



## Dietary habits and nutritional knowledge of athletes in Amhara region, North-West Ethiopia

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### Abstract

Athletes who have the knowledge and understanding of how they eat and what they eat and reflect this knowledge to their total daily needs and athletic performances are considered to be more successful in their athletics life. The aim of this study was to survey the eating habits and nutritional knowledge of athletes in Amhara region, with a view to uncovering problems and cultivating desirable dietary habit and nutrition for athletes. The data were collected via questionnaire from 69 athletes (M=25, F=44)  $50.14 \pm 5.43$  and  $1.59 \pm .086$  with average weight and height respectively. The data was analyzed by using descriptive statistics, viz., frequency, percentage, mean, and standard deviation. Despite all athletes had nutritional knowledge from coaches and their experience, female athletes were practicing better dietary habits than male athletes relatively whereas males had slightly greater nutrition knowledge than female athletes.

**Keywords:** assessment, dietary habit, and nutritional knowledge

### 1. Introduction

As a lot of scientific studies agreed that diet and performance have highly correlated, (Anita, 2010; Montecalbo and Cardenas, 2015) <sup>[3, 17]</sup> a well-planned eating strategy will help in supporting any training program, whether athletes are training for fitness or competition, promote efficient recovery between workouts, reduce the risk of illness or overtraining, and help them in achieving their best performance (Paugh, 2005; Giroux, 2015; and Miller & Cassady, 2015) <sup>[19, 7, 16]</sup>. Of course, there is no single diet that fits all since everyone has different nutritional needs, moreover, some athletes require more calories than others, and athletics as a sport has its unique nutritional demands vis-à-vis the type of events that athletes participate (Juzwiak and Ancona-Lopez, 2004; Grunert, Wills, Laura Fernandez-Celemin, 2009; and Majors 2015) <sup>[10, 15]</sup>. But it is possible to find broad scientific agreement as to what constitutes a healthy diet for sport generally (Anita, 2010) <sup>[3]</sup>.

Moreover, the foods an athlete chooses have an impact on their performance in training and/or competition that is why a healthful diet is highly recommended to support regular, intensive training and decreases the risk of illness and/or injury (Alaunyte, Perry and Aubrey, 2015; Miller & Cassady, 2015) <sup>[1, 16]</sup>. Even though appropriate food choices can also enhance adaptations to the training stimulus, this area is often overlooked by even the most well-intentioned athletes (Lessa, Cortes, Frigola, & Esteve, 2017) <sup>[13]</sup>. And, some athletic professionals perceive the nutrition component of performance is less important than the training and coaching constituents, for this reason, nutrition education for athletes is neglected (Wolinsky and Hickson, 2001) <sup>[23]</sup>. Furthermore, eating and drinking patterns that athletes have will influence how well they train and whether they compete at their best so that all athletes need to be aware of their personal nutritional goals and of how they can select an eating strategy to meet those goals (Giroux, 2015) <sup>[7]</sup>.

Training, for athletes to reach their goals, can be optimized

by a healthy balanced diet which is vital for good health from the perspective of an elite athlete (Lanham-New, Stear, Shirreffs, Collins, 2011) <sup>[12]</sup>. That is why most athletes understand that proper fuelling through optimal nutrition with adequate nutrition knowledge is an essential and integral part of a training program (Oluyemisi. Folasire, Abiola. Akomolafe & Sanusi, 2015) <sup>[18]</sup>. Even though nutrition knowledge is an important factor influencing dietary habits and food choices, most athletes remain poorly educated about healthy nutritional practices and are untrained in making appropriate daily nutritional choices (Juzwiak and Ancona-Lopez, 2004) <sup>[10]</sup>. Moreover, having the knowledge and habit of careful planning and evaluation of food intake is critical vis-à-vis sound nutritional guidelines as proper nutrition helps improve athletic performance; optimize programs of physical conditioning; improve recovery from fatigue; and avoid injury (Lippincott, Williams & Wilkins, 2009). However, lack of knowledge about what to eat and when to eat (Kunkel, Bell, & Luccia, 2001) is the current problem in the study area. Moreover, the dietary practices of athletes can also hurt them to reach top performance provided that they do not get the right food at the right time in the long run.

According to the American College of Sports Medicine (ACSM), not only does athletic performance benefit from high quality nutrition, but general physical activity and recovery are being optimized as well (Wallinga, 2012). Some athletes find it hard to consume food early in the morning because of a suppressed appetite; however, the athlete should try to consume some type of carbohydrate before exercise. If he or she is unable to wake early enough to consume a snack (30 to 60 minutes before exercise), then an eating plan that provides the necessary fuel should be developed (Al-Masri & Bartlett, 2011). In contrast to popular belief, athletes should not exercise on an empty stomach assuming that it will burn more fat. There is no scientific evidence to substantiate this claim. There is evidence, however, that not consuming some type of food or fluid before exercise could decrease performance (Al-Masri

& Bartlett, 2011). So, depending on the event, an athlete’s diet may need to be adjusted during a period of hours or days before competition and/or training (Burke and Read, 1989, cited in, Plowman and Smith, 2011).

**2. Methods and Materials**

A cross-sectional study was conducted so as to assess the diet habits and nutrition knowledge of 69 athletes from the Amhara region’s athletics clubs, viz., Amhara police athletics club, Amhara prison commission athletics club, and ACSI(Amhara credit and saving institute athletics club. Three athletics clubs, which were well organized, experienced and easy to manage for the researcher, were selected via purposive sampling techniques to select all the consenting athletes (N= 69) to participate in the study. Inclusion criteria are being an athlete who was actively participating in the clubs’ training and/or competition, and respondents that reported been ill two weeks before the study were excluded.

A self-administered questionnaire was used as an instrument for data collection so as to get valid and reliable information from the participants. The questionnaire, which was adapted from Sarah L. Paugh (2005) [19], is divided in to three sections, viz., personal backgrounds, dietary habits, and

nutritional knowledge. The dietary habits part of a questionnaire comprised 18 questions at which answers were ranged from always (4) to never (1). All questions were scored according to their value. The score range was from 18-72. Whereas, the nutrition knowledge part of a questionnaire contained 18 questions and answers ranged from strongly agree (4) to strongly disagree (1). The possible range of scores was 18-72. Amharic version was used to gather information because it helps to avoid problem of language barrier in understanding questions.

**3. Results**

This part of the article delineates the analysis of data followed by a discussion of the research findings. The findings are being related to the research questions that guided the study. Data, which were collected from the Amhara region athletics clubs’ athletes were utilized and analyzed to assess the dietary habits and nutritional knowledge of athletes in the study area. Data were obtained from self-administered questionnaires, completed by 69 athletes (n=69), a 100% response rate. A total of 69 questionnaires, which represented 100% of the expected population were practical for this study.

**Table 1:** Demographic Information of Athletes

Variable	Group	Frequency	Percentage
Sex	Male	25	36.2
	Female	44	63.8
	Total	69	100
Age	16-19	41	59.4
	20-24	26	37.7
	Above 24	2	2.9
	Total	69	100
Training age	<2 year	2	2.9
	2-4 year	36	52.2
	5and above years	31	44.9
	Total	69	100
Educational back ground	Elementary	6	8.8
	High school	46	66.6
	Diploma	17	24.6
	Total	69	100
Weight	40-50 kg	39	56.5
	51-60 kg	28	40.6
	Above 60 kg	2	2.9
	Total	69	100
Height	1.40m-1.50m	9	13.1
	1.51m – 1.60m	36	52.2
	1.61m-1.70m	13	18.8
	1.71-1.80m	11	15.9
	Total	69	100

**Table 2:** Descriptive Statistics of Body Mass Index

Variable	sex	Minimum	Maximum	Mean	Std. Deviation
BMI	Male	17.56	23.50	19.9540	1.66194
	Female	13.84	23.92	19.5253	2.01129

A descriptive statistics were used to compare the mean and standard deviation of body mass index for both male and female. As the table depicts that female athletes on average have relatively less body mass index than male athletes, this is because female athletes have more dietary habits and control their body weight than male athletes.

**Table 3:** Source of Information and Previous Nutritional Knowledge

Variables	Alternatives	Frequency	Percent	Valid Percent	Cumulative Percent
Sources of nutrition information	coach	54	78.3	78.3	78.3
	magazine	1	1.4	1.4	79.7
	parents	6	8.7	8.7	88.4
	others	8	11.6	11.6	100.0
	Total	69	100.0	100.0	
Previous nutritional knowledge	Yes	52	75.4	75.4	75.4
	No	17	24.6	24.6	100.0
	Total	69	100.0	100.0	

Most of the athletes had got nutritional information from the coach (78.3%) and also they had previous nutritional knowledge (75.4%).

**Table 4:** Assessment of diet habits of athletes (Part I)

No	Items	Alternatives	No of Respondents	Percent	Mean	Standard deviation
1	How often do you eat breakfast in the morning?	Never	5	7.2	3.26	1.024
		Sometimes	14	20.3		
		Often	8	11.6		
		Always	42	60.9		
		Total	69	100		
2	How often do you skipping at least one meal per day	Never	15	21.7	2.39	1.046
		Some times	26	37.7		
		Often	14	20.3		
		Always	14	20.3		
		Total	69	100		
3	How often do you take vitamin supplements?	Never	17	24.6	1.99	.776
		Sometimes	40	58.0		
		Often	8	11.6		
		Always	4	5.8		
		Total	69	100		
4	How often do you take mineral supplements?	Never	24	34.8	1.93	.913
		Sometimes	33	47.8		
		Often	5	7.2		
		Always	7	10.1		
		Total	69	100		
5	How often do you eat three base meals per day?	Never	4	5.8	3.38	.876
		Sometimes	6	8.7		
		Often	19	27.5		
		Always	40	58		
		Total	69	100		
6	How often do you record what you eat?	Never	40	58.0	1.71	.941
		Sometimes	12	17.4		
		Often	14	20.3		
		Always	3	4.3		
		Total	69	100		
7	How often do you drink water?	Never	1	1.4	3.65	.614
		Sometimes	2	2.9		
		Often	17	24.6		
		Always	49	71.0		
		Total	69	100		
8	How often do you drink sweetened beverages?	Never	33	47.8	1.74	.885
		Sometimes	26	37.7		
		Often	5	7.2		
		Always	5	7.2		
		Total	69	100		
9	How often are you on a "diet?"	Never	24	34.8	2.07	1.005
		Sometimes	24	34.8		
		Often	13	18.8		
		Always	78	11.6		
		Total	69	100		

**Table 5:** Assessment of diet habits of athletes (Part II)

No	Items	Alternatives	No of Respondents	Percent	Mean	Standard deviation
1	How often do you eat breads, Pasta, Potatoes, or rice?	Never	1	1.4	2.91	.870
		Sometimes	26	37.7		
		Often	20	29.0		
		Always	22	31.9		
		Total	69	100		
2	How often do you eat fruits, such as bananas, or oranges?	Never	10	14.5	1.90	.458
		Sometimes	57	82.6		
		Often	1	1.4		
		Always	1	1.4		
		Total	69	100		
3	How often do you eat vegetables, such as tomatoes, carrots, or salad?	Never	19	27.5	1.87	.684
		Sometimes	42	60.9		
		Often	6	8.7		

		Always	2	2.9		
		Total	69	100		
4	How often do you eat dairy products, such as milk, yogurt, or cheese?	Never	6	8.7	3.04	.898
		Sometimes	8	11.6		
		Often	32	46.4		
		Always	23	33.3		
		Total	69	100		
5	How often do you eat complete source of protein such as beef, chicken, eggs and fish?	Never	2	2.9	2.45	.654
		Sometimes	38	55.1		
		Often	25	36.2		
		Always	4	5.8		
		Total	69	100		
6	How often do you eat berry jams, cookies, candies, or other sweets?	Never	5	7.2	2.07	.551
		Sometimes	57	82.6		
		Often	4	5.8		
		Always	3	4.3		
		Total	69	100		
7	How often do you eat snacks on foods like potato chips, cakes, candies, donuts?	Never	36	52.2	1.54	.632
		Sometimes	30	43.5		
		Often	2	2.9		
		Always	1	1.4		
		Total	69	100		
8	How often do you seek out nutrition information?	Never	27	39.1	1.96	1.021
		Sometimes	28	40.6		
		Often	4	5.8		
		Always	10	14.5		
		Total	69	100		
9	How often do you eat fast foods?	Never	3	4.3	2.59	.792
		Sometimes	32	46.4		
		Often	24	34.8		
		Always	10	14.5		
		Total	69	100		

Regarding the dietary habits of athletes in around half of the variables athletes have a good dietary habits, however, in case of habit of taking vitamin supplements ( $\bar{x}=1.99$ ), mineral supplements ( $\bar{x}=1.93$ ), recording what they eat

( $\bar{x}=1.74$ ), eating fruits ( $\bar{x}=1.90$ ), eating vegetables ( $\bar{x}=1.87$ ), eating snacks ( $\bar{x}=1.54$ ), and seeking out nutrition information ( $\bar{x}=1.96$ ) were below an average.

**Table 6:** Assessment of nutrition knowledge of Athletes

No	Items	Alternatives	No of Respondents	Percent	Mean	Standard deviation
1	Skipping breakfast can negatively affect athletic performance?	Strongly disagree	4	5.8	3.55	.832
		Disagree somewhat	3	4.3		
		Agree somewhat	13	18.8		
		Strongly agree	49	71.0		
		Total	69	100		
2	Proteins are the best and most efficient source of energy?	Strongly disagree	4	5.8	3.25	.812
		Disagree somewhat	4	5.8		
		Agree somewhat	32	46.4		
		Strongly agree	29	42.0		
		Total	69	100		
3	Nutrition affects mental performance	Strongly disagree	4	5.8	3.10	.807
		Disagree somewhat	7	10.1		
		Agree somewhat	36	52.2		
		Strongly agree	22	31.9		
		Total	69	100		
4	Alcohol can hinder nutrient absorption and recovery	Strongly disagree	6	8.7	3.65	.614
		Disagree somewhat	4	5.8		
		Agree somewhat	45	65.2		
		Strongly agree	14	20.3		
		Total	69	100		
5	The pre-event meal should be eaten 3-4 hours prior to competition.	Strongly disagree	-	-	2.97	.785
		Disagree somewhat	5	7.2		
		Agree somewhat	14	20.3		
		Strongly agree	50	72.5		
		Total	69	100		
6	According to MyPlate, one should consume ~ 8 servings from	Strongly disagree	-	-	2.83	.568

	the bread, cereals, rice and pasta group	Disagree somewhat	18	26.1		
		Agree somewhat	45	65.2		
		Strongly agree	6	8.7		
		Total	69	100		
7	According to the food Guide pyramid, one should consume $\geq$ 2 cups of fruit	Strongly disagree	-	-	3.38	.488
		Disagree somewhat	-	-		
		Agree somewhat	43	62.3		
		Strongly agree	26	37.7		
		Total	69	100		
8	According to MyPlate, one should consume $\geq$ 3 cups of vegetables	Strongly disagree	-	-	3.20	.632
		Disagree somewhat	8	11.6		
		Agree somewhat	39	56.5		
		Strongly agree	22	31.9		
		Total	69	100		
9	According to the food Guide pyramid, one should consume 4 servings from dairy groups	Strongly disagree	-	-	3.33	.586
		Disagree somewhat	4	5.8		
		Agree somewhat	38	55.1		
		Strongly agree	27	39.1		
		Total	69	100		
10	According to the food Guide pyramid, one should consume 2-3 servings from the meat group	Strongly disagree	2	2.9	3.20	.778
		Disagree somewhat	9	13.0		
		Agree somewhat	31	44.9		
		Strongly agree	29	39.1		
		Total	69	100		
11	Eating breakfast can improve concentration	Strongly disagree	1	1.4	3.59	.626
		Disagree	2	2.9		
		Agree	21	30.4		
		Strongly agree	45	65.2		
		Total	69	100		
12	50-70% of total calories should come from carbohydrates.	Strongly disagree	-	-	3.41	.693
		Disagree	8	11.6		
		Agree	25	36.2		
		Strongly agree	36	52.2		
		Total	69	100		
13	Carbohydrates and proteins are more quickly and easily digested without fat	Strongly disagree	5	7.2	3.36	.874
		Disagree	3	4.3		
		Agree	23	33.3		
		Strongly agree	38	55.1		
		Total	69	100		
14	Excess vitamin consumption can be toxic	Strongly disagree	6	8.7	3.04	.946
		Disagree	11	15.9		
		Agree	26	37.7		
		Strongly agree	26	37.7		
		Total	69	100		
15	Anemia is a deficiency in iron	Strongly disagree	-	-	3.35	.614
		Disagree	5	7.2		
		Agree	35	50.7		
		Strongly agree	29	42.0		
		Total	69	100		
16	Average percentage of body fat in males is 16-19%	Strongly disagree	3	4.3	3.09	.742
		Disagree somewhat	7	10.1		
		Agree somewhat	40	58.0		
		Strongly agree	19	27.5		
		Total	69	100		
17	Cereal, bread and pasta are good sources of carbohydrates	Strongly disagree	5	7.2	3.35	.905
		Disagree somewhat	5	7.2		
		Agree somewhat	20	29.0		
		Strongly agree	39	56.5		
		Total	69	100		
18	Nuts and beans are good sources of proteins	Strongly disagree	1	1.4	3.67	.634
		Disagree somewhat	3	4.3		
		Agree somewhat	14	20.3		
		Strongly agree	51	73.9		
		Total	69	100		
19	Athletes need to consume at least 50% more protein than the general population	Strongly disagree	9	13.0	3.03	1.071
		Disagree somewhat	11	15.9		
		Agree somewhat	18	26.1		
		Strongly agree	31	44.9		

	Total	69	100		
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Relating to an assessment of nutrition knowledge, all athletes have the knowledge of nutrition vis-à-vis the aforementioned variables (with average mean 3.28).

#### 4. Discussion

Relating to an assessment of nutrition knowledge in the study area, all athletes have the knowledge of nutrition (with average mean 3.28). However, in (Montecalbo and Cardenas, 2015) [17] study, results revealed that more female athletes (4%) showed poor level of nutritional knowledge compared to no one of the male athletes. Moreover, the findings revealed that nutritional knowledge was adequate (mean 72.82%) in this group of athletes with the highest scores in dietary advice section (85.71%), followed by food groups (71.24%) and food choice (69.52%) (Alaunyte, Perry, and Aubrey, 2015).

Regarding the dietary habits, in around half of the variables, athletes have a good dietary habits, however, in case of habit of taking vitamin supplements ( $\bar{x}=1.99$ ), mineral supplements ( $\bar{x}=1.93$ ), recording what they eat ( $\bar{x}=1.74$ ), eating fruits ( $\bar{x}=1.90$ ), eating vegetables ( $\bar{x}=1.87$ ), eating snacks ( $\bar{x}=1.54$ ), and seeking out nutrition information ( $\bar{x}=1.96$ ) were below an average. Athletes who practice better dietary habits also have a better understanding of nutrition. Specifically, Females ( $46.55 \pm 4.88$ ,  $91.25 \pm 9.29$ ) were significantly greater for both dietary habits and nutritional knowledge than males ( $43.37 \pm 5.21$ ,  $84.25 \pm 10.78$ ) (Paugh, 2005) [19]. Another study by Folasire, Akomolafe and Sanusi (2015) [6] complemented the findings as more than half (58.2%) had good nutrition knowledge (NK), and 62.7% had good nutrition practices (NP).

The majority of athletes were not aware of current carbohydrate recommendations. This translated into their dietary habits as many starchy and fibrous foods were consumed only occasionally by poor nutritional knowledge group. In terms of their eating habits, the good nutritional knowledge group consumed significantly more fruit and vegetables, and starchy foods ( $p < .05$ ). Nutritional knowledge was positively correlated to fruit and vegetables consumption ( $r_s = .52$ ,  $p < .05$ ) but not to any other eatwell plate categories (Major, 2015) [15].

In the finding of the study area, female athletes on average have relatively less body mass index than male athletes, this is because female athletes have more dietary habits than male athletes. Most of the athletes had got nutritional information from the coach (78.3%) and also they had previous nutritional knowledge (75.4%). Results of the study done by Juzwiak and Ancona-Lopez (2004) [10] showed that all coaches recommended general dietary practices during training, with no specific strategies for pre-, during-, and post-training periods.

#### 5. Conclusion

The purpose of the study is to survey the nutrition knowledge and dietary habits of club athletes in Amhara region, North West Ethiopia. Based on the findings of the study, the knowledge of male athletes was greater in comparison to female athletes, and the diet habits of male athletes were lower in comparison to female athletes. Therefore, Female athletes have lower nutrition knowledge and better dietary habits and male athletes have better nutrition knowledge and also have lower dietary habits. In addition, females had lower BMI scores than males, this indicates athletes with lower BMI scores had better dietary

habits but on the other hand females had lower BMI, better dietary habits and some female athletes were underweight in the study. In general all athletes have good nutritional knowledge but poor in diet habits.

#### 6. Recommendations

Based on the results of this study, the following research recommendations were made:

Even though athletes have nutrition knowledge and lacks dietary habits to some extent, providing nutrition education program for athletes could be an effective way to maintain their nutrition knowledge and improve dietary habits.

With gaining knowledge of the new crazes, the coaches, who are the main sources of information about nutrition, should be able to help athletes who choose types of diets and help them become aware of what foods to eat and how much via peer education which captures the athletes' attention and can be modified to meet the specific needs of each athlete.

Athletes need to fulfill a regular well balanced meals and snacks through establishing their nutritional goals and developing dietary strategies that will meet these goals to maintain the high energy demands of their training and/or competition.

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