

KNOWLEDGE AND AWARENESS OF DIETARY SUPPLEMENTS AMONG ATHLETES IN UNIVERSITI PENDIDIKAN SULTAN IDRIS

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Abstract

The purpose of this study is to investigate the knowledge and awareness of dietary supplements among athletes in Universiti Pendidikan Sultan Idris (UPSI). Athletes (n=95, age: 22.5±2.4) completed a questionnaire on Google Docs regarding their habits and perceptions of dietary supplement intake. Among all respondents, 37 out of 95 (39%) took dietary supplements with the primary reason to improve energy (66%), strength (60%) or performance (59%). Athletes who did not take any supplement (58 out of 95; 61%) reported high supplement's cost as their main reason (28%). The most chosen supplements are protein (43%), mass and strength gainer (19%), vitamin C (11%), energy booster, omega 3, and multivitamin (8% each), creatine, fat burner, vitamin B complex and BCAA (5%, each). The athletes believed that supplements are associated with health risk (75%), supplements can enhance performance (86%) and exercise increase the need for supplements (74%). They also believed that supplements can lead to positive doping results (61%), supplements are needed with a balanced diet (58%) and require more information provided on supplements (96%). The athletes reported that they stop consuming supplements when they are not in training season (71%). Majority of the athletes claimed that they have knowledge of the active ingredients contained in the supplements taken by them (41%), and they also reported that their coaches were their main source of information (59%). Although 66% of them agreed to obtain medical advice before consuming any supplement, there is still a need to develop a system whereby people involved in sports (especially coaches) should have deep knowledge about the different supplements and their effects. The source of knowledge is a critical step to avoid any misleading information, given that doping is a serious offence in competitive sports.

Keywords: Dietary supplements; Athlete; Nutrition.

INTRODUCTION

Dietary supplements are often defined as orally-consumed products that can help one to maintain their health, such as vitamins, minerals, herbals and botanicals, amino acids, enzymes, and other products beneficial to health. Many high-performance athletes consume dietary supplements to increase their energy, maintain health, or prevent nutritional deficiencies and improve exercise recovery (Erdman, Fung, & Reimer, 2006; Lun et al., 2012). Popular supplements among athlete include vitamins D and E, minerals like calcium and iron, herbs such as echinacea and garlic, and specialty products like glucosamine, probiotics and fish oil.

The fact that athletes use dietary supplement regularly with a 32-90% of consumption prevalence (Suzic et al., 2011; Giannopoulou et al., 2013) and often consume not only one dietary supplement is alarming, especially with the limited knowledge on the supplements content and effect (Golshanraz et al., 2012). There are a few supplements and sports food that may bring specific benefits for some athletes in some circumstances, but these should only be used after consultation with a qualified sports nutritionist or an accredited sports dietician to prevent negative side effects to the body. The effect that is of particular concern by the athletes is if the substances consumed may cause a positive doping outcome. For these athletes, a failed drug test may lead to the loss of medals won or records set, as well as temporary suspension from competition. It may also lead to a damage to the athlete reputation and perhaps a permanent loss of employment and income (Maughan, Greenhaff, & Hespel, 2011).

A recent report by World Anti Doping Agency (WADA) stated that the percentage of Total Findings has increased from 1.49% in 2015 to 1.81% in 2016, and this result is currently reflected in the number of Adverse Analytical Findings (AAF). Furthermore, recent research from WADA reports that 44% of the total AAF were represented by Anti-Doping Rule Violations (ADRVs), and the top three sports with the highest ADRV numbers are athletic, bodybuilding and cycling (World Anti-Doping Agency, 2016).

Many young athletes are not well-informed about their dietary choices and nutrition supplements. Previous research has shown that athletes do not always use reliable sources to gather information about supplements. Coaches have been noted as being the primary source of nutrition information. There is a lack of studies about the knowledge and awareness of dietary supplement that effective for athletes to increase their performance. Thus, this study was designed to investigate the knowledge and awareness of dietary supplement among athletes in Universiti Pendidikan Sultan Idris.

METHODS

Ninety-five athletes (age: 22.5 ± 2.4) from Universiti Pendidikan Sultan Idris (UPSI) participated in this study. The questionnaire used was developed by Lockie et al., based on established methods (Dascombe et al., 2010; Lockie et al., 2015) and was distributed as an online survey using Google Docs. The questionnaire surveyed the athletes on the following aspects:

1. Nutritional supplement usage;
2. Identification of supplements used;
3. Specific information and knowledge on their reported supplements;
4. Reasons for taking or not taking nutritional supplements;
5. General perceptions regarding nutritional supplements; and,
6. The persons influencing the decision on nutritional supplement usage.

The survey on nutritional supplement usage and general perceptions regarding nutritional supplements involved “yes-no” responses. If the subjects used supplements, they were to list all the supplements they were taking. For each of those supplements, users were to rate their knowledge of the active ingredients. With regards to the questions on the reasons for taking or not taking supplements, and the persons influencing the decision to use or not use supplements, subjects were to note all that were applicable. The subjects typically took about 15-20 minutes to complete the questionnaires. Each completed questionnaire from the subjects was collected, coded, and analysed as one sample.

Details of the results were electronically transferred to Microsoft Excel (Microsoft CorporationTM, Redmond, Washington, USA) and were analysed. Data were presented as the number of positive responses (p) from the total number of surveyed athletes, or responses for a particular question (t), and subsequent relative percentage ($p/t \times 100$; %).

RESULTS

The questionnaire showed that only 37 out of 95 athletes (39%) surveyed were taking at least one nutritional supplement. The number of supplements used by the athletes is as shown in Figure 1. Among the athletes who take supplements, 17 took one; 16 took two; 3 took three; and 1 took four.

The reasons provided by the athletes for taking supplement are as displayed in Figure 2. The primary reason is to improve energy (66%), followed by to improve strength (60%), to improve performance (59%), to maintain health (54%), to boost immunity (37%), to reduce fatigue (36%), as a dietary routine (33%), as a recommendation from other athletes (20%), for sponsorship arrangements (6%), other reasons (6%) and for travel assistance (3%).

For subjects who did not take any supplement (58 out of 95, 61%), the reasons provided by them are as presented in Figure 3. The cost of supplement is the main reason (28%), followed by other reasons such as being afraid of the bad side effects from supplements (21%), the inability to see the contribution of supplement to their performance (14%), a preference for relying on natural sources for energy booster (10%), the consumption of a balanced diet (9%), the unsuitability with their body (5%), the lack of information about the supplement (5%), and being too lazy to consume (2%).

As presented in Figure 4, the various types of supplement consumed by the surveyed athletes include protein as the most preferred supplement (43%), followed by other ingredients

such as mass and strength gainer (19%), vitamin C (11%), energy booster (8%), Omega-3 (8%), multivitamin (8%), creatine (5%), fat burner (5%), vitamin B complex (5%) and branched chain amino acid (BCAA; 5%). The subjects were asked to rate their level of knowledge on each supplement that they consumed (Figure 5). Data showed that a majority of them had knowledge of the active ingredients (41%), while 16% of them reported no knowledge about the supplements.

They were also asked to report on the persons who influenced their decision on which supplement to use. Based on the data shown in Figure 6, most of the athletes were likely to discuss their supplement usage with their coaches (59%) rather than with their doctors (34%), family and friends (31%), or other allied health professionals and support staff (27%). However, a moderate amount of athletes reported that they also relied on themselves (33%) and other athletes (32%) in deciding on this matter.

As for their perceptions regarding nutritional supplements (Table 1), a majority of the surveyed athletes agreed with all of the presented statements, except that the supplements were not needed with a balanced diet, of which 58% of them disagreed. Out of the 95 subjects, 74 of them would recommend other athletes to take nutritional supplements and 63 of them agreed to obtain medical advice before consuming any nutritional supplement. However, most of them (71%) did not plan to continue taking supplements when they are not in the training season (Table 2).

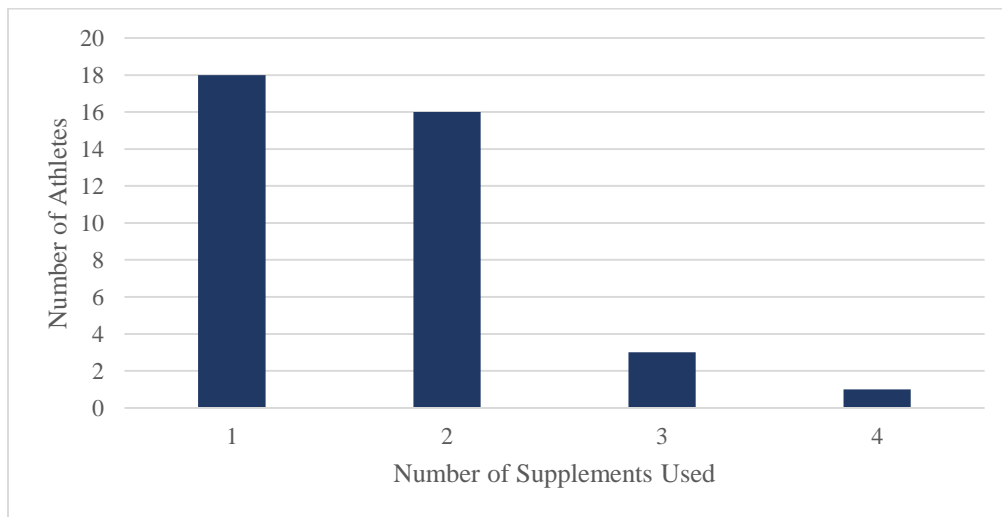


Figure 1. Number of supplements taken by the athletes of UPSI

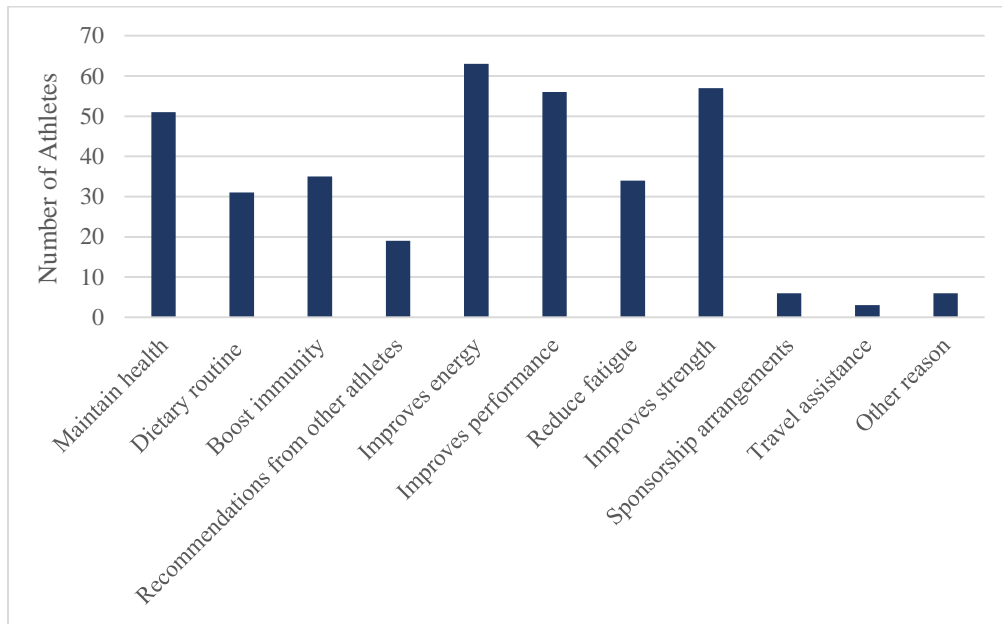


Figure 2. Reasons for taking supplements by the athletes of UPSI

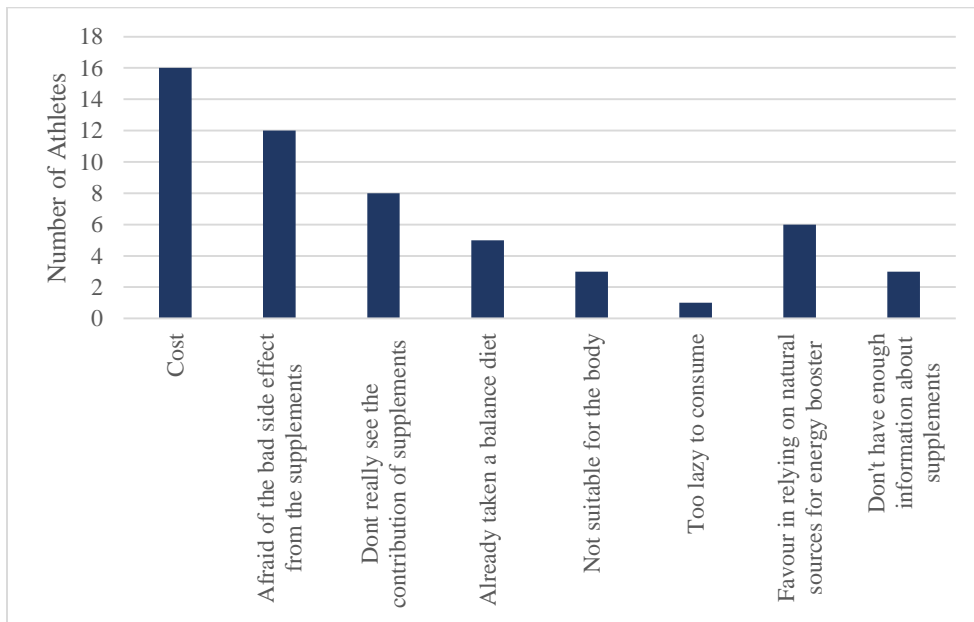


Figure 3. Reasons for not taking any supplement by the athletes of UPSI.

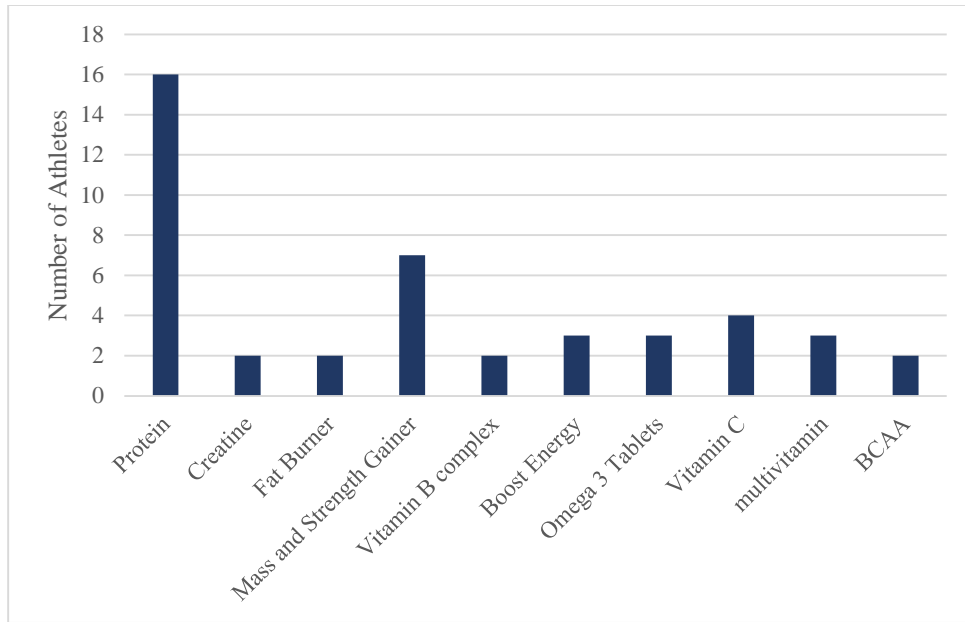


Figure 4. Types of supplements taken by the athletes of UPSI.

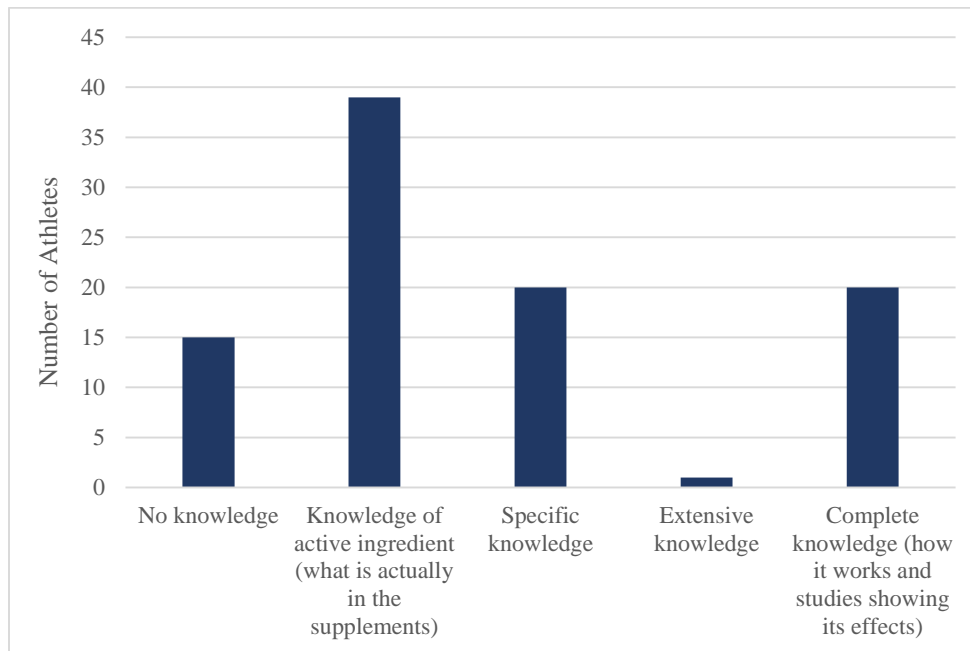


Figure 5. Level of knowledge about the nutritional supplements by the athletes of UPSI.

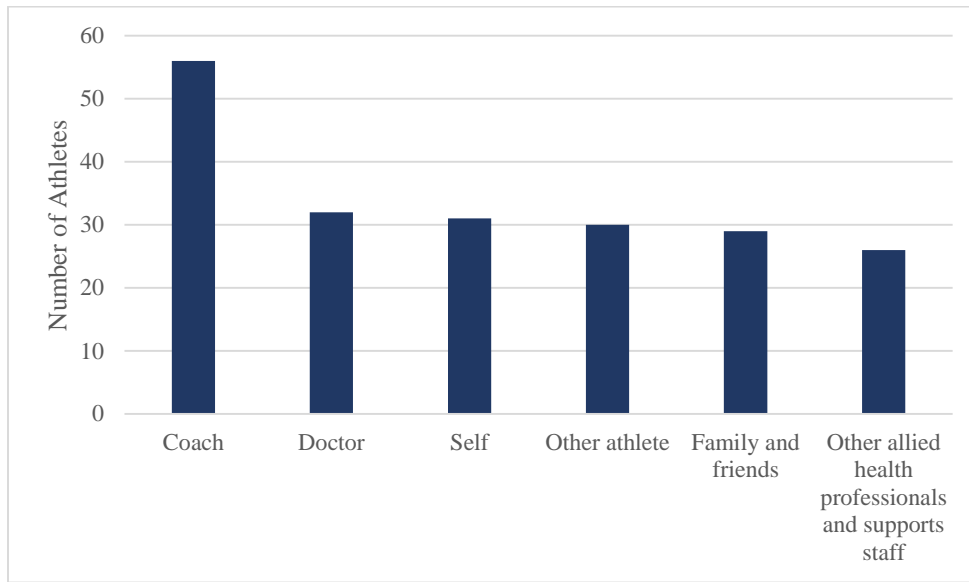


Figure 6. Influencers in deciding the type of supplements used by the athletes of UPSI.

Table 1. Perceptions regarding nutritional supplements.

Perception	Responded “yes”		Responded “no”	
	Number	%	Number	%
Supplements are associated with health risk	71	75	24	25
Supplements enhance performance	82	86	13	14
Exercise increases the need for supplements	70	74	25	26
Supplements can cause positive doping results	58	61	37	39
Supplements are not needed with a balanced diet	40	42	55	58
More information should be provided on supplements	91	96	4	4

Table 2. General questions about supplement usage.

Questions	Responded “yes”		Responded “no”	
	Number	%	Number	%
Would you recommend other athletes to take nutritional supplements?	74	78	21	22
Do you obtain medical advice before starting nutritional supplements?	63	66	32	34
Do you continue to use supplements when you are not training?	28	29	67	71

DISCUSSION

Based on the results, almost half of the respondents in this study who represent athletes of Universiti Pendidikan Sultan Idris (UPSI) were taking at least one supplement. Their main reason for taking supplements is to improve energy, strength, and performance, with protein and mass gainer being the most chosen supplements. In alignment with those findings, data showed that their coaches are their main source of information, and a majority of them stopped taking supplements when they are not in their training season.

These findings support previous data from Lockie et al., which demonstrated that a majority of their subjects were taking protein powder to increase strength (Lockie et al., 2015). A similar data presented by Dascombe et al. on male athletes reported the usage of protein to improve performance (Dascombe et al., 2010). Hozoori et al., also reported that their athletes' purpose of taking supplements is to enhance performance, with their coaches being the main source of information. Their significant finding of a correlation between the use of supplements and the history of exercise training supports our current data which suggests that supplement was consumed only to complement their training routine (Hozoori, Motlagh, & Marzban, 2016).

Similar to the data in Lockie et al., the athletes of UPSI also regarded cost as the main reason for not taking any supplement (Lockie et al., 2015). However, a considerably large percentage of the subjects also reported that they were afraid of the side effects of supplements, which is in line with the subjects' perception of supplements being associated with a health risk. These findings are supported by the fact that a majority of the respondents obtained medical advice before consuming any nutritional supplement. This is also in alignment with the results of their sources of information shown in Figure 6, with doctors being their second source of information.

Almost half of the UPSI's athletes reported that they had knowledge of the active ingredients in their nutritional supplements, and only 16% reported no knowledge about supplements. Quite a high amount of the athletes know how the supplement works and some claimed of having specific knowledge. This finding demonstrated that they might have the awareness and a clear purpose of taking supplements.

Although most of them agreed with the perception that supplements can enhance performance and exercise increases the need for supplements, a majority of them still reported that more information should be provided on supplements, which was supported by previous studies (Dascombe et al., 2010; Lockie et al., 2015). Despite believing that supplements can cause positive doping results, 78% of the subjects chose to recommend other athletes to take nutritional supplements.

CONCLUSION

The present study demonstrates that the athletes of UPSI are prone to consume supplements with the perception that supplements can positively enhance performance, and those who did not take any supplement majorly presented cost as the main reason for not doing so. As they consumed

supplements during the training season, it is not surprising that their coaches were found to be their main source of information about supplements. Even though most of them claimed that they have knowledge about supplements and that some of them seek advice from medical doctors before consuming any supplement, there is still a need to develop a system whereby those involved in sports (especially coaches) are required to have deep knowledge about supplements and their effects. In sports, the awareness and the knowledge about supplements are really important to avoid any risk of positive doping during competitions.

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