IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)
e-ISSN: 2279-0853, p-ISSN: 2279-0861.Volume 17, Issue 8 Ver. 10 (August. 2018), PP 08-13
www.iosrjournals.org

Knowledge of Nutrition and Attitude towards Food Supplements among Sportsperson In Manipur

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Abstract: ***Background:*** *Nutrition plays a very important role in attaining high level of achievements in sports. This study carried out to assess the knowledge regarding nutrition and attitude towards food supplements among sportsperson in Manipur and its association between various socio-demographic variables like age, sex, education level etc.* ***Methods:*** *A cross-sectional study was conducted from August to September2016, among currently registered sportsperson in Sports Authority of India, Manipur. A self-administered questionnaire was used to collect the data and analyzed using SPSS-version-21.Descriptive statistics like percentage, mean and standard deviation were used. Chi-square test was used for testing the significance between proportions. A p-value of <0.05 was taken as significant.* ***Results:*** *Out of 453 respondents, 60.7% were males and the mean age was 21.3±2.1. Only 4% of the participants had adequate knowledge about sports nutrition. One-third (33.3%) of those participants whose family member were also engaged in sports had better knowledge (p-value 0.004). Boxers (56.9%), taekwondo (43.2%) and weightlifters (30.2%) had better knowledge and this was significant (p-value 0.002). Majority (57.4%) showed favourable attitude towards food supplement.* ***Conclusion:*** *Less than half of the participants had adequate knowledge regarding nutrition and half of them had favourable attitude towards food supplements. Boxer had better knowledge than other discipline.*

Key words*: Nutrition, Sportsperson, Sports Authority of India, Knowledge, Attitude, Food supplement.*

Date of Submission: 14-08-2018 Date Of Acceptance: 30-08-2018

I. Introduction

Manipur has given birth to olympians and world champions who has not only made Manipur, but whole India proud. The State has many potential boys and girls who could compete in the world of sports. Nutrition plays a very important role in attaining high level of achievements in sports. Selection of nutrients, timing of intake and proper supplement choices are associated with optimal health and performance. Lack of nutrition knowledge can lead to questionable dietary practices or behaviour which in turn affects adversely their health and performance.

Taking into consideration the fact that sportspersons need more energy to carry out their sporting activity effectively, it becomes of prime importance to take care of the nutrition for sports performance. Understanding athletes' knowledge and attitude towards nutrition along with factors that influence their nutrition practice can have tremendous effect on their performance. A short term nutritional educational programme can significantly improve knowledge of nutrition and sports supplement. There is lack of study on sportspersons regarding their nutrition in Manipur. The purpose of the study was to determine the knowledge regarding nutrition and the attitude towards food supplement among sportspersons; secondary objective was to determine association between knowledge with various socio demographic variables like age, sex, education level.

II. Material And Methods

A cross sectional study was conducted in 4 centres of Sports Authority of India (SAI) North East Regional Centre, Manipur. State Training Centre (STC), Takyel, Centre of Excellence (COE), Takyel, SAI Special Area Sports, Khuman Lampak and Utlou SAI from August to September 2016. All sportspersons in Manipur including those who participated both national and state sporting events and registered in those centers were included. Those who refused to participate and who were on leave on the day of visit were excluded.

Study Design: Cross- sectional study design.

Study Location: 4 centres of Sports Authority of India (SAI) North East Regional Centre, Manipur. State Training Centre (STC), Takyel, Centre of Excellence (COE), Takyel, SAI Special Area Sports, Khuman Lampak and Utlou SAI.
Study Duration: August 2016 to September 2016.
Sample size: 452 athletes
Sample size calculation: Sample size was calculated based on prevalence rate of 84%[2] with a confidence level of 95%,and absolute allowable error of 5%. Taking non-response rate as 10% and a design effect of 2, we got sample size of 452.
Sampling: We intended to cover all who were present and willing to participate in the study.

Inclusion criteria:
All sportspersons in Manipur including those who participated both national and state sporting events and registered in those centers.

Exclusion criteria:
1. Those who refused to participate
2. Those who were on leave on the day of visit were excluded.

Study tools:
For measuring weight, standardization of the digital weighing scale was done every day before going for data collection. The weighing scale was placed on a flat hard surface, the participants were asked to stand barefoot with light clothing in the centre of the weighing scale and was asked to look straight forward. Weight was recorded to the nearest 100gm. Rossmax Digital weighing scales (Switzerland) with 100 grams accuracy was used. A stadiometer was placed on a firm and even floor and used for measuring the height of the participants. The participants were made to stand on the stadiometer straight on bare foot. The feet were placed together, knees straight and heels, buttocks and shoulder in contact with pole behind making the back as straight as possible. Arms were hanging loosely by the sides of the body with palm facing the respective thighs and the participant looking forward. Stadiometer (Seca- Germany) was used. Self-administered questionnaire in English was used to collect the data. The questionnaire consisted of socio demographic, knowledge questions towards nutrition and attitudes towards food supplement.

Outcome Variable:
Dependent variables were knowledge (adequate or inadequate knowledge) and attitude (favourable or unfavourable attitude).

Data collection:
Prior to the study, a written permission from the authority was sought. Participants in each field were collectively given an explanation about the study and its importance and requested to participate. After explaining the purpose of the study, an informed oral consent and assent from those <18 years weretaken from all the participants. Each part of the questionnaire was explained and then distributed to the participants while asking them to clarify any doubts they might still have. They were also asked to write in Manipuri if they could not express themselves clearly in English. The height and weight were measured by the investigators after collecting the questionnaire. Independent variables like age, sex, educational qualification, district of residence, stream of sport, period of engagement in sports, practice duration per day family members involvement in sports and level of participation were taken into account. Dependent variables were knowledge (adequate or inadequate knowledge) and attitude (favourable or unfavourable attitude).

Operational definition:
Food supplements are defined as concentrated sources of nutrients or other substances with a nutritional or physiological effect that increases the overall dietary intake by supplementing the normal diet. Sports drink was defined as beverage whose stated purpose is to help athlete replace water, electrolytes and energy after training or competition.

Two marks were given for each correct answer in knowledge questions. Those who score more than or equal to 60% are considered to have adequate knowledge. Out of 23 knowledge statement, there were 5 questions each for macronutrients and micronutrients, 8 questions on hydration including sport-drink, 3 on balanced diet and 2 on practicality of knowledge. For each attitude statement carries minimum of 1 and a maximum of 5 in a Likert scale. The total score ranges from the maximum score of 30 to minimum score of 6. Those who score more than or equal to 24 are considered as having favourable attitude, and less than 24 are considered as having unfavourable attitude. Statement number 1 and 3 are reverse scoring. Carbohydrate

loading: A strategy used by endurance athletes such as marathon runners to maximize the storage of glycogen in muscles and liver. For body mass index (BMI) classification Asian standard was used.

Statistical analysis: After checking for completeness and consistency, the data collected were entered in IBM SPSS version 21.Descriptive statistics like mean, SD and percentages were used. Chi-square test and Fisher's exact were used for finding an association between proportions. A p-value of < 0.05 was considered statistically significant.

Ethical issue: Approval was sought from the Research Ethics Board RIMS, Imphal. Permission was taken from the Director of Sports Authority of India, Takyel and all the centre in-charges. Verbal informed consent was taken from the participants and their coaches before collecting information and conducting study. Data collected were deidentified and link with codes. Collected data can be accessed only by the investigators and the files were kept in secure place.

III. Result

A total of 453 athletes participated out of 812 registered athletes. Majority of the participants were male athletes (60.7%). Only 41.9% had adequate knowledge about nutrition but majority (57.4%) showed favourable attitude when it comes to food supplements. Mean age of the participants was 16.4±2.7years ranged from 9 to 28 years. Majority (66.7%) of the participants had normal BMI with only 6.4% were obese. 55.2% had participated at the National level. Maximum of them (61.1%) didn't have any of their family members engaging in sports (SAI). Most of the participants were from valley districts (95.1%). Half of the participants (54.3%) changed their dietary pattern at the time of competition. Maximum (78%) drank water 10-15 min prior to the event in a competition (Table 1). Maximum of the participants were footballers (16.6%) followed by weightlifter (11.7%) with only 0.7% were from track and field discipline (Fig.1).

Those who did not have any family member engaged in sports had better knowledge (47.5%) and this was statistically significant (p-value=0.004). Boxers had better knowledge than other disciplines (56.9%: p-value= 0.002) and found to be statistically significant (Table 2). There were no associations found in age, gender, educational qualification, level of participations, months of experience and BMI with the knowledge regarding nutrition (Table 2). Majority (61.4%) in the age group 15 to 24 years has favourable attitude towards the nutritional supplements and this was statistically significant (p-value=0.016). Those who were in 8^{th} -12^{th} standard has favourable attitude (60.2%) toward supplements and this was statistically significant (p-value=0.003). Archers had more favourable attitude when compared with other discipline (80.5%) and found to be significant as well (p-value=0.002). Those who consumed sports drinks frequently and those who consumed food supplement has favourable attitude than those who never consumed sports drink and food supplements and was significant (p-value=<0.001 and p-value=<0.001) respectively. There were no associations found in gender, level of participations and months of experience with the attitude towards food supplements (Table 3).

Table no 1: Demographic characteristics of the participants.

Characteristics	N(%)
Gender	
Male	**275(60.7)**
Female	**178(39.3)**
Age(in years)	
<15	**115(25.4)**
15-24	**334(73.7)**
≥25	**3(0.7)**
Education	
>12thStd	**40(8.8)**
8-12 Std	**358(79)**
<8thStd	**55(12.1)**
Level of participation	
International	**31(6.8)**
National	**250(55.2)**
Regional	**15(3.3)**
State	**94(20.8)**
District	**63(13.9)**
BMI	
Underweight	**73(16.1)**
Normal	**302(66.7)**
Overweight	**49(10.8)**
Obesity grade 1	**24(5.3)**
Obesity grade 2	**5(1.1)**
Years of experience in years(n=451)	
<3	**251(55.7)**
3-6	**157(34.8)**
>6	**43(9.5)**

Dietary pattern changed during competition	
Yes	**246(54.3)**
No	**207(45.7)**
Response to Intake of water prior to competition	
Yes	**353(78)**
No	**100(22)**

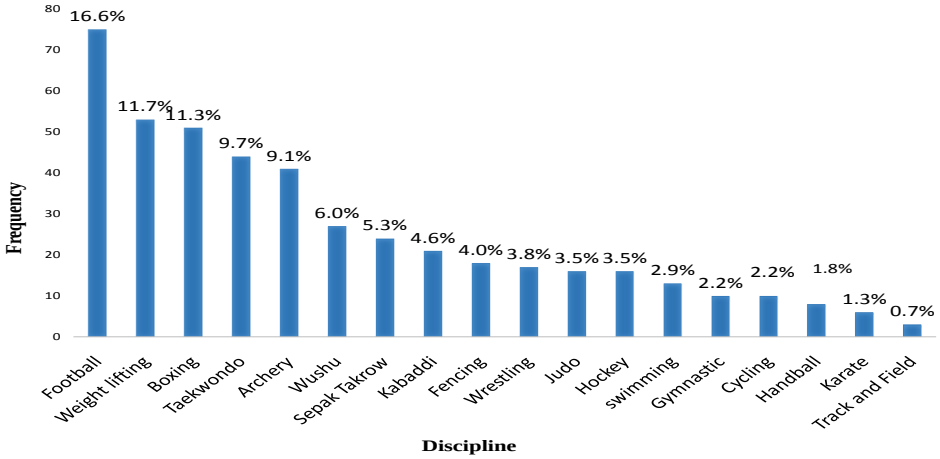

Figure no 1. Distribution of participants in different discipline.

Table 2. Association between knowledge regarding nutrition and background characteristics.

Variables	Knowledge N(%)		P-value
	Inadequate	Adequate	
Age			
<15	67(58.3)	48(41.7)	
15-24	192(57.5)	142(42.5)	0.331
≥25	3(100)	0	
Gender			
Male	166(60.4)	109(39.6)	0.216
Female	97(54.5)	81(45.5)	
Educational qualification			
<8thStd	32(58.2)	23(41.8)	
8-12thStd	206(57.5)	152(42.5)	0.834
>12thStd	25(62.5)	15(37.5)	
Family member engaged in sports			
Yes	115 (66.5)	58 (33.5)	
No	146 (52.5)	132 (47.5)	0.004
Level of participation			
International	19(61.3)	12(38.7)	
National	142(56.8)	108(43.2)	
Regional	8(53.3)	7(46.7)	0.170
State	49(52.1)	45(47.9)	
District	45(71.4)	18(28.6)	
Months of experience			
≤ 36	145 (57.8)	106 (42.2)	
37-72	94 (59.9)	63 (40.1)	0.862
≥73	24 (55.8)	19 (44.2)	
BMI			
Underweight	41 (56.2)	32 (43.8)	
Normal	172 (57.3)	128 (42.7)	0.589
Obese*	50 (63.3)	29 (36.7)	
Streams (264)**			
Football	56(74.7)	19(25.3)	
Weight lifting	37(69.8)	16(30.2)	0.002
Boxing	22(43.1)	29(56.9)	
Archery	30(73.2)	11(26.8)	
Taekwondo	25(56.8)	19(43.2)	

* Obese = Overweight, obese grade 1 and obese grade 2
** Comparing only selected streams

Table 3. Association between attitude towards food supplements and background characteristics.

Variables	Attitude, N(%)		p-value
	Unfavourable	Favourable	
Age in years			
<15	62 (53.9)	53 (46.1)	0.016
15-24	129 (38.6)	205 (61.4)	
≥ 25	1(33.3)	2(66.7)	
Gender			
Male	113(41.1)	162(58.9)	0.418
Female	80 (44.9)	98 (55.1)	
Educational qualification			
<8thStd	35(63.6)	20(36.4)	
8th -12thStd	141(39.4)	270(60.6)	0.003
>12thStd	17(42.5)	23(57.5)	
Level of participation			
International	13(41.9)	18(58.1)	
National	107(42.8)	143(57.2)	
Regional	4(26.7)	11(73.3)	0.113
State	34(36.2)	60(63.8)	
District	35(55.6)	28(44.4)	
Months of experience			
≤ 36	109 (43.4)	142 (56.6)	0.744
37 to 72	66 (42.0)	91(58.0)	
≥ 73	16 (37.2)	27 (62.8)	
Stream#			
Football	27 (36)	48 (64)	
Weight lifting	29 (54.7)	24 (45.3)	0.002
Boxing	15(29.4)	36(70.6)	
Archery	8(19.5)	33(80.5)	
Taekwondo	22(50)	22(50)	
How often you consume sports drinks?			
Everyday			
> Once a week	124 (40.0)	186 (60.0)	<0.001
>Once a month	25 (33.3)	50 (66.7)	
Never	9 (52.9)	8 (47.1)	
	35 (68.6)	16 (31.4)	
Have you ever used food supplement			
Yes			
No	77 (31.7)	166 (68.3)	<0.001
	116 (55.2)	94 (44.8)	

#comparing only streams of interest

IV. Discussion

The current study was done to determine the knowledge and practice regarding the nutrition and attitude toward the food supplements and to determine the association between knowledge, attitude and demographic variable.In this study, nearly half of the athletes have adequate knowledge about the nutritionin contrast to study conducted by Torres et al[8] where the athletes have only 9%adequate knowledge but lesser than the study by Folasireet al[3] (58.2%). The possible reason for this higher knowledge score might be because of awareness about nutrition has been considered more important in sports and was more exposed to international and national levels.There was strong association between the participants whose family members were engaged in sports and inadequate nutritional knowledge (p-value=0.004), this could be due to the lower educational level of the participants. Boxers had better knowledge (56.9%) than other disciplines; this could be because most of the boxers have participated at higher level of competition and this was in contrast to study byTorres-McGehee et al[7] where track and field athletes had better knowledge.

Favourable attitude towards food supplements was seen with the age group who were 15 and above and it was statistically significant (p-value= 0.005) and this is in contrast to study conducted by Al-Ghobain et al.[22]Those athletes who were in higher standard in education have more favourable attitudes toward food supplements(p-value=0.003), and the findings was similar to study carried out by Azizi et al in Iran among college athletes.[4]This could be because they were more aware of the food supplements and its benefits. Those who were in archery discipline were found to have more favourable attitude towards food supplements as compared to other discipline, as most of the archers were International players and many of them have used food supplements at least once.This was in contrast to study by Rash et al[10] where he have found positive attitude in track and field athletes. Those who consumed energy sports drink more frequently were found to have favourable attitude towards food supplements because they felt that it also a food supplements to enhance their performance.

It is probably one of the first studies in the state of Manipur which has highlighted the knowledge and attitudes of sportspersons in Manipur for future references. We achieved the sample size we aimed for. Height

and weight were measured for accurate BMI with proper procedure and calibrated standard instruments rather than utilizing reported one. Friendly and healthy interaction with the participants during data collection which increases the quality of data collected. But the questionnaire used was not validated so it gave opportunity for potential bias in their information. There could be room for selection bias because of high non-response rate as many of the athletes went for tour at the time of our data collection. So it gives a space for the longitudinal study in the future using validated questionnaire

V. Conclusion

Less than half have adequate knowledge about sports nutrition but more than half of the participants have favourable attitude towards food supplement. Those who did not any family member engaged in sports and boxers were associated with better knowledge about nutrition. Older age, higher educational level, archers, those consumed sports drinks and who used food supplements were associated with more favourable attitude. Sports person should be educated with sports nutrition and balanced diet. Further studies with longitudinal study design covering more sports person can be done.

References

[1]. Bano R, Al-Shammari E, Fatima SB, Al-Shammari NA. A comparative study of knowledge, attitude, practice of nutrition and non-nutrition student towards a balanced diet in Hail University. IOSR Journal of Nursing and Health Science (IOSR-JNHS) 2013;2:29-36.

[2]. Priyadarsini A, Ramaswamy L, Sindhu R. Effect of Nutrition Education on Knowledge, Attitude and Practices of Sports Person with Special Reference to Zinc. International Journal of Innovative Research and Development. 2015 May 31;4(5):204-8.

[3]. Folasire OF, Akomolafe AA, Sanusi RA. Does Nutrition Knowledge and Practice of Athletes Translate to Enhanced Athletic Performance? Cross-Sectional Study Amongst Nigerian Undergraduate Athletes. Glob J Health Sci 2015 Sep;7(5):215-21.

[4]. Azizi M, Rahmani-Nia F, Malaee M, Malaee M, Khosravi N. A study of nutritional knowledge and attitudes of elite college athletes in Iran. Braz. J Biomotricity 2010 Jun 1;4(2):105-12.

[5]. Weissman J, Magnus M, Niyonsenga T, Sattlethight AR. Sports nutrition knowledge and practices of personal trainers. J Community Med Health Educ 2013 Nov 22;3(7):254.

[6]. Hornstrom GR, Friesen CA, Ellery JE, Pike K. Nutrition knowledge, practices, attitudes, and information sources of mid-american conference college softball players. **Food Nutr Sci** 2011 Apr 26;2(02):109.

[7]. Torres-McGehee TM, Pritchett KL, Zippel D, Minton DM, Cellamare A, Sibilia M. Sports nutrition knowledge among collegiate athletes, coaches, athletic trainers, and strength and conditioning specialists. J *Athl* Train. 2012 Mar;47(2):205-11.

[8]. Dunn D, Turner LW, Denny G. Nutrition knowledge and attitudes of college athletes. Sport J 2007 Sep 22;10(4):45-52.

[9]. Webb MC, Beckford SE. Nutritional knowledge and attitudes of adolescent Swimmers in Trinidad and Tobago. J Nutr Metab. 2014 Feb 11;2014:1-7..

[10]. Rash CL, Malinauskas BM, Duffrin MW, Barber-Heidal K, Overton RF. Nutrition-related knowledge, attitude, and dietary intake of college track athletes. Sport J 2008 Jan 1;11(1):48-54.

[11]. Nazni P, Vimala S. Nutrition knowledge, attitude and practice of college sportsmen. Asian J Sports Med. 2010 Jun;1(2):93-100.

[12]. Supriya V, Ramaswami L. Knowledge, attitude and dietary practices of track and field athletic men and women aged 18-22 years. International Journal of Innovative Research and Development|| ISSN 2278–0211. 2013 Nov 30;2(11):203-12.

[13]. Trabucco G, Nikoić M, Mirković BV. Nutritional Knowledge and Behavior Among Students Practicing Sports: Comparison Between Two Countries. Acta Fac. med. Naiss. 2013 Dec 1;30(4):201-8.

[14]. Ozdoğan Y, Ozcelik AO. Evaluation of the nutrition knowledge of sports department students of universities. J Int Soc Sports Nutr. 2011 Sep 5;8(1):1-8.

[15]. Yueching W, Yi-Chia H. Is the College environment adequate for accessing to nutrition education: A study in Taiwan. Nutr Res.1999;19:1327-37.

[16]. Schmalz, K. Nutrition beliefs and practices of adolescent athlete's. J Sch Nurs. 1993;9(2):18-22.

[17]. Smith-Rockwell M, Nickolls-Richardson SM, Thye FW. Nutrition knowledge, opinions, and practices of coaches and athletic trainers at a division 1 university. Int J Sport Nutr Exerc Metab2001;11(2):174-85.

[18]. Jacobson BH, Aldana SG. Current Nutrition Practice and Knowledge of Varsity Athletes. J Strength Cond Res.1992 Nov 1;6(4):232-8.

[19]. Clark N: Nancy Clark's Sports Nutrition Guidebook. 3 edition. Champaign IL: Human Kinetics; 2003.

[20]. Froiland K, Koszewski W, Hingst J, Kopecky L. Nutritional supplement use among college athletes and their sources of information. Int J Sport Nutr Exerc Metab 2004 Feb;14(1):104-20.

[21]. Nieper A. Nutritional supplement practices in UK junior national track and field athletes. Br J Sports *Med*2005 Sep 1;39(9):645-9.

[22]. Al Ghobain M, Konbaz MS, Almassad A, Alsultan A, Al Shubaili M, AlShabanh O. Prevalence, knowledge and attitude of prohibited substances use (doping) among Saudi sport players. Subst Abuse Treat Prev *Policy* 2016 Dec;11(1):14.

Brogen Singh Akoijam. " Knowledge of Nutrition and Attitude towards Food Supplements among Sportsperson In Manipur.."IOSR Journal of Dental and Medical Sciences (IOSR-JDMS), vol. 17, no. 8, 2018, pp 08-13.