of chewing-gum as ergogenic aid in sports.
- 4) There is no significant difference in the level of use of chewing gum as ergogenic aid among athletes or players based on the type of sports.

Method

Research design: The study adopted a descriptive survey research design. The choice is predicated on the fact that the data collection instrument was a questionnaire which sought information from the respondents.

Population: The population of the study consisted of athletes that participated during the Nigeria University Games Association (NUGA) zonal preliminaries hosted by University of Benin at Samuel Ogbemudia Stadium, Benin-City in September, 2006. The preliminaries were in preparation for the 2006 NUGA sports competitions billed for November/December, 2006 at the University of Maiduguri which was later shifted to first quarter of 2007.

Sample and sampling technique: The sample was composed of 276 (164 male and 112 female) athletes drawn from nine (9) sports. The sample was purposively drawn through an incidental sampling technique. The age range of the participants was 17years to 33years old with a mean age of 27.6years old. The male athletes' age range was 18years-33years old with a mean of 26.8years old while the female athletes' ages ranged between 17years and 31years old with a mean age of 27.4years.

Instrument: The questionnaire was the main instrument used for data collection in the study. It consisted of three sections, Section A was concerned with the demographic data while Section B was for eliciting

information on the athletes use or non-use of chewing-gum in sports. Section C dealt with reasons or factors for athletes' use of chewing-gum as ergogenic aids in sports.

Method of Data Analysis: The data collected were subjected to descriptive statistics, using frequency counts, means and standard deviations. Inferentially, the data were analyzed with chi-square, t-test and one-way analysis of variance (ANOVA) to test the hypotheses formulated. The alpha levels were set at 0.05, 0.01 and 0.001 with the use of SPSS analyses. A post hoc analysis using Duncan's test was also employed.

RESULTS

The results of the study are presented in Table 1-5.

The figures in parentheses represent the minimum expected cell frequencies.

Table 1 shows both the individual and cumulative sports training and competition sessions in which athletes did not use or used chewing gum as ergogenic aid. On individual training (practice) and competition sessions, the difference between non-use and use of chewing gum as an ergogenic aid was significant at 0.05 alpha level exclusively after sports competitions ($X^2 = 9.797$; $p < 0.05$) and practice sessions ($X^2 = 8.348$; $p < 0.05$). The difference in the non-use and use was very significant before sports practice session ($X^2 = 10.565$; $p < 0.01$). However, the difference became very, very significant before and during competitions ($X^2 = 34.797$ and $X^2 = 23.188$; $p < 0.001$) respectively as well as during practice or training periods ($X^2 = 88.174$; $p < 0.001$). A combination of the difference in athletes' non use and use of chewing gum during training and competition sessions also indicated a very, very significant relationship ($X^2 = 57.522$; $p < 0.001$). Nevertheless, the cumulative difference in athletes' non-use and use of chewing gum as an ergogenic aid showed a very significant relationship ($X^2 = 11.033$; $p < 0.01$).

In Table 2, responses to sixteen (16) reasons or factors which athletes project for indulging in the use of chewing gum as an ergogenic aid were coded under agreed, uncertain and disagreed. The one way analysis of variance (ANOVA) indicated a very significant difference between the three alternative responses ($F = 5.610$; $p < 0.01$). However, the source of the significance was not readily reflected in the ANOVA analysis. Consequently, Duncan's post hoc test was applied to reveal the source as presented in Table 3.

In Table 3, means for groups in homogeneous subset are displayed in which harmonic mean sample size of 16 was used. Disagreed and agreed responses show high discriminant effects (101.94 versus 141.75) between use and non-use of chewing gum as an ergogenic aid while uncertain responses reflect a low discriminant effect (35.44). The implication is that the source of the significance is from the uncertain responses.

Table 1: Chi square analysis showing athletes' non-use or use of chewing-gum as an ergogenic aid at different sports training and competition sessions

Variable	Non-Use	Use	df	X ²	Inference
Before practice only (BPSO)	111 (138)	165 (138)	1	10.565*	p<0.01
Before competition session only (BCO)	89 (138)	187 (138)	1	34.797*	p<0.001
During practice period alone (DPPA)	60 (138)	216 (138)	1	88.174*	p<0.001
During competition only (DCO)	178 (138)	98 (138)	1	23.188*	p<0.001
After practice session only (APSO)	162 (138)	114 (138)	1	8.348*	p<0.05
After competition only (ACO)	164 (138)	112 (138)	1	9.797*	p<0.05
Both during practice and competition session only (BCO)	75 (138)	201 (138)	1	57.522*	p<0.01
Overall	893 (966)	1039 (966)	1	11.033*	p<0.01

*Significant values

Table 2: One way analysis of variance (ANOVA) showing reasons/factors for athletes' use of chewing gum as ergogenic aids in sports

Responses	Sum of squares	df	Mean square	F	Sign
Between groups	92318.042	2	46159.021	5.610	*
Within groups	370277.9	45	8228.397		
Total	462595.9	47			

*Significant (p<0.01)

Table 3: Duncan's post hoc test analysis

Factors	N	Subset for alpha = 0.05	
		1	2
Uncertain	16	35.44	
Disagree	16		101.94
Agree	16		141.75
Sig.		1.00	0.221

Table 4 indicates a highly significant difference between male and female athletes in their use of chewing gum as an ergogenic aid (t = -3.988; p<0.001). The female gender exhibited a more favoured inclination to the use (X² = 87.571; STD = 33.276 versus X² = 35.143; STD = 10.123).

Table 5 indicates an extremely high significant difference among participants of various sports (X² = 42.261; p<0.001). This implies that the type of sports (soccer, volleyball, track athletics, hockey, tennis, etc) an athlete engages in determines the level of involvement in the use of chewing gum as an ergogenic aid.

DISCUSSION

The art of chewing gum by athletes seems to have gained some recognition before, during and after sports training and competition sessions in the present study. The results acknowledge the importance of stimulating the "mind set" at different degrees on performance cues that impact on the athlete's attitude, feelings and behaviour at such training and competition sessions. The impact or level of the significance progressively increased from pre-practice to competition proper periods and tapers to post-practice or post-competition periods (Table 1). The implication is that athletes' use of chewing gum is highly influenced by the nature of the sports session or period. This is understandable judging from the fact that the degree of anxiety and arousal state in athletes to which chewing gum is used as a moderating measure or factor differs according to the degree of importance attached to the period of the training or competition. This disposition supports Anshel's (1990) assertion that athletes usually put less

efforts and intensity into training than they do into the competition event. They seem to produce a level of energy and skill during serious competitions that exceeds their achievement in practice, in training or during less challenging competitions. Moreover, feeling confident which chewing gum intends to fulfill is a state of one's mind, but it is also a strategy when it is used consciously to bolster a performer's motivation, arousal, or aggressiveness.

It should be remembered that the purposes of chewing gum by athletes vary which ranged from promoting maximum concentration, warding-off fear, reduction of tension, building up confidence, curtailing anxiety, to prevention of dryness of the mouth. When the technique is used to gain or to maintain self confidence, focusing inwardly and thinking about one's strengths rather than about one's opponents, it can generate a sense of being in control and responsible for a contest's outcome. In effect, what athletes think significantly affects how they perform (Anshel, 1990; Moronkola, 2004). Consequently, their thoughts should directly reflect what they want to achieve. In other words, if an athlete believes in chewing gum acting as a performance-enhancing agent, performance will likely increase due to what Agwubike (2005) referred to as the placebo effect or self-fulfilling prophecy.

Although one may be tempted to doubt the efficacy of chewing gum as an ergogenic aid in sports, we cannot afford to ignore its functional (or dysfunctional) importance as a psychological (psychogenic) aid having some cleansing, calming and or boost effects. There are, however, individual athlete's physiological and psychological reactions and variations in the nature and mode of their use of chewing gum in sports. Female athletes are as emotional as male athletes but simply express it more openly (Anshel, 1990). This might be why the present result seems to have favoured the females in their inclination towards using chewing gum as an ergogenic aid (Table 4). In order to be mentally tough, however, both the male and female athletes need to build up confidence through chewing gum to be

Table 4: Students t-test showing gender difference in the use of chewing gum as an ergogenic aid in sports

Gender	Ergogenic aids Use			df	Tab. t.	Cal. t	Inference
	Mean	STD	N				
Male	35.143	10.123	7	12	2.179	-3.988	*
Female	87.571	33.276	7				

*Significant; $p < 0.001$

Table 5: Chi square (X^2) analysis showing discriminant inclination between use and non-use of chewing gum as ergogenic aids among sports participants

Chewing gum	Observed N	Expected N	Residual	df	X^2	Inference
Non use	84	138.0	-54.0	1	42.261	*
Use	192	138.0	54.0			

*Significant ($X^2 = 42.261$; $p < 0.001$)

emotionally calm for improved performance. However, since sport is an opposite sex-linked task for females, we might see more fear of sports success that will warrant more chewing gum among female athletes than their male counter parts. The present results show that both male and female athletes 'needs and feelings that lure them into using chewing gum as ergogenic aids in sports are strikingly similar (Table 2 and 3). However, the female athletes enjoy chewing gum more which is justified in the present study but at variance with the findings of Moronkola (2001) which claimed that males and females compete in sport for different reasons. It should be noted that majority of what we call 'feminine' or 'masculine' characteristics have been culturally conditioned, not biologically determined; and these social fabrications obscure both the basic differences and the more pervasive similarities between male and female athletes (Fayombo, 2001).

The results (Table 5) of the present study reveal that the use of chewing gum as an ergogenic aid also depends on the nature of the sports the athlete is performing. No doubt, individual, dual and team sports are likely to attract differential emotional build ups and arousal states. However, the contest nature of the environment under which the sports takes place has its role to play in emotional build up of the athlete to use the chewing gum. This assertion may hold water, but one need to also put into consideration the athlete's level of readiness or preparedness for the competition. Good training or preparation builds up confidence but shabby preparation creates tension. Under such a condition, the athlete resorts to chewing gum to ward-off the fear and anxiety.

Apparently, a combination of forces best explains if and how much an athlete uses chewing gum as an ergogenic aid in sports. Situation and significant others interact. It is imperative that the opportunity to play sports is accompanied by the presence of others who act as reinforcers, teammates, or opponents.

Therefore, positive and pleasant attitudes towards these elements might present less need or situation to use chewing gum as an ergogenic aid.

Conclusion: It may be concluded that coaches and sports administrators should not discourage the use of chewing gum by athletes as a psychogenic aid since athletes perceive its use as an efficacious tool for controlling their fear, emotions and anxiety during sports engagements. However, efforts should be made to subject athletes to not only proper scientific training to improve their sports skills and physical fitness levels but also expose them to efficient and effective psychological orientation.

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