



Comparison of the Knowledge of Medical Students on Practical Aspects of Exercise in the Prevention and Treatment of Digestive Diseases with and Without a Short Course in the Field of Sports Medicine

Seyed Vahid Mojab¹, MD; Zahra Sobhani^{2*}, PhD

¹Department of Cardiovascular, School of Medicine, Shiraz University of Medical Sciences, Shiraz, Iran

²Colorectal Research Center, Shiraz University of Medical Sciences, Shiraz, Iran

*Corresponding authors:

Zahra Sobhani, PhD;
Colorectal Research Center, Shiraz University of Medical Sciences, Shiraz, Iran.
Tel: +98 9173375538
Email: zahrasobhani120@yahoo.com

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Abstract

Background: Physical activity is a fundamental health issue, How to educate it to patients and people in the community requires a set of knowledge and information about the sport, which should be achieved by physicians during college education. This study aims to compare the knowledge of Medical students with and without a training course about medical sport.

Methods: 180 medical interns from Shiraz University of Medical Sciences, both males (56%) and females (44%) students participated in this study. Sport and physical activity questionnaire (Mojab, 2008) was used. All the items were analyzed using SPSS version 22.

Results: Independent Sample T-test was applied to find whether there are similarities or differences between the interns with and without a course of sports medicine, and $P < 0.05$ was considered statistically significant. Based on the obtained results the mean age was 25.75 ± 1.38 years. The overall performance of the participants with a course in sports medicine (mean = 9.75 ± 3.12) was better than those without a course in sports medicine (mean = 9.57 ± 2.20). Although half of the participants passed a 3-hour course in sports medicine, no significant difference was found between the students' knowledge without a course and those who passed a course in sports medicine ($P = 0.456$).

Conclusion: Findings show that these students lacked sufficient knowledge about the sport and were unable to prescribe a suitable sporting version for patients. So, it is suggested that medical education authorities prepare this field by providing at least one multi-day training workshop during the internship period.

Keywords: Sports medicine, Medical student, Digestive diseases, Obesity, Physical activity, Knowledge

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Introduction

Sport has been known to be one of the most important factors in preventing disorders

and diseases (1). According to the World Health Organization (WHO), lack of physical activity (PA) has been identified as the fourth leading risk factor for global mortality, causing an estimated 3.2 million

deaths annually (2). PA is an important behavior that leads to body weight regulation (3) and reduces the risk of death due to its positive influence on a variety of health conditions, such as disorders of metabolism, cardiovascular disease, diabetes, as well as neurological diseases, sarcopenia, osteoporosis and cancer (4, 5).

The Surgeon General's Report on Physical Activity and Health underscores the importance of activity in health promotion and disease prevention. It suggests that individuals should undertake 30min of moderate physical activity on most days of the week (5). Structured physical activity, such as aerobic exercise, resistance training or both of them, is associated with HbA1c reductions of 0.7 %, 0.57%, and 0.51%, respectively, in patients with type 2 diabetes and also, if it lasting more than 150min a week was associated with HbA1c reductions of 0.89% (6). Additionally, evidence has recommended that structured exercise could substantially reduce the incidence of type 2 diabetes (7). Some studies suggest its role in preventing neurodegenerative diseases well as (1).

Whether physical activity counseling interventions that involve written advice by a health professional can increase the daily amount of time that patients spend on physical exercise-related activities should be clarified (8). A meta-analysis showed that higher levels of physical activity (3000–4000 MET min/week) are remarkably associated with a lower risk for ischemic heart disease, ischemic stroke, and breast cancer, colon cancer and diabetes (9).

The evidence of the effect of each kind of physical activity might help to establish activity programs specified to the characteristics of each person and the proposed objectives (5). Physicians can be effective in increasing patients' health-promoting behaviors, consist of physical activity (10). However, less than half of physicians screen patients for physical inactivity and less than one-third of patients report receiving exercise advice in the last year (11).

The main factors associated with the increased possibility of physicians presenting PA advice include physicians' beliefs, knowledge, and attitudes toward PA advising, their confidence and prior training in PA advising and also their personal lifestyle (12). For example, in a randomized controlled trial, Lautenschlager et al. tested the effects of increased PA levels on cognition among persons with subjective cognitive decline (SCD) and mild cognitive impairment (MCI) and showed a significant improvement in cognition as measured by the Alzheimer's Disease Assessment Scale-Cognitive subscale (ADAS-Cog) (13, 14).[‡]

If efficacious, Medical Students Learning Weight Management Counseling Skills (MS Weight) can have an important public and clinical health effect by providing basic education to enable physicians-in-training to help patients who have overweight to achieve a healthier weight (15).[‡] Physicians'

knowledge, confidence, and prior training will influence physical activity (PA) counseling in general practice (12). Obesity predisposes an individual to develop numerous co-morbidities including type 2 diabetes and represents a major healthcare issue in many countries worldwide. Bariatric surgery can be an effective treatment option resulting in profound weight loss and improvements in metabolic health. However, not all patients achieve similar weight loss or metabolic improvements. Exercise is an excellent way to improve health, with well-characterized physiological and psychological benefits (16).

Considering the key role of physicians in public health, it is important to train medical students to use PA as a medical therapeutic option and to provide individualized PA advice to their patients (12). In addition, regularly active medical students felt more confident in providing PA advice and perceived a greater impact of PA advising on patients' quality of life (17).

So, in this study in addition to assess the awareness of medical interns of Medical Sciences about the practical aspects of exercise in the prevention and treatment of diseases, we investigate the effect of sport medicine courses on the prevention and treatment of diseases.

Materials and Methods

Participants

The participants of the study were university medical students at Shiraz University of Medical Sciences. They were interns who were chosen using a stratified random selection method. The sample consisted of both males (56%) and females (44%) students. All experiments on human subjects were conducted in accordance with the Declaration of Helsinki.

Data Collection Procedures

The data were collected over four consecutive months during February and May 2016. With prior permission from the head of the University and after describing the general objectives of the study and familiarizing the students with the items of the questionnaire, the participants were given enough time to answer the items carefully and patiently. It was also emphasized that the participants be honest in answering the questions. Moreover, they were assured that the collected data would be used just for research purposes.

Since all the participants showed willingness and cooperated with the researcher very well, there was a 99.3% return rate (n=180) of the questionnaires from all the participants. Based on the correct answers of each intern, the scores (0 to 20) were registered to each answer. For the desired amount of awareness, the students' obtained scores must be at least 14.

The study was approved by the ethics committee of Shiraz University of Medical Sciences, Shiraz,

Iran (IR.SUMS.MED. REC.1395. S 132). Written informed consent was obtained from the participants and anonymity of the participants was guaranteed.

Measurements

Assesment the knowledge of medical students on practical aspects of exercise in prevention and treatment of diseases: Since the objective of the study was to determine the effect of short term education in the field of sports medicine on the medical students' knowledge about the practical aspects of exercise in the prevention and treatment of diseases, a self-developed questionnaire was used. The questionnaire was developed by Mojab (2008), by using accessible scientific literature and based on the interns' minimum and optimal level of knowledge on/ about the treatment and prevention of diseases and sport.

The questionnaire is comprised of two sections. The first section of the questionnaire deals with the background information of the participants such as age, sex, favorite sport, the experience of doing sport, and participating in internal or international sports competitions. The second section aims to investigate the participants' knowledge on practical aspects of sport in the prevention and treatment of diseases, through twenty multiple-choice questions. The validity of the questionnaire was determined using the guidance of experts in this field also its reliability was approved by presenting the questionnaire to 15

persons of the population randomly (10% of the research population) and re-submitting it with a 2-week interval to same individuals. Obtained scores were assessed using Cronbach's alpha test, which was correlated to more than .8 in the first and second stages (18).

Statistical Analysis

All the items in the questionnaire were analyzed using the Statistical Packages for Social Sciences (SPSS) version 22.0. Descriptive statistics and Independent Sample T-test were applied to find whether there are similarities or differences between the interns with and without a course in the field of sports medicine. A p-value of less than .05 was statistically considered significant.

Results

Table 1 presents a summary of the demographic information of the participants from Medical Sciences students with and without a course in sports medicine.

As the table shows, about 56% of the participants were male and 44% were female. The mean age of the participants was 25.75 ± 1.38 . About 22% of the students do swimming as their favorite sport and 21% play football and 16.7% had no favorite sport.

As the table indicates only 26.7% of the participants had the experience of participating in sports events,

Table 1: Demographic information of the participants

Variable		Without a course in sports medicine N (%)	With a course in sports medicine N (%)	Total
Sex	Male	44 (51.1)	57 (63.3)	101 (56.1)
	Female	46 (48.9)	33 (36.7)	79 (43.9)
	Total	90 (100)	90 (100)	180 (100)
Age (year)	Mean \pm SD	26.20 \pm 1.34	25.30 \pm 1.43	25.75 \pm 1.38
Favorite sports	Swimming	24 (26.7)	16 (17.8)	40 (22.2)
	Football	15 (16.7)	23 (25.5)	38 (21.1)
	Tennis	14 (15.6)	15 (16.7)	29 (16.1)
	Volleyball	7 (7.7)	11 (12.2)	18 (10)
	Basketball	4 (4.4)	6 (6.7)	10 (5.5)
	Other sports	6 (6.7)	9 (10)	15 (8.4)
	No sport	20 (22.2)	10 (11.1)	30 (16.7)
	Total	90 (100)	90 (100)	180 (100)
Experience of participating in domestic and foreign sports events	Yes	32 (35.6)	16 (17.8)	48 (26.7)
	No	58 (64.4)	74 (82.2)	132 (73.3)
	Total	90 (100)	90 (100)	180 (100)
Having a sufficient amount of activity to prevent diseases	Yes	43 (47.8)	25 (27.8)	68 (37.8)
	No	47 (52.2)	65 (72.2)	112 (62.2)
	Total	90 (100)	90 (100)	180 (100)
Having enough knowledge to prescribe a sports prescription for patients in the future	Yes	14 (15.5)	29 (32.2)	43 (23.9)
	No	76 (84.5)	61 (67.8)	137 (76.1)
	Total	90 (100)	90 (100)	180 (100)
Interested in continuing education in sports medicine	Yes	15 (16.7)	68 (75.6)	83 (46.1)
	No	75 (83.3)	22 (24.4)	97 (53.9)
	Total	90 (100)	90 (100)	180 (100)
Total Score	Mean \pm SD	9.57 \pm 2.20	9.75 \pm 3.12	9.66 \pm 2.66

Table 2: Independent samples t-test for three variables of the questionnaire in two different groups of students with and without a course in sports medicine

Variable		Without a course in sports medicine Mean±SD	P value	With a course in sports medicine Mean±SD	P value
Sex	Male	9.73±2.18	0.411	9.14±3.25	0.13
	Female	9.38±2.28		9.09±2.81	
Experience of participating in domestic and foreign sports events	Yes	10.06±3.02	0.069	11.25±2.11	0.062
	No	9.31±2.18		10.88±2.05	
Having enough knowledge to prescribe a sports prescription for patients in the future	Yes	10.45±2.89	0.056	9.60±2.30	0.059
	No	9.41±2.23		10.54±2.54	

Table 3: Independent samples t-test for students' overall performance on having knowledge about the practical aspects of sports

Variable	Without a course in sports medicine	With a course in sports medicine	P value
Total score	9.57±2.2	9.75±3.12	0.456

and only 37.8% of the students had a sufficient amount of activity. Based on the obtained data presented in Table 1, only 23.9% of the respondents had enough knowledge to prescribe sports prescription for their patients in the future.

In addition, about 46% of the interns were interested in continuing their education in the sports medicine field. The overall performance of the participants who passed a course in sports medicine (mean=9.75±3.12) was better than interns without a course in sports medicine (mean=9.57±2.20).

In order to see whether the students' performance significantly differed in these two groups, an independent sample T-test was run. The results are summarized in Tables 2 and 3.

As Tables 2, 3 indicate, no significant difference was found between the students' knowledge without a course in sports medicine (9.57±2.2) and those who passed a course in sports medicine (9.75±3.12) concerning the practical aspects of sport in the prevention and treatment of the diseases (P=0.456).

Discussion

Lack of physical activity and sedentary lifestyles among all strata of society represent global public health problems in both developed and developing countries (19). So physical activity is becoming an integral part of the health-related initiatives across all populations and in various settings consisting of communities, workplaces, and schools, as well as extending into the fields of urban design, transportation and policy development. Considering the importance of the doctors' role in public health, so the medical students' education is important to use sport as a treatment (12). Learning is optimal when knowledge is acquired and experience occurs early, skills are reinforced consistently, and teaching is integrated into all aspects of a curriculum (20).

The results of our study showed that although the awareness of medical students about the importance of sports activities in the faster recovery of various types of diseases, they did not feel sufficient

confidence to prescribe a suitable sports version for patients; due to lack of sufficient information and practical experience in this field. Also, the comparison of two groups showed that despite the fact that there was a 3-hour course for medical students in sports medicine; the results did not show a significant difference with the results of medical students without a course for sports medicine.

According to the study of Mandic et al. passing appropriate sports courses significantly increased the awareness of medical students about sports guidelines and related programs that showed our course was very short and not applicable for interns and also the awareness of the other health professionals who can assist in providing further physical activity advice, which was inconsistency with our findings (12) and with the results of Dacey et al. results on physical activity counseling in medical school education (21, 22). According to Wiklund et al findings patients experience both achievements and hinders with regard to physical activity one year after bariatric surgery and patients had an increased understanding of the benefits of physical activities (23).

The findings of Mandic et al. indicate that the physical activity learning module in the undergraduate curriculum significantly increased the medical students' awareness of the competent health professionals who could assist in providing specific sports exercises advice for their patients (12). Several studies reported that medical students (24) and resident physicians lacked competence for prescribing exercise. Since physicians' confidence in physical activity-advising skills was significantly influenced by prior training (25) that were inconsistency with our findings and it is essential to provide opportunities for medical students to develop effective skills in sport advising as a part of their undergraduate training and also a long-lasting course should be provided that could empower the interns.

A systematic review found that the inclusion of exercise advising in the medical school curriculum increased students' knowledge, skills, and self-

efficacy to conduct PA counseling (21). Therefore, more extensive training in exercise advising may be necessary as a part of the undergraduate medical curriculum to develop medical students' skills, knowledge and confidence for providing effective physical activity advice in the future. As suggested previously, improving medical students' knowledge and confidence regarding PA promotion is a step forward and may increase the rates and effectiveness of physicians' PA counseling in the future (22).

The findings of Elley C. R. et al study had significant implications for future undergraduate medical curriculums. Given the effectiveness of the PA advising in general practice (10), the multiple benefits of PA in healthy individuals and clinical populations and global efforts to reduce physical inactivity by 10% worldwide (26). So, it is suggested that equip future physicians with the skills, and knowledge for PA advising.

Despite the knowledge of medical students about the beneficial effects of exercise on the rapid recovery of disease symptoms, but due to lack of scientific and practical knowledge in this regard, they did not accept the exercise as an effective treatment and could not provide appropriate sports therapies for any illness. For this reason, it is suggested that the units be considered in order to train a variety of sporting activities and their application and efficacy. Also, the assignment of part of the internship health clinics program to sports and health clinics. Set up workshops on sports medicine for clinical practitioners and familiarize them with the sports medicine subjects can promote the development of a sports culture among medical students as the front line of health providers in the community. Finally, the establishment of sports medicine clinics with the help of medical sports professionals can be a place to refer patients for treatment.

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Conclusion

These students lacked sufficient knowledge about the sport and were unable to prescribe a suitable sporting version for patients. So, it is suggested that medical education authorities prepare this field by providing at least one multi-day training workshop during the internship. Also, regular physical activity can affect the improvement of digestive diseases.

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Ethical Approval

Informed consent was obtained from all included individual participants (IR.SUMS.MED. REC.1395. S 132).

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Author' Contribution

SVM collected data and analyzed the data. ZS performed a literature search and wrote the manuscript. All authors read and approved the final manuscript.

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