

## NUTRITIONAL SUPPLEMENT INTAKE KNOWLEDGE AMONG UNIVERSITY ACTIVE GRADUATES

M. A. Mustafa\*, N. A. Awang & A. M. Nadzalan

Faculty of Sports Science and Coaching, Universiti Pendidikan Sultan Idris, Tg Malim, Perak,  
Malaysia

Published online: 10 November 2017

### ABSTRACT

The purpose of this study is to examine the nutritional supplement intake knowledge among university athletes. Fifty-one university athletes volunteered to participate in this survey study. Results showed the nutritional supplement intake was significantly higher compared to the knowledge that they have about the supplements. Besides that, the performance was significantly greater compared to the supplement intake. To conclude, it is important for the coaches to educate their athletes on the importance and risks of nutritional supplements in order to ensure great performance achieved besides reducing the risks of getting the negative effects of supplements.

**Keywords:** supplement, health, sports, training, knowledge

### 1. INTRODUCTION

Balanced nutrition is vital for the needs and health of the body. Humans need a variety of nutrients such as proteins, carbohydrates, fats, vitamins and minerals for their growth [1, 2]. Balanced food should have a good nutrient content and have a lot of nutrient quantities [3]. In a versatile era, the concept of nutrition has now undergone various changes in terms of nutrition, how to prepare food, and the level of awareness of nutritional importance.

Author Correspondence, e-mail: [mirza.azny@fsskj.upsi.edu.my](mailto:mirza.azny@fsskj.upsi.edu.my)

doi: <http://dx.doi.org/10.4314/jfas.v9i6s.102>



The phenomenon currently happening nowadays is the increasing nutritional or dietary supplements intakes [4]. Dietary supplement is a product intended for ingestion that contains a "dietary ingredient" intended to add further nutritional value to (supplement) the diet [5].

Several previous researches has been conducted on the supplements intake among various populations. Kristiansen, Levy-Milne [6] reported that university males use more caffeine, sports drinks and carbohydrate gel products than university women. In the study conducted by El Khoury and Antoine-Jonville [7], they found that increasing demand for these supplements stems from various causes, including improving performance, improving health, preventing nutritional deficiencies and disease, increasing muscle mass, reducing body fat , improve immune system, increase sensitivity and mental activity, improve recovery, and reduce stress. However, it is considered that knowledge in terms of the benefits of taking supplements is still lacking in these supplementary food practitioners.

Intake of dietary supplements among students is increasing from time to time. This supplement is also often associated with improving the quality of life and improving performance in sports. The intake of nutritional supplement are just not exist among athletes, but also military recruits that want to improve their performance during physical activities [8]. In addition, in a study conducted by Kobryner [9], certain supplements have proven that to help athletes achieve their goals in achieving optimum performance, supplement foods are one of the way.

The additional intake of the supplements among these university students is not new but is a practice that is often associated with students. This is because a student who is studying in a university is very vulnerable to this additional dietary practice. The purpose of this study is to examine the level of knowledge of intake of food supplement among active students. As overdose intake of these supplements can be dangerous, it is important to know what is the current knowledge about the nutritional supplement intake among the university student.

## **2. METHODOLOGY**

This study utilized survey method using questionnaire developed to obtained the level of nutritional supplement intake knowledge. At first, 31 respondents were involved in pilot study to examine the questionnaire item reliability. The questionnaire achieve p.78 thus can be used

in this study and correspond to the chosen population of respondents. Researchers have chosen the respondents of the study which consisted of university athletes. The total respondents are 51 respondents. All of these respondents are athletes who are still actively representing Universiti Pendidikan Sultan Idris (UPSI) in inter-university sports tournament. Each respondent were given a set of questionnaire that consisted of three parts; part A - demographics, part B - knowledge related to intake of supplements and part C - the intake of supplemental food. Part A is related to the background of respondents. This background is related to gender, age range, race, sports, and the duration of engagement in sports. In section B, it relates to the level of knowledge of the respondents to the knowledge related to the supplement. Subsequently, in connection with section C, this section relates to the practice of supplementary intake and the effect of the supplement. Before responding to the questionnaire, the respondents were briefed on the data collection procedure. Each respondent who answered the questionnaire were in controlled by the researcher. This meant that respondents were not influenced by any factors such as the answer from their co-respondent during the data collection process.

The data collection process is based on the information obtained from the questionnaires given to respondents. Data obtained from data collection were analyzed by using Statistical Package for Social Sciences 20.0 (SPSS) computer software. This study uses Cronbach Alpha statistical analysis to obtain reliability in pilot studies. In addition, this study also used statistical analysis of T (paired sample T test).

### **3. RESULTS**

#### **3.1 DATA ANALYSIS PART A: Respondent Demographic Information**

In part A, respondents filled in the background or demographic information of the respondents. This section covers aspects such as gender, age range, sports engagement and duration of engagement. The frequency and percentage values for each of these aspects are analyzed. The data obtained were presented in the form of table as shown:

**Table 1.** Frequency and percentage of study respondents by sex

<b>Gender</b>	<b>Number</b>	<b>Percentage (%)</b>
Male	27	52.9
Female	24	47.1
Total	51	100

**Table 2.** Frequency and percentage for respondent's age range

<b>Age</b>	<b>Number</b>	<b>Percentage (%)</b>
19-21	14	27.5
22-24	33	64.7
25>	4	7.8
Total	51	100

**Table 3.** Frequency and percentage according to the sport involved by respondents

<b>Sports</b>	<b>Number</b>	<b>Percentage (%)</b>
Athletics	16	31.4
Football	6	11.8
Netball	4	7.8
Volleyball	4	7.8
Basketball	3	5.9
Badminton	3	5.9
Futsal	3	5.9
Hockey	2	3.9
Taekwondo	2	3.9
Handball	2	3.9
Sepak takraw	1	2.0
Kayak	1	2.0
Weightlifting	1	2.0
Wushu	1	2.0

Rugbi	1	2.0
Swimming	1	2.0
Total	51	100

**Table 4.** Frequency and percentage according to the duration of the respondent's involvement

Durations (year)	Number	Percentage (%)
1-5	18	35.3
6-10	24	47.1
11>	9	17.6
Total	51	100

### 3.2 Data analysis of parts B and C

The level of knowledge of nutritional supplement intake among active students was analyzed using mean, standard deviation, correlation, and significant value.

#### Research question 1:

**Is there any differences of participant's knowledge about nutritional supplements and the supplements' intake prior training?**

**Table 5.** Students knowledge and intake of nutritional supplements prior to training

Item	N	Mean	SD	Sig.
Do you know about nutritional supplements?	51	1.14	.41	.000
Do you take nutritional supplements prior to exercise/training?		2.14	.89	

T-tests were analyzed to determine whether there was significant difference in measuring the level of knowledge and additional food intake among active students. Based on table 5, it was found that the value of  $t(50) = -7.98$  and significant level  $p = .000$  ( $p < 0.05$ ). Because of  $p < 0.05$  value, the researcher found that the findings showed significant differences between the two questions.

### Research question 2:

**Is there any differences of participant's knowledge about nutritional supplements and the supplements' intake post-training?**

**Table 6.** Students knowledge and and intake of nutritional supplements post-training

Item	N	Mean	SD	Sig.
Do you know about the importance of nutritional supplements?	51	1.20	.40	.000
Do you take nutritional supplements after training?		1.78	.90	

T-tests were analyzed to determine whether there was significant difference in measuring the level of knowledge and additional food intake among active students. Based on table 6, it was found that the value of  $t(50) = -4.93$  and significant level  $p = .000$  ( $p < 0.05$ ). Because of the  $p < 0.05$  value, the researcher found that the findings showed significant differences between the two questions.

**Research question 3:**

Is there any differences between the participant's objective for taking nutritional supplements and the performance enhancement?

**Table 7.** Students nutritional supplements intake & performance

Item	N	Min	Sisihan piawaian	Sig.
Do you take nutritional supplements to improve performance in sports?	51	1.51	.78	.02
Is your performance increase after taking the nutritional supplements?		1.73	.70	

T-tests were analyzed to determine whether there was significant difference in measuring the level of intake of supplemental foods among active students. Based on table 7, it is found that the value of  $t(50) = -2.40$  and the significant level  $p = .02$  ( $p < 0.05$ ). Because of the  $p < 0.05$  value, the researcher found that the findings showed significant differences between the two questions.

**Research question 4:**

Is there any differences of participant's knowledge about nutritional supplements and the supplements' intake?

**Table 8.** Nutritional supplements knowledge and level of intake

Item	N	Mean	SD	Sig.
Knowledge	51	3.84	1.14	.000
Intake		5.65	1.88	

Repeated t-tests were analyzed to determine whether there was significant difference in measuring the level of intake of supplemental foods among active students. Overall, researchers combine items in sections B and C to see if there are significant differences for all items in each section. Based on table 8, it is found that the value  $t(50) = -8.93$  and the significant level  $p = .000$  ( $p < 0.05$ ). Because of the  $p < 0.05$  value, the researcher found that the results of this study showed significant differences between the two parts of the questions.

#### 4. DISCUSSION

The objective of this study was to find out the level of knowledge of nutritional supplement intake among physically active students. In addition, researchers are also keen to know the reasons for this nutritional supplement intake.

In the research question 1, researchers compared the nutritional supplement intake prior to training with the knowledge that the participants have about the importance of nutritional supplement intakes. Results showed the nutritional supplement intake was significantly higher compared to the knowledge that they have. This showed that many of the participants just take the supplement without knowing the importance of it prior to training.

In the research question 2, researchers compared the nutritional supplement intake post/after training with the knowledge that the participants have about the benefits of it after training. Results showed the nutritional supplement intake was significantly higher compared to the knowledge that they have. This again showed that many of the participants just take the nutritional supplement without knowing the importance of it after training.

The research question 3 examine the nutritional supplements intake and their performance after game/training. Results showed the performance that the participants gain after game or

training was significantly greater compared to the nutritional supplement intake. This showed that nutritional supplement intake was not found compulsory for great performance gained during training or game.

The research question 4 examine the participants' nutritional supplements knowledge and level of intake. Results showed the intake was significantly greater compared to the knowledge that the participants have. This demonstrated that many of the participants take the nutritional supplements without knowing the importance of it.

According to Froiland, Koszewski [10], most male athletes practicing this supplement is due to improving performance and building muscles. Through a study conducted by Froiland et al. (10), it is indeed that male athletes are more likely to practice this extra nutrition as they want to improve performance and build muscle. In a study conducted by Kristiansen et al. [6], athletes who want to maximize their performance do not miss out on using supplements in their quest. Hence, the practice of these supplements is not something foreign in sports that wants to improve their performance.

For the level of knowledge, these students are driven by the knowledge they acquire from various sources. According to Giannopoulou [11], the difference in sources of information on intake of food supplements is found to be dependent on the training and the level of participation, but overall the majority of high performance athletes obtaining information related to supplements are coaches, nutrition of the athlete. In addition, the media, including books, magazines, television and the internet, are also considered to be a powerful influence on the decision of someone to use supplemental food in their daily lives [7]. In this study, the level of knowledge of the respondents is dependent on the knowledge they can while attending lectures. In addition, their knowledge is during their involvement in the sport they are involved in.

Subsequently, the researchers have analyzed and obtained results that are very encouraging. This is related to the findings of the entire pair of items in sections B and C. The findings for this pair have a significant level of .000 and this value is smaller than .05. Through this data, researchers found that there were significant differences.

As we know, when something or thing we know, of course, we will try to apply it in everyday life. This is the same as in this study, when the student itself has knowledge of the

supplements and the supplements themselves have good physical health as well as improving performance in sports is certainly a daily practice of students. According to Dascombe, Karunaratna [12] in particular, the number of additional food practitioners is athlete. However, the frequency of supplements is not too different between sexes. This is because women are more likely to take vitamins and minerals to help increase energy and maintain health, while male athletes are more likely to take protein-based and caffeine-based products largely to enhance their performance, energy and immune system and become part of their nutritional routine .

## 5. CONCLUSION

Through this study, it is clear that among university athletes, the nutritional supplementary intake was greater compared to the knowledge that they have. It is important for the coaches to educate their athletes on the importance and risks of nutritional supplements in order to ensure great performance achieved besides reducing the risks of getting the negative effects of supplements.

## REFERENCES

1. Nix, S., *Williams' Basic Nutrition & Diet Therapy-E-Book*2016: Elsevier Health Sciences.
2. Fink, H.H. and A.E. Mikesky, *Practical applications in sports nutrition*2017: Jones & Bartlett Learning.
3. Bean, A., *The complete guide to sports nutrition*2017: Bloomsbury Publishing.
4. Dickinson, A. and D. MacKay, *Health habits and other characteristics of dietary supplement users: a review*. Nutrition journal, 2014. **13**(1): p. 14.
5. The Food and Drug Administration (2017). What is a dietary supplement? United States Department of Health and Human Services.
6. Kristiansen, M., et al., *Dietary supplement use by varsity athletes at a Canadian university*. International journal of sport nutrition and exercise metabolism, 2005. **15**(2): p. 195-210.
7. El Khoury, D. and S. Antoine-Jonville, *Intake of nutritional supplements among people*

- exercising in gyms in beirut city*. Journal of nutrition and metabolism, 2012. **2012**.
8. Sedek, R., P.B. Koon, and M.I. Noor, *Nutrition Knowledge and Supplements Intake Among Royal Malaysian Navy Personnel*. Sains Malaysiana, 2013. **42**(8): p. 1181-1190.
  9. Kobryner, M.A., *Dietary supplement use by athletes at a British university*. Leeds: Leeds Metropolitan University, 2009.
  10. Froiland, K., et al., *Nutritional supplement use among college athletes and their sources of information*. International journal of sport nutrition and exercise metabolism, 2004. **14**(1): p. 104-120.
  11. Giannopoulou, I., et al., *Performance level affects the dietary supplement intake of both individual and team sports athletes*. Journal of sports science & medicine, 2013. **12**(1): p. 190.
  12. Dascombe, B., et al., *Nutritional supplementation habits and perceptions of elite athletes within a state-based sporting institute*. Journal of Science and Medicine in Sport, 2010. **13**(2): p. 274-280.

**How to cite this article:**

Mustafa, M. A., Awang, N. A., and Nadzalan A. M. Nutritional Supplement Intake Knowledge among University Active Graduates. J. Fundam. Appl. Sci. 2017, 9(6S), 1378-1388.