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An Exploratory Study of Weight-Loss Practices of Gymnasts in Rivers State, Nigeria

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Abstract: A cross-sectional survey design was used to explore the weight-loss practices among gymnasts in Rivers State, Nigeria. Data were collected from eighteen gymnasts using 11-item structured questionnaire. The generated data were analyzed using percentage and chi-square statistics. Results showed that majority of the gymnasts decreased their consumption of calories (77.78%), increased their expenditure of calories through exercise (88.89%), restrict food (94.44%), over-exercise (83.33%) and engage in voluntary fluid reduction or dehydration (83.33%) to lose weight. Among the findings was that the gymnasts' gender, age and years of sporting experience had significant influence on increase expenditure of calories through exercise, food restriction, use of drugs, use of nutritional supplements and use of steam baths or saunas for weight-loss. Among the recommendations are that nutritionist/dieticians should be employed and integrated into the gymnastics team to provide and guide the gymnasts on how to effectively use healthy and supervised nutrition to lose weight. The gymnasts should be educated on the health and performance effects of engaging in harmful weight-loss practices through seminars. Stakeholders should be sensitized on the weight-loss practices. This will enable them to discourage any gymnast planning to adopt unhealthy weight-loss measures.

Key words: Gymnasts, weight-loss, age, gender, years of sporting experience

INTRODUCTION

Weight-control is an issue for athletes in weight-restricted sports (Spelke, 1997). Athletes in weight-sensitive sports show great concern over their weight. Weight-sensitive sports, according to Perriello (2001) involve either a requirement to reach a specific weight or a perception that an advantage exists if the athlete performs at a lower weight. He further stated that gymnastics is among the sports often cited for having a high incidence of athletes engaging in unhealthy nutrition and weight loss practices. Sports that require athletes to meet weight requirements are interesting to explore because weight gains as little as one pound can prevent athletes from competing (Spelke, 1997). One of the weight-sensitive sports is gymnastics.

Gymnastics is a sport whereby people with smaller and slimmer bodies seem to have advantage. One of the areas of concern to athletes especially gymnasts is how to lose weight. Gymnasts have weight-control issues (Ryan, 1995; Ubbes, 1991). Gymnasts always think of how to compete within their weight class. Reginald *et al.* (2005) observed that gymnastics emphasizes thinness, leanness and/or competing at the lowest possible weight. The emphasis on thinness and appearance, according to Zaggelidis *et al.* (2005), encourages the gymnasts to closely focus on their weight and caloric intake. Smiley *et al.* (2008) noted that in sports in which the uniforms are relatively revealing, the human body is often highlighted. The body hugged and fitted gymnastics attire especially the leotard or unitard sometimes worn with tights reveals the body physique of gymnasts. Because of this, gymnasts are often self-conscious of their body physique, thereby necessitating every efforts of having a pleasant body physique. Gymnasts are often struggling with losing weight rather than gaining weight.

There are a variety of weight-control behaviours that may cause weight loss (Spelke, 1997). Athletes report engaging in weight control behaviours to increase performance or to successfully compete in their sport (Davis, 1992; Sykora *et al.*, 1993). The weight-control behaviours athletes employ are not always appropriate or healthy (Round-Table, 1985). Studies (Brownell and Rodin, 1992; Ashley, 1996; Perriello, 2001) have shown that in an attempt to lose weight and body fat, some athletes resort to unhealthy weight-control practices.

Among highly competitive athletes, unhealthy eating behaviours are rampant (Dummer *et al.*, 1987a; Ryan, 1995). Unhealthy attempts at weight-control include disordered eating (Rosen *et al.*, 1986; Black and Burckes-Miller, 1988). Dummer *et al.* (1987a) reported that athletes engage in behaviours such as taking pills,

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diuretics and laxatives to control their weight. In attempts to lose weight, Ubbes (1991) reported that majority of the gymnasts skipped breakfast or lunch daily. Also, Loosli *et al.* (1986) found that over 40% of gymnasts consumed diets that provided less than two-thirds of the daily recommendation for calcium, vitamin B6, iron and zinc. Harris and Greco (1990) reported that 61% of their sample was trying to lose weight, while Rosen and Hough (1988) found that all of the gymnasts in their study were dieting. Petri and Stoever (1993) reported the frequent use of pathogenic weight control methods by gymnasts.

In a study conducted in United States by French *et al.* (1999), majority of the adults increase exercise; decrease fat intake; reduce food amount and reduce calories to lose weight. Use of steroids among student-athletes is well documented (Chng and Moore, 1990). Spelke (1997) noted that unhealthy eating behaviours and illegal drugs are often employed in an effort to achieve a perceived ideal weight for a given sport. The weight-loss practices include; voluntary dehydration (Gisolfi and Duchman, 1992; Reginald *et al.*, 2005), food restriction and over-exercising (Johnson, 1994) and vomiting, using rubber suits, steam baths or saunas, using anorexic drugs, laxatives, diuretics, diet pills, nutritional supplements (Reginald *et al.*, 2005). Again decrease in energy or calories intake; increase in calories expenditure and increase fluid intake (Perriello, 2001; Reginald *et al.*, 2005) are also weight-loss practices.

Athletes may practice weight-control methods during the sports season only or year-round (Reginald *et al.*, 2005). Most athletes who want to either lose or gain weight are motivated by a desire for improved appearance, better performance, or perceived competitive advantage (Perriello, 2001) and Rivers state gymnasts cannot be exempted. Gymnasts are most likely to vigorously seek to lose weight during pre-competition and competition periods.

Gymnasts are often encouraged by their coaches to watch their weight. In effort to watch the weight, gymnasts resort to different weight-loss practices. Considering the health and performance effects of some of the weight-loss practices, there is need to establish the weight-loss practices adopted by the gymnasts for possible intervention if need be. From literature review, studies have so much been carried out on female gymnasts (Rosen *et al.*, 1986; Rosen and Hough, 1988; Harris and Greco, 1990; Petri and Stoever, 1993). A study involving both male and female gymnasts to the best knowledge of the researcher has not been conducted in developing countries like Nigeria and Rivers state in particular. Hence, the purpose of the study was to explore the weight-loss practices of Rivers state gymnasts and the influence of demographic factors (gender, age and years of sporting experience) on the weight-loss practices of the gymnasts. The study postulates that gender, age and years of sporting experience may not have significant influence on the weight-loss practices of the gymnasts.

MATERIALS AND METHODS

A cross-sectional survey design was employed for the study. The population for the study comprised all the gymnasts in Rivers state. Eighteen gymnasts constituted the sample for the study. The instrument for data collection was 11-item structured questionnaire. The questionnaire was validated by three experts in the fields of Nutrition, Human Kinetics and Health Education and Medicine. In order to establish the reliability of the instrument, split-half method was used after administering ten copies to Imo state gymnasts. The instrument with Pearson product moment correlation in conjunction with Spearman-Brown prophecy statistic yielded a co-efficient of 0.79. Eighteen copies of questionnaire were administered to the gymnasts with the help of the gymnastics coach and captain after their practice session. All the copies of the questionnaire were returned the next day, thereby giving 100% return rate. Percentage and chi-square statistics were used to analyze the data.

RESULTS

Weight-loss practices: Table 1 shows that 14 (77.78%) gymnasts decrease their consumption of calories and 16 representing 88.89% of the gymnasts increase their expenditure of calories through exercise to lose weight. Only 2 (11.11%) of the participants use drugs and 4 (22.22%) use nutritional supplements to lose weight. Data in the Table 1 show that 17 (94.44%) participants restrict themselves from food, 15 (83.33%) over-exercise and voluntarily reduce fluid intake, respectively, to lose weight. On the other hand, none (0.00%) of the gymnasts use steam baths or sauna to lose weight.

Table 1: Weight-loss practices of the gymnasts

Practices	f	%
Decrease consumption of calories	14	77.78
Increase expenditure of calories through exercise	16	88.89
Food restriction	17	94.44
Over-exercising	15	83.33
Use of drugs	2	11.11
Use of nutritional supplements	4	22.22
Voluntary fluid reduction or dehydration	15	83.33
Use of steam baths or sauna	0	0.00

Influence of gender on weight-loss practices: Table 2 showed the differences in the proportion of the weight-loss practices of male and female gymnasts. It was apparent that the gymnasts decreased their consumption of calories (73.33% males; 100.00% females); restrict food (93.33% males; 100.00%

Table 2: Proportion of gymnasts who engaged in weight-loss practices based on gender

Practices	Male (n = 15) %	Female (n = 3) %	chi square cal.	chi square crit.
Decrease consumption of calories	73.33	100.00	1.87	3.841
Increase expenditure of calories through exercise	93.33	66.67	4.80*	3.841
Food restriction	93.33	100.00	5.47*	3.841
Over-exercising	86.67	66.67	3.33	3.841
Use of drugs	6.67	33.33	4.80*	3.841
Use of nutritional supplements	6.67	100.00	5.47*	3.841
Voluntary fluid reduction or dehydration	80.00	100.00	2.80	3.841
Use of steam baths or sauna	0.00	0.00	7.20*	3.841
Cluster %	55.00	70.83		

df = 1; p<0.05; *significant; cal. means calculated; crit. means critical

females); use of nutritional supplements (6.67% males; 100.00% females) and voluntary fluid reduction (80.00% males; 100.00% females). Above all, the Table showed that greater proportion of female gymnasts (70.83%) than male gymnasts (55.00%) engaged in weight-loss practices. It was found that gender had significant influence on gymnasts' increase expenditure of calories through exercise (chi square cal. 4.80 > chi square crit. 3.841, p<0.05, df 1), food restriction (chi square cal. 5.47 > chi square crit. 3.841, p<0.05, df 1), use of drugs (chi square cal. 4.80 > chi square crit. 3.841, p<0.05, df 1), use of nutritional supplements (chi square cal. 5.47 > chi square crit. 3.841, p<0.05, df 1) and use of steam baths or saunas (chi square cal. 7.20 > chi square crit. 3.841, p<0.05, df 1) to lose weight. On the other hand, gender had significant influence on gymnasts' decrease consumption of calories (chi square cal. 1.87 < chi square crit. 3.841, p<0.05, df 1), over-exercise (chi square cal. 3.33 < chi square crit. 3.841, p<0.05, df 1) and voluntary fluid reduction or dehydration (chi square cal. 2.80 < chi square crit. 3.841, p<0.05, df 1) to lose weight.

Influence of age on weight-loss practices: Data in Table 3 revealed the differences that exist in the proportion of gymnasts aged less than 25 years and those who are 25 years and above in their weight-loss practices. Prominent among them are decreased in consumption of calories (71.43% gymnasts < 25 years; 100.00% gymnasts ≥ 25 years); food restriction (92.86% gymnasts < 25 years; 100.00% gymnasts ≥ 25 years); increase expenditure of calories through exercises (85.71% gymnasts < 25 years; 100.00% gymnasts ≥ 25 years), and voluntary fluid reduction (78.57% gymnasts < 25 years; 100.00% gymnasts ≥ 25 years). In addition, the table revealed that gymnasts' age had significant influence on the increase expenditure of calories through exercise (chi square cal. 4.02 > chi square crit. 3.841, p<0.05, df 1), food restriction (chi square cal. 5.45 > chi square crit. 3.841, p<0.05, df 1), over-exercising (chi square cal. 4.45 > chi square crit. 3.841, p<0.05, df 1), use of drugs (chi square cal. 6.16 > chi square crit. 3.841, p<0.05, df 1), use of nutritional supplements (chi square cal. 4.45 > chi square crit. 3.841, p<0.05, df 1) and use of steam baths or saunas (chi square cal. 7.16 > chi square crit. 3.841, p<0.05, df 1) to lose weight. It could be seen from the table that gymnasts' age had no significant influence on their decrease consumption of calories (chi square cal. 2.02 < chi square crit. 3.841, p<0.05, df 1) and voluntary fluid reduction or dehydration (chi square cal. 2.88 > chi square crit. 3.841, p<0.05, df 1) to lose weight.

Influence of years of sporting experience on weight-loss practices: Differences in proportions are found in the weight-loss practices of gymnasts with less than 2 years and those with 2 years and above of sporting experience as could be seen in Table 4. Among the differences in the weight-loss practices are increased expenditure of calories through exercise (80.00% gymnasts < 2 years of sporting experience; 100.00% gymnasts ≥ 2 years of sporting experience); food restriction(90.00% gymnasts < 2 years of sporting experience; 100.00% gymnasts ≥ 2 years of sporting experience); over-exercising and voluntary fluid reduction (70.00% gymnasts < 2 years of sporting experience; 100.00% gymnasts ≥ 2 years of sporting experience). Data in the table showed that years of sporting experience had significant influence on gymnasts' increase expenditure of calories through exercise (chi square cal. 4.31 > chi square crit. 3.841, p<0.05, df 1), food restriction (chi square cal. 5.51 > chi square crit. 3.841, p<0.05, df 1), use of drugs (chi square cal. 4.61 > chi square crit. 3.841, p<0.05, df 1) and use of steam baths or saunas (chi square cal. 7.11 > chi square crit. 3.841, p<0.05, df 1) to lose weight. The study showed that years of sporting experience had significant influence on gymnasts' decrease consumption of calories (chi square cal. 2.01 < chi square crit. 3.841, p<0.05, df 1), over-exercise (chi square cal. 3.51 < chi square crit. 3.841, p<0.05, df 1), use of nutritional supplements (chi square cal. 2.51 < chi square crit. 3.841, p<0.05, df 1) and voluntary fluid reduction or dehydration (chi square cal. 3.15 < chi square crit. 3.841, p<0.05, df 1) to lose weight.

Table 3: Proportion of gymnasts who engaged in weight-loss practices based on age

Practices	Less than 25 years (n = 14) %	25 years and above (n = 4) %	chi square cal.	chi square crit.
Decrease consumption of calories	71.43	100.00	2.02	3.841
Increase expenditure of calories through exercise	85.71	100.00	4.02*	3.841
Food restriction	92.86	100.00	5.45*	3.841
Over-exercising	92.86	50.00	4.45*	3.841
Use of drugs	0.00	50.00	6.16*	3.841
Use of nutritional supplements	7.14	75.00	4.45*	3.841
Voluntary fluid reduction or dehydration	78.57	100.00	2.88	3.841
Use of steam baths or sauna	0.00	0.00	7.16*	3.841
Cluster %	41.96	71.88		

df = 1; p<0.05; *significant; cal. means calculated; crit. means critical

Table 4: Proportion of gymnasts who engaged in weight-loss practices based on years of sporting experience

Practices	Less than 2 years (n = 10) %	2 years and Above (n = 8) %	chi square cal.	chi square crit.
Decrease consumption of calories	70.00	87.50	2.01	3.841
Increase expenditure of calories through exercise	80.00	100.00	4.31*	3.841
Food restriction	90.00	100.00	5.51*	3.841
Over-exercising	70.00	100.00	3.51	3.841
Use of drugs	0.00	25.00	4.61*	3.841
Use of nutritional supplements	10.00	37.50	2.51	3.841
Voluntary fluid reduction or dehydration	70.00	100.00	3.15	3.841
Use of steam baths or sauna	0.00	0.00	7.11*	3.841
Cluster %	48.75	68.75		

df = 1; p<0.05; *significant; cal. means calculated; crit. means critical

DISCUSSION

It was found that majority of the gymnasts decreased their consumption of calories, increased their expenditure of calories through exercise, restrict food, over-exercise and engage in voluntary fluid reduction or dehydration to lose weight. It was not surprising that these gymnasts used both healthful and harmful measures to lose weight provided they have expected physical appearance and high performance and competitive advantage are achieved. To the gymnasts the harmful means may appear to be faster than the healthful means to lose weight. The finding that gymnasts restrict food to lose weight was in agreement with Ubbes (1991) who found that 66% of the gymnasts she surveyed skipped breakfast and lunch daily. Supporting the finding, French *et al*. (1999) reported that majority of the adults increase exercise, decrease fat intake, reduce food amount and reduce calories to lose weight. It is interesting that none (0.00%) of the gymnasts use steam baths or sauna to lose weight.

Higher proportion of males as could be seen in Table 2 increased their expenditure of calories through exercise and over-exercise than females to lose weight. This is supported by Weiss *et al*. (2006) who reported that among the adults who tried to lose weight, men were significantly more likely than women to exercise. On the other hand, more females than males engage in use of drugs, nutritional supplements, voluntary fluid reduction, and decrease in calories consumption to lose weight. Men were significantly less likely than women to use a liquid diet formula, join a weight-loss program, take diet pills prescribed by a doctor, take other pills, medicines, herbs or supplements not needing a prescription and drink a lot of water (Weiss *et al*., 2006). This was supported by Spelke's (1997) finding that females are losing weight with greater frequency. The finding corroborates with Weiss *et al*. (2006) finding that women had a higher prevalence of trying to lose weight. The finding was expected because females are more dissatisfied with their weight, body image and always perceive themselves to be overweight. As a result of this, they always engaged more in weight-loss practices. Gender had significant influence on majority of the weight-loss practices of the gymnasts. The finding was in agreement with Spelke's (1997) result that there was a significant relationship between the weight-control behaviours of student athletes and sex of the athletes.

The finding that gymnasts who are 25 years and above (71.88%) engaged in weight-loss practices than those aged less than 25 years (41.96%) showed difference. The finding was in corroboration with O'Dea and Caputi (2001) who reported that there were age differences in adolescents' weight control practices, but the finding of this study in relation to age and weight-loss was not surprising. This is because as the gymnasts' age

increases at adolescent and early adulthood, the bones and muscles increase in size thereby contributing to proportionate increase in weight. These gymnasts who are 25 years and above with much weight are more likely to be bothered on losing weight than those who are less than less than 25 years. Age had significant influence on majority of the weight-loss practices of the gymnasts. The finding was in disagreement with Neumark-Sztainer *et al.* (2002) report that weight control/disordered eating behaviours were not associated with age. The finding was also not in agreement with Knoke and Barrette-Connor's (2003) finding that there was no significant interaction between weight loss and age in men or women.

Gymnasts with 2 years and above of sporting experience (68.75%) engaged in weight-loss practices than their counterparts with less than 2 years of sporting experience (48.75%). Gymnasts with 2 years and above of sporting experience are likely to be much older and as such may have much weight compared to those with less than 2 years of sporting experience. Some of the gymnasts with 2 and above as their years of sporting experience may have made some records which they will like to maintain and seeing weight-loss as a means, they will not hesitate. Years of sporting experience had significant influence on majority of the weight-loss practices of the gymnasts.

Conclusion and recommendations: Gymnasts in order to meet the weight requirement of their sport, have improved performance, body image and competitive advantage over their opponents, engaged in both healthful and harmful weight-loss practices. The harmful weight-loss practices have been established to have deleterious effects on the health and performance of athletes including gymnasts. Hence, there is need for intervention aimed at preventing the gymnasts from engaging in harmful weight-loss practices. Based on this, the following recommendations are made.

- Gymnasts should be educated on the health and performance effects of engaging in harmful practices of losing weight through seminars. The healthy weight-loss strategies especially healthy nutrition and exercises should be emphasized.
- The weight of the gymnasts should be monitored, checked and examined regularly by the coaches, sports director, with the help of medical and paramedical (nutritionists/dieticians) personnel to know the rate at which a gymnast is losing weight and possibly detect those using harmful means to lose weight.
- The mass media should assist in disseminating information on health implications of harmful weight-loss practices.
- Weight management education should be integrated into the school curriculum. The healthy weight management strategies should be emphasized in the class.
- Gymnasts' parents/guardians, coaches, sports director, peers, friends, siblings and other stakeholders should be sensitized on the weight-loss practices. This will enable them to discourage any gymnast planning to adopt unhealthy weight-loss measures.

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