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Nutritional Knowledge, Attitudes and Practices of Bodybuilding Trainers in Ahwaz, Iran

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Abstract: This study was conducted to determine the nutritional knowledge, attitudes and practices (KAP) of male and female bodybuilding trainers in Ahwaz, one of the 7 major cities of Iran. KAP questionnaires which contained information about nutrients, food groups, using of supplements and ergogenic aids, were completed by trainers. Sixty three certified male bodybuilding trainers (37.9 ± 2.7 y) and 30 certified female trainers (37.3 ± 8.1 y) were recruited from all clubs of the city. All of the male and 47% of the female trainers have prescribed diet program for their trainees ($P < 0.001$) and it showed that there was a significant ($P < 0.001$) relationship between their diet prescription and their educational degrees. None of the female trainers neither use nor advise anabolic hormones such as Nandrolon; however 62% of the male trainers have advised hormones to their trainees while only 50% of them use hormones themselves. 96.8% of the trainers did not know that minerals and 88.2% did not know water are essential nutrients; and more than 90% did not realize that fat and sugars are as food groups. The training courses and educational levels of trainers are positively related to their practices. All of the trainers need more theoretical and applied nutritional education.

Key words: Body building, diet prescription, vitamin supplementation, hormone

Introduction

Nutrition is an important complement of any physical fitness program. The main dietary goal for active individuals is to obtain adequate nutrition to optimize health and fitness or sports performance (Jacqueline, 2000). This is not only important to help improve performance but also to promote healthy dietary practices in the long-term (Jonnalagadda *et al.*, 2001). So, a reasonable strength and conditioning program and a well-balanced diet must be presented as a sensible alternative to a riskier, shortcut mindset (Congeni and Miller, 2002).

Compared with parents, it has been found that trainers had more influence on the attitudes, subjective norms, and intentions of adolescents regarding supplement use (Dunn *et al.*, 2001).

Little *et al.* (2002) showed that adolescents from low-income communities receive less educational resources and may possess insufficient knowledge of nutrition and sport supplements to make health conscious decisions. Their study also indicated that a short-term nutritional education program can significantly improve supplementation knowledge (Little *et al.*, 2002).

A survey about college athletes indicated that women received more nutrition information than men (Jacobson *et al.*, 2001). Also, strength and conditioning coordinators and athletic trainers were the primary nutrition sources for men, whereas university classes and nutritionists were primary for women (Jacobson *et al.*, 2001). In a questionnaire investigation from coaches and trainers, participants who coached/trained female athletes tended to score better than the participants who coached/trained male athletes (Smith-Rockwell and

Nikos-Richardson, 2001). Krumbach *et al.*, 1999 showed that male athletes were more likely to get supplement information from nutritionists/dietitians and self, and females from family members or friends and physicians or pharmacists. In another survey about athletic trainers, it was found that 30% of participants reported dietitians were available to them; the same percentage reported utilizing dietitians (Smith *et al.*, 2001). However, there have been few studies assessing nutritional knowledge, attitudes and practices (KAP) of male and especially female athletes or trainers in Iran. The purpose of this study was to assess nutritional KAP of male and female body building trainers in Ahwaz, one of the 7 major cities of Iran.

The results of the present study can be used to develop training seminars and educational materials to promote greater knowledge and healthy attitudes among body building trainers.

Materials and Methods

Subjects: Certified male ($n=63$) and female ($n=30$) bodybuilding trainers were questioned from all clubs of the city. The mean age of male and female subjects were 37.9 ± 2.7 years and 37.3 ± 8.1 years, respectively. Subjects didn't compensate for their participation. The majority of subjects (37.6%) had diploma degree, 30.2% held BA (Bachelor of Art) or BSc (Bachelor of Science) and 32.2% didn't have even diploma degree. 32.3% of the subjects have participated in training educational workshops and the remainder (67.7%) have not participated. Letters requesting trainers' consent were sent to their homes or clubs, resulting in a return rate of about 75%.

Ethics: The study had been approved by Ethical Committee of Jundi Shapour University of Medical Sciences of Ahwaz.

Procedure: A descriptive cross sectional study was designed so that the subjects completed self-administrated questionnaires. 3 well-known bodybuilding trainers of the city had released the questionnaires to the subjects. The questionnaires were completed at clubs or homes, anywhere the trainers did prefer to complete. The responses of questions were excluded from analysis if the subjects checked more than one response option for multiple choice questions with one correct answer (62.5% of the questions were multiple choice questions with one correct answer). Using these criteria for exclusion, none of the responses were excluded.

Questionnaire Development: There were 45 questions with 122 response choices. The KAP questionnaires contained questions about educational degree, diet prescription, essential nutrients, food groups, calorie content of nutrients, using of hormones, sport drinks, water recommendation and multi-vitamin supplementation.

Statistical analyses: Chi square and ANOVA were used for analysis. P-value less than 0.05 regarded as significant point. All statistical analysis was performed with the use of SPSS for WINDOWS (version 10; SPSS Inc, Chicago).

Results

Knowledge: The results showed that 63 and 65.6% of the trainers realized protein and carbohydrates as essential nutrients, respectively; but 96.8% of them did not know minerals and 88.2% did not realize water as essential nutrients (Table 1). Of the subjects, 64.5% recognized bread and meat as food groups, in compared with 3.2% for sugar (Table 2).

Table 1: The mean percentage (%) and the number (n) of correct responses to the questions about essential nutrients

Essential nutrients	%	n
Carbohydrate	65.6%	61
Protein	63%	59
Fat	52.7%	49
Water	11.8%	11
Vitamins	21.5%	20
Minerals	3.2%	3

Attitudes: Of the trainers, 37 and 30% realized protein and energy, respectively and 22% realized vitamin as the most important factor in an appropriate diet pattern in compared with 4% for fat and same percent for sugar and 3% for water. 45% found bread and 29% known chocolate as the most energy source in compared with 19.5 and 6.5% for fat and protein respectively. Of our

Table 2: The mean percentage (%) and the number (n) of correct responses to the questions about food groups

food groups	%	n
Bread	64.5	60
Meat	64.5	60
Fruits	18.3	17
Vegetable	12.9	12
Fat	8.6	8
Sugar	3.2	3

Table 3: The mean percentage (%) of nutritional knowledge and practices of bodybuilding trainers about sport drinks (P<0.001)

Ed. Deg.*	Information (%)	Recommendation (%)
Bachelor	100	87
Diploma	80	43
Under Diploma	48	44

*Educational degree.

subjects, 59% believed fat as the most important dietary factor in obesity, in compared with 20.5% for bread. However, 88% didn't believe that vegetables are as a cause of obesity.

Practices: All of the male and 47% of the female trainers have prescribed diet program for their trainees (P<0.001). Rate of trainers' diet prescription increased as the educational degree increased (P<0.001). None of the female trainers neither use nor advise anabolic hormones such as Nandrolon; however 62% of the male trainers have advised hormones to their trainees while only 50% of them use hormones themselves. None of the trainers, who were not prescribing diet program and 42% of who were prescribing, uses hormones themselves. 49% of male trainers who had higher educational degrees have advised hormones for their trainees; interestingly 88% of the male trainers who had not have diploma degrees advised hormones for their trainees. The trainers, who prescribed hormones to their trainees, have recommended more multi-vitamin supplements than the trainers who have not advised hormones. All of the graduated trainers and 48% of the trainers who didn't have diploma degree, had information about sport drinks (Table 3). However, 87% of the graduated trainers and 44% of who didn't have diploma degree, were advising sport drinks to their trainees (P<0.001) (Table 3). There was a significant relationship between educational degree and information about sport drinks (P<0.001). All of the graduated trainers compared with 54% of those with diploma degrees have recommended drinking water in training sessions. More than 50% of the trainers recommended multi-vitamin supplements to their trainees. Rate of vitamin supplement prescription have increased as the level of trainers' educational degree increased (P<0.001). Interestingly, 65% of the trainers,

who have not advised hormones to their trainees, expressed that hormones can increase spiritually, power, muscle volume and energy, compared with 10% of those who have advised hormones. Of the subjects, 31% of who have advised hormones mentioned that just muscle volume and same percentage declared that just power could be increased by hormone usage. It was found that the subjects who advised hormones believed that hormones did not have much positive effects in compared with those of trainers who have not advised hormones at all ($p < 0.001$).

Discussion

The results of this study showed the considerable need for providing sound nutritional education to male and female body building trainers with respect to the use of vitamin supplementation and hormones and the links between adequate and appropriate diet, good health and physical performance. These questionnaires had released by 3 the well-known bodybuilding trainers of the city to decrease stress effects of the trainers on their responses. By this method, they might reply to the questionnaires more carefully. Because in the questionnaires some key points of training had been indicated (e.g. hormone recommendation).

In the present study, it was showed that there was a significant relationship between trainers' diet prescription and their educational degrees; the rate of trainers' diet prescription increased as the educational degrees increased.

Sossin *et al.* (1997) showed that more experienced coaches attended nutrition workshops and felt more informed about weight loss and sport nutrition. A survey about university student athletes (Burns *et al.*, 2004) found that primary source of nutrition information was athletic trainers; but in another study, the primary source was mass media and the secondary source was trainers (Musaiger and Ragheb, 1994).

Recent studies in different countries have shown an increase in Anabolic Steroid (AS) consumption among young people (Iriart and Andrade, 2002). Furthermore, participation in sports may encourage use of drugs that enhance athletic performance, especially AS. Goldberg *et al.* (2000); Wichstrom *et al.* (2001) showed that adolescent anabolic-androgenic steroid use seems primarily to be a type of problem behavior and only secondarily it is associated with strength-sport participation. Moreover, Mason *et al.* (2001) mentioned that now athletes are turning to supplements that are either natural or stimulate the release of natural hormones. Of our subjects, none of the female trainers neither use, nor advise anabolic hormones such as Nandrolon; however 62% of the male trainers have advised hormones to their trainees. Congeni and Miller (2002) indicated that preventing the use of drugs to enhance athletic performance is difficult even when we have good medical and scientific evidence to prove a dangerous risk-benefit ratio. However, Goldberg *et al.*

(2000) showed that school athletic teams can provide an optimal environment in which to provide drug prevention and health promotion education.

In our study, all of the hormone users were males. Also some other studies had found that use of AS is higher among males than females. (Bahrke *et al.*, 2000; Maharaj *et al.*, 2000).

In the present study, the subjects who advised hormones believed that hormones did not have much positive effects, compared with those of trainers who have not advised hormones at all. Moreover, Maharaj *et al.* (2000) showed that AS users knew more about the adverse effects of AS than non-AS users. So, the higher trainers' authorities are needed to educate trainers with respect to their diet prescription and hormone recommendation.

In our study, it was found that rate of advising for sport drinks have increased as the level of trainers' educational degrees increased.

Exercise performance can be compromised by a body water deficit, particularly when exercise is performed in hot climates (Latzka and Montain, 1999). In a study in Bahrain, it was showed that about half of the athletes consumed water only at rest break, while the rest consumed fruit drinks, tea and oranges in addition to water (Musaiger and Ragheb, 1994).

In our study, all of the graduated trainers compared with 54% of those with diploma degrees suggested drinking water in training sessions.

A practical recommendation is to drink small amounts of fluid (150-300 ml) every 15 to 20 minutes of exercise, varying the volume depending on sweating rate (Latzka and Montain, 1999). Controversially, Smith *et al.*, (Smith *et al.*, 2001) suggested that energy and fluid restrictions in weight-governed sports do not always lead to a significant decrease in performance; but the authors indicated that because of their small sample size (eight amateur boxers) and big variations in individual performances, their findings should be interpreted with care (Smith *et al.*, 2001). Also in some sports mineral supplementation is required. (Shifflett *et al.*, 2002) In the other hand, an excessive use of vitamin/mineral supplements is considered by many to be a common health problem (Kim and Keen, 1999). When the intakes of nutrients from supplements and diet were combined, it was observed that the intakes of niacin, folic acid, vitamin C, and iron exceeded levels that have been proposed as upper safe limits (Kim and Keen, 1999).

In the present study, more than 50% of the subjects recommended multi-vitamin supplements to their trainees. These results is similar with findings of Krumbach *et al.*, 1999. Dunn *et al.* (2001) indicated that attitude is a better predictor of intentions to use dietary supplements than subjective norms. In our study, rate of vitamin supplement prescription have increased as the level of trainers' educational degrees increased.

(Brill and Keane, 1994) showed that in male and female competitive bodybuilders, supplement use varied with

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training phase. Protein powder was more popular in the bulking phase, amino acids and fat burners in the cutting phase. Other studies found that the most popular reason for supplement use is to "improve athletic performance" and "build muscle" (Krumbach *et al.*, 1999) or "to meet extra demands of heavy training" (Brill and Keane, 1994). Jacobson *et al.* (2001) found that the most common supplements were creatine and vitamin/mineral for men and women, respectively.

Conclusion: Because the dietary attitudes could be regarded as a positive aspect of sport, provided athletes, physicians and trainers correct their dietary errors; (Shifflett *et al.*, 2002). It is necessary to increase trainers' nutritional knowledge and attitudes. Burns *et al.* (2004) recommended that dietitians must accelerate their marketing efforts to athletes and work closely with trainers to provide sound nutrition information. It seems that our male and female subjects need more theoretical, applied and technical information about basic nutrition, nutrients, food groups and also use of vitamin supplements and advising for anabolic hormones. Continuing educational workshops and courses are necessary to improve trainers' nutritional knowledge, attitudes and practices.

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