

DIFFERENCES IN HEALTH CHARACTERISTICS BETWEEN DIFFERENT PHYSICAL ACTIVE FEMALE STUDENTS

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Abstract

The aim of this study was to determine differences in health characteristics based on the frequency of dealing with any physical activity, with the student population of female students at the University of Split. The study included 2849 students of undergraduate studies at the University of Split, ages 19-25 years. Physical engagement was conducted through three sub-variables: sports, recreation and walking, while for assessing health characteristics were determined the incidence of nine different diseases among students. Within the health category was analyzed smoking status of college students. For categorical variables (health characteristics and smoking status) had a representation in terms of frequency and percentage accounts. Relations between the criterion variable and categorical predictive variables were determined with a nonparametric chi-square test. The values of these methods were to determine the differences which were defined with error $p < 0.05$. Significant differences were determined between students of different smoking status and dealing with recreation as a form of kinesiology engagement (Chi-square = 13.132, $p = 0.004$). They also identified differences between the health status of healthy student engaged in walking 1-5 hours or more per week ($n = 2328$) and the ill students who are significantly less engaged in walking ($n = 521$). There were no significant differences between smoking status and variable "sports" (Chi-square = 2.836; $p = 0.417$). There were also no significant differences between smoking status and "walking" (Chi-square = 0.59; $p = 0.9$), and health status and variable "recreation" (Chi-square = 3.261; $p = 0.353$), nor between the health status of students and "sports" (Chi-square = 3.304; $p = 0.347$). In conclusion, the impact of physical activity on physical function of people and irrefutably confirmed the importance of physical activity in promoting the reconstruction process in the development and maintenance of functional and motor skills throughout life, and to preserve them until old age.

Key words: habits, physical activity, health status, health

Introduction

All noticeable decline in physical abilities and increase the number of obese school children is a global problem (Findak & Mrakovič, 2000). This increases the importance of teachers in society, which has such great power to influence the transformation of anthropological status of the child. Human activities can extent at the same time can affect so many human characteristics as possible professionally designed and conducted physical activity (Hardman, 2008). Global problems associated with hypokinesia as a cause of various diseases, the data as 155 million obese and overweight children and youth worldwide that have public health problems and must involve health professionals in promoting physical activity to encourage the active way of life (Bronikowski et al., 2008). Health includes functionality, abilities that are necessary in order to be able to meet life's requests in quality way⁴. Research fact is that there is a close link between functionality and health, from which it follows that measures of functional abilities and contribute to the assessment of the level of health⁷. Hypokinesia in the world is still a threat to human health, and combating hypokinesia contributes to the improvement and preservation of their health, but the health of the entire community (Oja, 2000). The ideal position to raise awareness about the importance of physical activity in society have workers in the field of health and education.

Some authors emphasize that there is a strong link between physical activity, as prevention from various cardiovascular diseases, diabetes and cancer (Brown et al., 2007). Some authors indicate that personal habits of doctors (including their habit of holding physical activity) are constant and significant predictors, their habits, counseling patients on prevention exercises and by their example to act strongly and motivating the adoption of healthy habits of the patients (Frank et al., 2000; Wells, 1986). Studies show that doctor will advise the patient about preventive behavior, which is influenced by three groups of factors: precipitating factors (values, beliefs, attitudes and perceptions), enabling factors (lack of time, lack of fees and vague recommendations) and high risk (see the results, support of colleagues, and feedback of patients) (Fulton et al., 2001; Green et al., 1988)

Methods

Participants

The study was conducted on a sample of 2849 regular student of the University of Split, aged 19-25 years. We are talking about a representative sample that covers a large part of the students of Split University and in which participated girls from almost all of Split Faculties: Faculty of Medicine, Faculty of Philosophy, Faculty of Electrical engineering, mechanical engineering and shipbuilding, Natural-mathematical faculty, Faculty

of Law, Faculty of Economics, Chemical engineering Department and Faculty of kinesiology.

Sample of variables

The pattern of variables is defined with kinesiology engagement as criterion variable and variables for anthropological and health assessment status as predicted variables. Kinesiology contribution as criterion variable will be estimated in three variables: * four levels of kinesiology engagement in the form of duration of walking (up to one hour per week, between 1 and 2 hours per week, between 2 and 4 hours per week and more than 4 hours per week); * Four levels of recreational kinesiology engagement in terms of dealing with free recreational activities (no recreational activity, recreational activity in duration of 1-2 hours per week, recreational activity in duration of 3-4 hours per week and recreational activity in duration of 5 or more hours per week); * four levels of sports kinesiology involvement in the form of dealing with institutional sports (any sport activity, sports activity in duration of 1-2 hours per week, sports activity in duration of 3-4 hours a week and sports activity in duration of 5 or more hours per week). To estimate the health characteristics the incidence was determined in 9 different illness among female students: diabetes, cardiovascular, asthma, malignant diseases, epilepsy, allergic diseases, psychological disorders, - tuberculosis, disorders of the digestive system. As a separate health category smoking status is analyzed among female students.

Statistical methods

Collecting data on the anthropological and health status of students and their kinesiology permanent engagement was carried out in the student clinic in Split by authorized doctors County Department of Public Health. The study is therefore carried out with the consent and active participation of competent doctors and service of the Institute. Due to the nature of research and the permanence of the data collection component of regular systematic medical examinations, all data were collected and statistically analyzed. Parallel data collection was conducted and processed, analyzed and interpreted, and the results are presented in study. In the context of data processing, according to psychometric characteristics of individual variables, parametric and nonparametric statistical procedures were used. For quantitative variables distributed on scale and formed a collective criterion variable calculate the next-obvious and distribution parameters: mean (XA), minimum and maximum value of the results (MIN, MAX), standard deviation (SIG), asymmetry (Sk) and the curvature distribution (KU).

Testing for normality of distribution was carried out by the method of Kolmogorov - Smirnov (Max D). For categorical variables (health characteristics and smoking status) was determine the representation in terms of frequency and percentage accounts. Relations between the criterion variable and categorical predictive variables determine the nonparametric chi-square test. Processing was done by software package Statistica Win. Ver.7.0.

Results

The research results are presented in table 1, which also represents the ratio of kinesiology engagement and health, or smoking status in college students, and in table 2, which represents the ratio of kinesiology engagement on a weekly basis and the health status of students. All results are defined numerically or in percentage.

Discussion

Relations between the status of sports and student smoking status (table 1) showed that from the total number of tested students (2849), 83.26 % of them or 2372 were in no way involved in sports, where 10.67% or 304 students were 1-2 hours per week engaged in some sport, 94 or 3.30 % trained 3-4 hours a week than the total sample, 79 (2.77 %) student practicing 5 hours a week or more. According to smoking status in relation to the categories of sports in all categories forefront smoking, except in the category of sports five hours or more, where leading non-smokers were 44. There was a large number of student smokers that could not play sports (1210 students), followed by sports which was played 1-2 hours per week (165 students) and which engaged in sports for 3-4 hours per week (50 students). Based on the results, we concluded that the same number of students with different smoking status engaged or not engaged in sports as organized physical exercise, and there were no statistically significant differences between the two groups at $p= 0.41767$. Relations between the status of dealing with recreation and student smoking status (table 2) showed that the total number of tested students (2849), 45.45 % or 1295 of them are in no way concerned with recreation, where 40.58 % or 1,156 students were engaged in 1-2 hours per week in some form of recreation. They were 316 or 11.09 % recreationally trained 3-4 hours a week and 82 students of the total sample (2.88 %) practicing 5 hours a week for recreation and more. According to smoking status in relation to the categories of sports in the first two categories led smokers, except in the category of sports 3-4 hours where led non-smokers (184 students are nonsmokers). In the category of dealing with recreation five hours or more is the same number of both student status (41 students), but it was a percentage higher in the category of non-smokers 2.95%. Based on the results, we concluded that there was a difference between students of different smoking status and their kinesiology involvement, which meant that the category of student smokers more practiced recreation in their free time of student smokers with $p= 0.00437$. Table 1 showed the distribution of observed frequencies practicing weekly walking and smoking status among female students. Frequencies show that the total number of students tested (in 2849), only 2.25 % or 64 students walk to one hour a week, the ratio of non-smokers and smokers was 30 and 34 students. From 1-2 hours a week walking practiced 1145 students or 40.19 % of them being the largest percentage of a

numerically and here is the ratio of the numerically approximate (565 nonsmokers and 580 smokers). 34.15 % students practiced weekly walking 2-4 hours (the ratio of non-smokers and smokers is 466:507). 4 hours and more practiced 23.41 % of the total student or 328 nonsmokers and 339 smokers. It can be concluded that students engage in a lot of walking per week and according to smoking status that is similar to the distribution of frequencies by category. There are no differences between categories of smokers and nonsmokers in

dealing with walking as one of vision kinesiology engagement with $p = 0.89951$. The frequencies that show the relationship between sports and health status of students (table 2) shows that the total number of students tested, 83.26 % or a number of female students in 2378 was in no way involved in sports, of which the ratio frequencies healthy student can not deal with sport with the frequencies of sick students who are in no way involved in sports (1938- 81.70 %) versus 434 (18.30 %).

Table 1 The ratio of kinesiology engagement and smoking status in college students

VARIABLES	DOING SPORTS		DOING RECREATION		DOING WALKING	
	NON-	SMOKER	NON-	SMOKER	NON-	SMOKER
up to one hour per week	1162	1210	620	675	30	34
	83,66%	82,88%	44,64%	46,23%	2,16%	2,33%
between 1 and 2 hours per week	139	165	544	612	565	580
	10,01%	11,30%	39,16%	41,92%	40,68%	39,73%
between 2 and 4 hours per week	44	50	184	132	466	507
	3,17%	3,42%	13,25%	9,04%	33,55%	34,73%
more than 5 hours per week	44	35	41	41	328	339
	3,17%	2,40%	2,95%	2,81%	23,61%	23,22%
Pearson Chi-	2,836		13,132		0,587	
p	0,41767		0,00437		0,89951	

Table 2 Relationship between kinesiology engagement and health status among students

VARIABLES	DOING SPORTS		DOING RECREATION		DOING WALKING	
	XA-HEALTHY	XA-ILL	XA-HEALTHY	XA-ILL	XA-HEALTHY	XA-ILL
up to one hour per week	1938	434	1059	236	54	10
	(83,25% - 81,70%)	(83,30% - 18,30%)	(45,49% - 81,78%)	(45,30% - 18,22%)	(2,32% - 84,38%)	(1,92% - 15,63%)
between 1 and 2 hours per week	254	50	946	210	963	182
	(10,91% - 83,55%)	(9,60% - 16,45%)	(40,64% - 81,83%)	(40,31% - 18,17%)	(41,37% - 84,10%)	(34,93% - 15,90%)
between 2 and 4 hours per week	77	17	262	54	765	208
	(3,31% - 81,91%)	(3,26% - 18,09%)	(11,25% - 82,91%)	(10,36% - 17,09%)	(32,86% - 78,62%)	(39,92% - 21,38%)
more than 5 hours per week	59	20	61	21	546	121
	(2,53% - 74,68%)	(3,84% - 25,32%)	(2,62% - 74,39%)	(4,03% - 25,61%)	(23,45% - 81,86%)	(23,22% - 18,14%)
Pearson Chi-square	3,304		3,261		10,914	
p	0,34716		0,35312		0,01221	

The number of students who are involved in sports 1-2 hours, a total of 304 students, or 10.67 % of the total number, the ratio of healthy versus diseased female students is 254 (83.55 %) compared to 50 (16.45 %). We noted that the percentage relationship of the frequency of practicing sports weekly in the healthy group and the group of sick students is about the same, that there are no differences that condition to students that fall under the category of healthy are longer or

more frequently involved in sports from a student under the category of sick with $p = 0,34716$. The frequencies between dealing with recreation and health status students (table 2) showed that the total number of students tested, 45.45 % or 1295 were in no way involved in recreation, of which the ratio of the frequency of healthy students who could not deal with recreation and sick students who were in no way involved in recreation is 1059 (81.78 %) versus 236 (18.22 %).

The number of students who were engaged in recreation 1-2 hours were 1,156 or 40.58 %, and of this total, the proportion of healthy versus diseased female students was 946 (81.83 %) by 210 (18.17 %). 316 female students weekly did with recreation 3-4 hours or 11.09 % of the total sample, of which 262 were in the control group and 54 in the group with the status of the sick. 82 students or 2.88 % were engaged in recreation 5 or more hours per week. Based on the results, significance of $p = 0.35312$, we concluded that there were no differences between the groups of healthy and sick students and their involvement within the kinesiology dealing with recreation. Although students under the status " healthy " had no difficulty, they did not do recreation on weekly basis.

The frequencies between practicing walking and health status among students (table 2) showed that the total number of students (2.25 % or number 64 students) could not practice walking, of which the ratio of the frequency of healthy students who did not practice walking with frequencies with ill students who did not do walking is 54 (84.38 %) vs. 10 (15.63 %). The number of students who walked 1 -2 hours per week is 1,145 students, or 40.19 %, and of this total, the proportion of healthy against the sick female students was 963 (84.10 %) by 182 (15.90 %). Weekly 973 girls

were walking 2-4 hours, or 34.15 % of the total sample, of which 765 were in the control group and 208 in the group with the status of the sick. 667 students were engaged 4 hours or more per week in walking, or 23.43 %. Based on the results we concluded that a higher percentage of female students were under the category of "healthy" that on a weekly basis walked over time within walking from the category of "sick" students. Numeric values and $p = 0.001$ indicated that there were differences between the weekly practicing walking and health status among female students.

Conclusion

The impact of physical activity on physical function among people is irrefutably confirmed. Importance of physical activity in promoting the reconstruction process in the development, maintenance of functional and motor skills throughout life and to preserving them until old age. On the other hand, there are more numerous and stronger evidence of the independent impact of hypokinesia on the development of many chronic diseases. Therefore, the adoption of lifelong regular physical activity and preventive therapeutic measures to improve the quality of life by improving physical, mental and emotional health, and the prevention of chronic noncommunicable diseases with complementary methods of treatment after their occurrence.

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RAZLIKE U ZDRAVSTVENIM ZNAČAJKAMA IZMEĐU RAZLIČITO TJELESNO AKTIVNIH UČENICA

Sažetak

Cilj ovog istraživanja bio je utvrditi razlike u zdravstvenim karakteristikama na temelju učestalosti bavljenja bilo kojom fizičkom aktivnošću, iz populacije studentica na Sveučilištu u Splitu. U istraživanju je sudjelovalo 2.849 studenata dodiplomskog studija, u dobi od 19 do 25 godine. Fizički angažman je provjeren kroz tri pod-varijable: sport, rekreacija i šetnja, a za procjenu zdravstvenih karakteristika određene su ocjene devet različitih bolesti među studentima. U kategoriji zdravstva analizirano je stanje pušenja u studenata. Za kategoričke varijable (zdravstvene karakteristike i status pušenja) zastupljenost je izražena kao frekvencije i postotak. Odnosi između kriterijske varijable i kategoričkih varijabli su određeni neparametrijskim hi-kvadrat testom. Postavljena je granica za utvrđivanje vjerojatnosti pogreške $p < 0,05$. Značajne razlike su dobivene između studentica različitog statusa pušenja i bavljenja rekreacijom kao oblik kineziološkog angažmana (Chi-square = 13,132, $p = 0,004$). Također je identificirana razlika zdravstvenog stanja između zdravih studenata koji su sudjelovali u šetnji 1-5 ili više sati tjedno ($n = 2328$) i bolesnih studenata koji se znatno manje bave hodanjem ($n = 521$). Nije bilo značajnih razlika između statusa pušenja i varijable "sportova" (Chi-kvadrat = 2,836; $p = 0,417$). Nema značajne razlike između stanja pušenja i "hodaње" (Chi-square = 0,59, $p = 0,9$), te zdravstvenog statusa i varijabli "rekreacije" (Chi-kvadrat = 3,261; $p = 0,353$), niti između zdravstvenog statusa studenata i "sportova" (Chi-kvadrat = 3,304; $p = 0,347$). U zaključku, utjecaj tjelesne aktivnosti na fizičko funkcioniranje ljudi nepobitno je potvrdilo važnost tjelesne aktivnosti u promicanju procesa obnove u razvoju i održavanja funkcionalnih i motoričkih sposobnosti tijekom života, kako bi ih sačuvali i do starosti.

Ključne riječi: navike, tjelesna aktivnost, zdravstveni status, zdravlje

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