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**Pham Xuan Hau**

# CURRENT STATUS OF NUTRITIONAL KNOWLEDGE AND DIETARY BEHAVIORS OF STUDENTS AT THE UNIVERSITY OF SPORTS HO CHI MINH CITY

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## Abstract

*This study investigated the relationship between nutritional knowledge and dietary behaviors of students at the University of Sports Ho Chi Minh City. A questionnaire was set up to assess the nutritional knowledge and dietary behaviors of 169 student-athletes (111 males and 58 females) with age ranging from 18 to 25. The collected data revealed that there is a close relationship between nutritional knowledge and the dietary behaviors of the students. Most students are aware of the importance of eating in moderation, and a healthy diet affects exercise results. The majority of the female (84%) and male (75%) athlete-respondents have a “good” level of nutritional knowledge. Besides, the 24-hours dietary recall survey was carried out on 43 students- marathon athletes (26 males and 17 females) aged 18-25. The results showed that the student-athlete-respondents perform heavy physical activities from Monday to Saturday every week. However, the amount of energy intake is considered inadequate compared to how many calories are needed for their daily training, even though they have day-offs. Therefore, there is a need to improve nutritional knowledge and dietary nutrition for student-athletes.*

**Keywords:** diet, eating habit, nutritional knowledge, student-athletes, survey'

## 1. Introduction

According to several researchers (Shriver et al., 2013; Randles, 2018; Noll et al., 2020), most student-athletes do not have enough time to obtain nutrition. These athletes tend to take the easiest way to grab their food, and they also lack knowledge about the nutrition required for their activities. They hardly know that their performance can be affected because of this nutrition shortage. Student-athletes need to

learn more about nutrition, pay more attention to their food intake, and have well-balanced meals alongside healthy snacks to maintain enough energy for training and competition.

Assessment of meal patterns can facilitate health promotion and illness prevention and provide information about desirable dietary behaviors. In turn, it served as an aid for nutritional counseling and is applied in the assessment of eating

disorders.

The more knowledge about nutrition's role and nutrition information student-athletes gather, the better their physical performance will be. Professionals can help student-athletes recognize the relationship between nutrition and sport and help them to choose the most suitable foods to achieve the highest performance.

An athlete with proper nutrition has higher performance and better health than others. Furthermore, they can perform intensely and compete under high pressure without putting their health at risk and injury.

Therefore, this study was carried out to investigate the relationship between nutritional knowledge and dietary behaviors of students at the University of Sports Ho Chi Minh City.

## **2. Methodology**

### **2.1. Data collection**

Data is collected from 169 student-athletes (111 males and 58 females) at the University of Sports Ho Chi Minh City with age from 18 to 25.

### **2.2. Questionnaire about nutritional knowledge and dietary behaviors**

Nutritional knowledge and dietary behaviors of student-athletes were assessed by using the questionnaires developed by Paugh (2005), approved by California University with a little change to be suitable for Vietnamese student-athletes.

There were 16 questions about dietary behaviors. The answers were rated on a 4-point scale (1: Never; 2: Sometimes; 3: Often; and 4: Always). Question number 2, 3, 4, 8, 9, 14, 15 were reverse questions. It means that if this question was rated with 4, the respondent gave a 1 score and vice versa. Answers with higher scores mean

better eating habits there.

There were also 29 questions about nutritional knowledge, rated on a 4-point scale (1: Strongly disagree, 2: Disagree, 3: Agree, 4: Strongly agree). Questions number 2, 6, 8, 20, and 29 were reverse questions. The total scores were classified as follows:

- 99-116: Excellent
- 81-98: Good
- 64-80: Fair
- Below 63: Poor

### **2.3. Twenty-four hours dietary recall (24HR) survey**

This survey is a structured interview intended to capture detailed information about all foods and beverages (and possibly nutritional supplements) consumed by the respondent in a span of 24 hours, most commonly from midnight of the day before the previous day to midnight of the previous day. A vital feature of the 24HR survey was that, when appropriate, the respondent was asked for more detailed information than first reported. For example, a respondent who reported chicken for dinner or a sandwich for lunch would be asked about the preparation method and bread type. This open-ended response structure was designed to prompt respondents to provide a comprehensive and detailed report of all foods and beverages consumed.

A total of 43 students-marathon athletes (26 males and 17 females) participated in this survey. The respondents wrote in prepared papers about food and drinks (including dietary supplements) consumed every day during the week.

## **3. Results and Discussion**

### **3.1. Demographic data**

The demographic characteristics of the student-athlete respondents are presented in

Table 1. The majority of the respondents were in their 1st year (56.7%), followed by 4th year (17.2%) and the 2nd-year & 3rd-year (26%) in university. Sources of nutrition information for the respondents were from television (24.9%), magazines (18.3%), parents (17.2%), coaches (14.8%), and other sources such as the internet, social networks, and friends (24.9%). The majority of the athlete-respondents (79.21%) have cared about nutrition.

**Table 1.** Demographic characteristics of the athlete-respondents

Variable	Group	Frequency	Percentage
Sex	Male	111	65.68
	Female	58	34.32
Year in university	1 <sup>st</sup> year	96	56.80
	2 <sup>nd</sup> year	22	13.02
	3 <sup>rd</sup> year	22	13.02
	4 <sup>th</sup> year	29	17.16
Source of Nutrition information	Magazine	31	18.34
	TV	42	24.85
	Coach	25	14.79
	Parents	29	17.16
	Other	42	24.85
Care about nutrition	Never	2	1.18
	Not much	33	19.53
	Care	91	53.85
	Absolutely	43	25.44
Age	18	71	42.01
	19	28	16.57
	20	29	17.16
	21	26	15.38
	22	10	5.92
	23	0	0
	24	3	1.78
25	2	1.18	

### 3.2. Dietary behaviors of the athlete-respondents

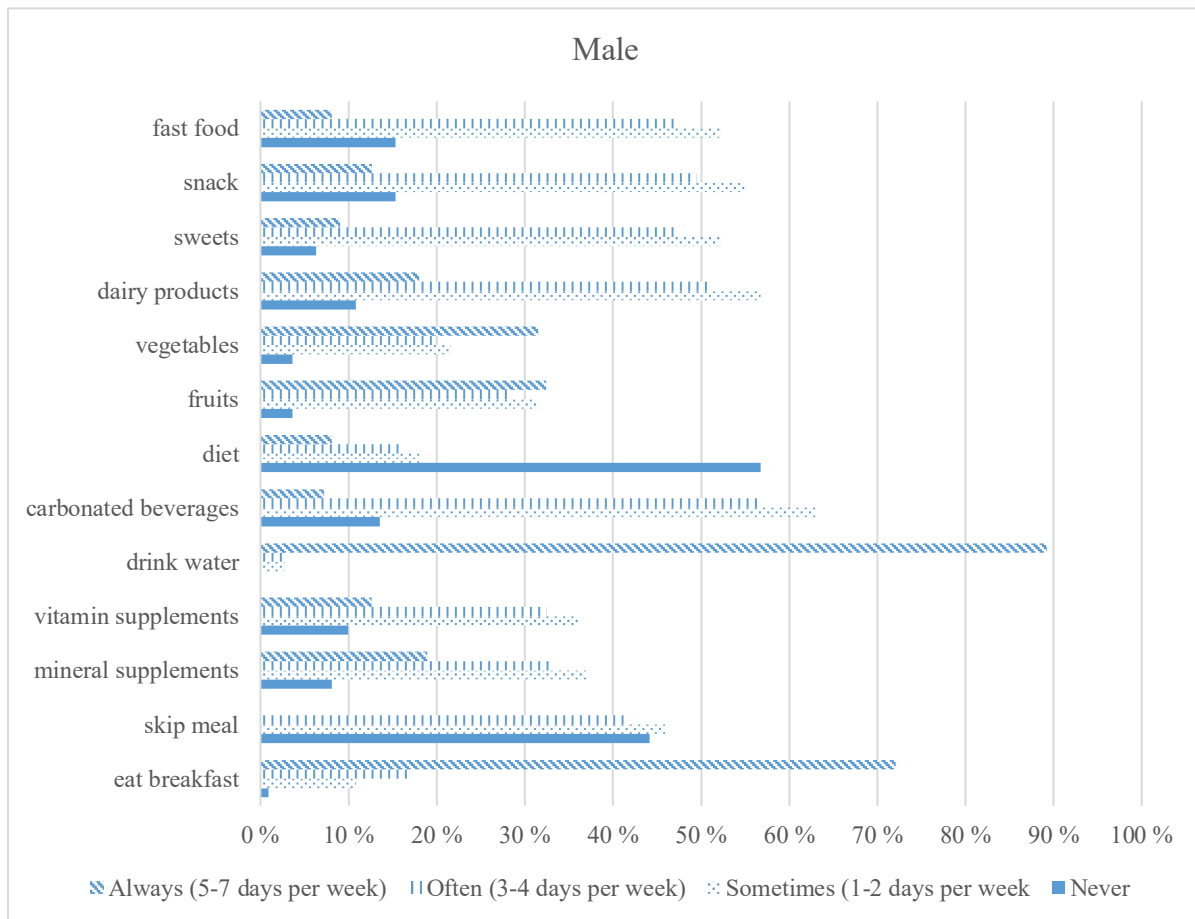
Athlete-respondents were asked how often they ate a particular food item, how often they consumed food from each portion of the food pyramid, dieting, and

skipping meals. Results showed that the majority of the athlete-respondents, male (72%) and female (67%), reported having eaten their breakfast 5-7 days/week (Figures 1 and 2). However, 3.45% of the female athlete-respondents indicated that

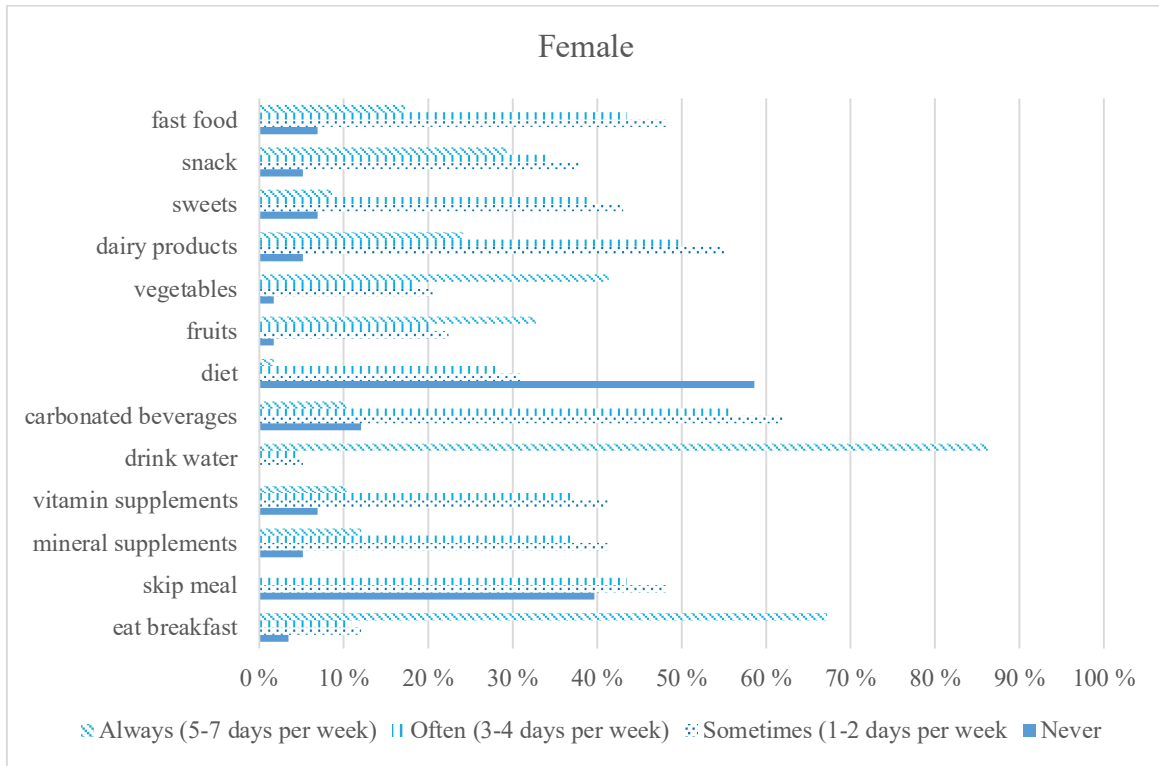
they never ate their breakfast. There were 46% of the male respondents, and 48% of the female respondents reported that they skipped meals 1-2 days/week, while 41% of the male respondents and 40% of the female respondents said that they never skipped their meals. Breakfast is the most important meal of the day; it serves as fuel and a source of nutrients and energy needed for the athletes' bodies to perform a high-quality workout/ training.

Likewise, skipping meals can also lessen the energy supply to the muscles, which further reduces the intensity of performance and increases the risk of injuries. Figures 3 and 4 further show that athletes who never drank water ate bread,

cereals, fruits, vegetables, and dairy products, which are sources of carbohydrates. Carbohydrates are also known as the “master fuel” for athletes. It provides the primary fuel sources for exercising muscles, controlling blood glucose levels, and providing vital energy, especially before, during, and after exercises. With all the differences in male and female athletes-respondents' dietary habits, the results of this study revealed that the mean median dietary scores of both male and female athletes were the same (Table 2). The overall median dietary habits score of 47 was considered fair (not too high, not too low) relative to the highest possible score of 64 for dietary behaviors.



**Figure 1.** Dietary behaviors of male athlete-respondents



**Figure 2.** Dietary behaviors of female athlete-respondents

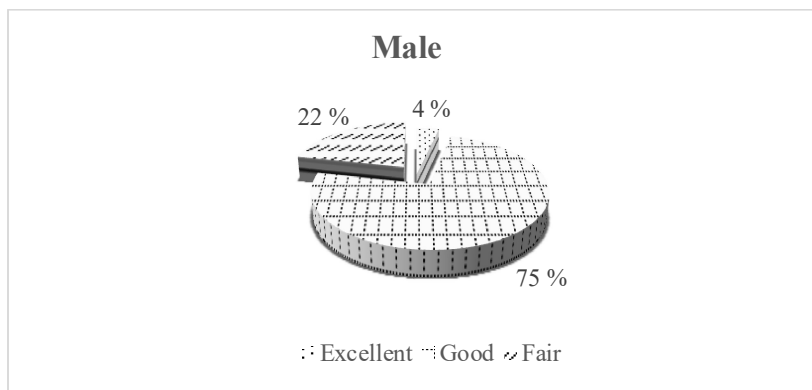
**Table 2.** Median dietary behaviors score according to gender

Sex	Median
Female	47
Male	47
Overall	47

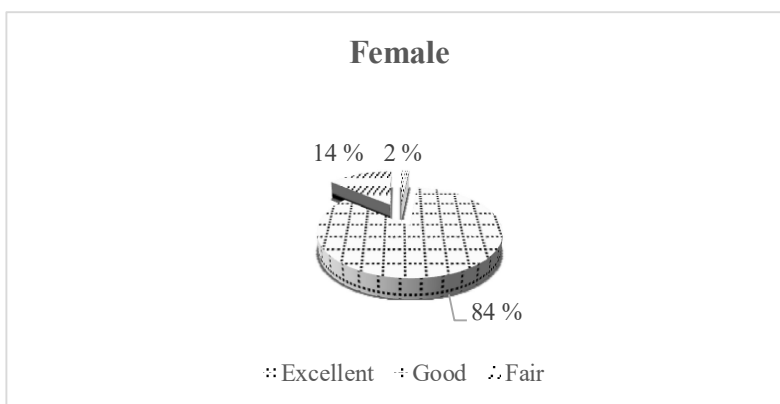
**3.3. Nutritional knowledge of the student-athlete respondents**

The majority of the female (84%) and male (75%) athlete-respondents showed a “Good” level of nutritional knowledge (Figure 3 and 4). Furthermore, Table 3 presents the median nutritional knowledge score according to gender. Results reveal that male athlete-respondents have larger median health knowledge scores than female athlete-respondents. An overall mean score was 85 and was considered a “Good” level. The study’s findings are in line with the data reported by Jessri et al. (2010) and Rosenbloom et al. (2002), who

revealed that nutrition knowledge was reported to be the same in both genders. Dowling (2011) mentioned that athletes lack nutritional knowledge but contradicted the previous research indicating that female athletes had significantly higher nutritional knowledge scores and were more knowledgeable than male athletes (Wong, Huang et al. 1999, Paugh 2005, Lee and Kwak 2006, Arazi and Hosseini 2012). In contrast, the findings of Ozdoğan and Ozelik (2011), and Webb and Beckford (2014) revealed that males have higher nutritional knowledge scores than females.



**Figure 3.** Nutritional knowledge distribution (in %) of male athlete-respondents



**Figure 4.** Nutritional knowledge distribution (in %) of female athlete-respondents

**Table 3.** Median nutritional knowledge score according to gender

Sex	Median
Female	84
Male	86
Overall	85

**3.4. Twenty-four hours recall survey**

Table 4 shows the result of 24HR survey after one week, which was filled by a total of 43 students-marathon athletes (26 males and 17 females) aged from 18-25 at

the University of Sports Ho Chi Minh City. The student t-test with  $P < 0.05$  is counted as a significant energy difference from the food intake between recommended and actual diet in athletes (Figure 5 and 6).

**Table 4.** Result of 24 hours recall survey

	Age	Age		Height (cm)		Weight (kg)		Kcal/day		Kcal/day (day-off)	
		Mean	SD	Mean	SD	Mean	SD	Mean	SD	Mean	SD
Male	26	20.77	1.63	173.65	8.63	67.72	9.16	1632.04	397.11	1622.04	433.41
Female	17	20.65	1.84	159.76	4.62	50.00	4.99	1602.18	336.15	1603.24	500.18



The average age of male and female students-marathon-athletes was 21, the average height and weight of males was 173.65 cm and 67.72 Kg, and of females was 159.76 cm and 50.0 kg.

With the equation above, we can calculate the BBE:

Male:  $BBE = 66.5 + (13.75 * 67.72) + (5.003 * 173.65) - (6.775 * 21) = 1724.15$  Kcal/day

Female:  $BBE = 655.1 + (9.563 * 50.0) + (1.850 * 159.76) - (4.476 * 21) = 1332.27$  Kcal/day

Then we can find TEE, supposing no

stress factor (value 1.0), the temperature at a normal level (value 1.0), activity level is heavily active (value 2.25) on weekdays and light or sedentary on weekends (value 1.53):

Male:

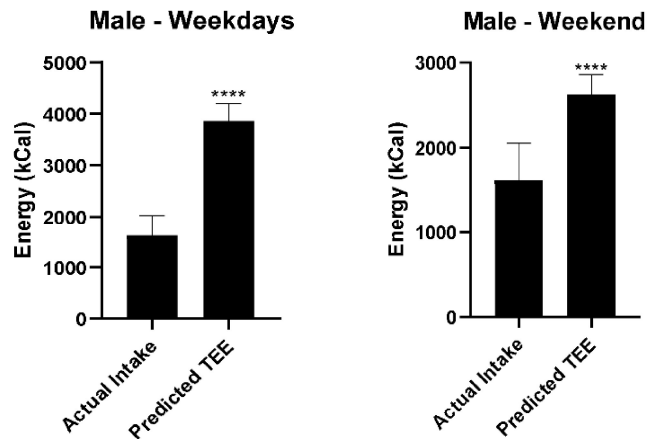
Weekday:  $TEE = 1724.15 * 2.25 * 1.0 * 1.0 = 3879.338$  Kcal/day

Weekend:  $TEE = 1724.15 * 1.53 * 1.0 * 1.0 = 2637.95$  Kcal/day

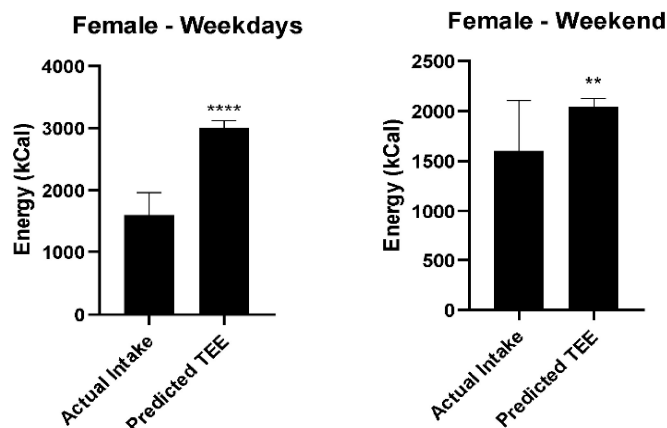
Female:

Weekday:  $TEE = 1332.27 * 2.25 * 1.0 * 1.0 = 2997.61$  Kcal/day

Weekend:  $TEE = 1332.27 * 1.53 * 1.0 * 1.0 = 2038.37$  Kcal/day



**Figure 5.** Energy difference from the food intake between recommended and actual diet in male athletes



**Figure 6.** Energy difference in the food intake between recommended and actual diet in female athletes

The student-athlete-respondents perform heavy physical activities from Monday to Saturday every week. However, the amount of energy intake is considered inadequate compared to how many calories are needed for their daily training, even though they have day-offs. In specific, the athletes-respondents need 3,879.34 Kcalories per day. However, they only take in 1,632.04 Kcalories, which is extremely insufficient. Although it is important to stay in shape, such eating habits will be harmful to their health.

In terms of nutrients, the results show that the surveyed student-athletes are not providing their body with enough nutrients either. Ergogenic aids cannot solve this issue. Such inadequate calories and nutrients will directly affect the athletes' training and, eventually competition result. The young athletes may try to push themselves through these high-volume physical performances. However, it is unhealthy for them in the long run.

### **3.5. Discussion**

The student-athlete-respondents perform heavy physical activities from Monday to Saturday every week. However, the amount of energy intake is considered inadequate compared to how many calories are needed for their daily training, even though they have day-offs. In specific, the athletes-respondents need 3,879.34 calories per day. However, they only take in 1,632.04 calories, which is extremely insufficient. Although it is important to stay in shape, such eating habits will be harmful to their health.

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issue. Such inadequate calories and nutrients will directly affect the athletes' training and eventually competition result. The young athletes may try to push themselves through these high-volume physical performances. However, it is unhealthy for them in the long run.

The study did not investigate the student-athlete-respondents' general health, mental health, or, more specifically, how they feel about their overall health. Such data would help sketch out the direct effect of the respondents' dietary behaviors and provide a clearer comparison between the health of those with different dietary behaviors.

### **4. Conclusion**

This study collected data that show the ability and interest in accessing the information about nutrition of student-athletes. In addition, it also collected information on the eating habits, and nutritional knowledge of these students. Although most of them have a lot of knowledge about nutrition, the daily energy intake in their diets is still not enough. It is probably because their exercises and training processes take too much time, so they do not have much time to prepare a reasonable meal. It may also be due to the high cost of eating a reasonable diet and no one guiding them. Based on the results of this study, the following suggestions were made:

- It is necessary to guide and promote the importance of understanding the knowledge of nutrition and reasonable diet for the students because it is the essential energy source required for their physical performances and enhancing their development.

- Besides, it is important to control

the source of the nutritional information of students and facilitate updating their knowledge by organizing seminars or conferences related to nutrition issues with experts.

- Organizing and training courses about nutrition for students are also necessary, thereby helping student-athletes to be aware of the importance of their daily lives.

- There is a need to control and monitor the nutritional status and dietary requirements of athletes throughout the year, not just before and during contests.

- Further studies need to be conducted to obtain a proper regimen and improve physical performance.

#### **Conflict of Interest**

The authors declare no conflict of interest

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