

# **Povezanost između razine tjelesne aktivnosti i doživljaja općeg stresa u studenata medicine, dentalne medicine i farmacije**

---

**Huić, Vladimir**

**Master's thesis / Diplomski rad**

**2019**

*Degree Grantor / Ustanova koja je dodijelila akademski / stručni stupanj:* **University of Split, School of Medicine / Sveučilište u Splitu, Medicinski fakultet**

*Permanent link / Trajna poveznica:* <https://urn.nsk.hr/urn:nbn:hr:171:660007>

*Rights / Prava:* [In copyright/Zaštićeno autorskim pravom.](#)

*Download date / Datum preuzimanja:* **2024-04-25**



SVEUČILIŠTE U SPLITU  
MEDICINSKI FAKULTET  
UNIVERSITAS STUDIOURUM SPALATENSIS  
FACULTAS MEDICA

*Repository / Repozitorij:*

[MEFST Repository](#)



**SVEUČILIŠTE U SPLITU  
MEDICINSKI FAKULTET**

**Vladimir Huić**

**POVEZANOST IZMEĐU RAZINE TJELESNE AKTIVNOSTI I  
DOŽIVLJAJA OPĆEG STRESA U STUDENATA MEDICINE,  
DENTALNE MEDICINE I FARMACIJE**

**Diplomski rad**

**Akademска godina:  
2018./2019.**

**Mentor:  
Izv. prof. dr. sc. Ivana Kolčić**

**Split, srpanj 2019.**

**SVEUČILIŠTE U SPLITU  
MEDICINSKI FAKULTET**

**Vladimir Huić**

**POVEZANOST IZMEĐU RAZINE TJELESNE AKTIVNOSTI I  
DOŽIVLJAJA OPĆEG STRESA U STUDENATA MEDICINE,  
DENTALNE MEDICINE I FARMACIJE**

**Diplomski rad**

**Akademска година:  
2018./2019.**

**Mentor:  
Izv. prof. dr. sc. Ivana Kolčić**

**Split, srpanj 2019.**

*Hvala mentorici Izv. Prof. dr. sc. Ivani Kolčić, dr. Adi Kirn, cijeloj mojoj obitelji i djevojci  
Elli na potpori tijekom izrade diplomskog rada i cijelog školovanja.*

**SADRŽAJ:**

**1. UVOD**

## **1. UVOD**

### **1.1. Tjelesna aktivnost**

Tjelesna aktivnost definirana je kao bilo koja tjelesna kretnja nastala kontrakcijom skeletnog mi

### **1.1.3. Anaerobna tjelesna aktivnost**

To je naj

aktivnost niskog intenziteta ili kratkotrajna tjelovje

epidemiolo

vaskularne bolesti (15). Tjelesna aktivnost pove

oksidaciju, sli

## **1.2. Stres**

Stres ili napetost ozna

tlak i pove

ima vremena za

kortizola (u serumu i slini), hormona rasta (GH), prolaktina kao i zna

Podaci upu

## **2. CILJ ISTRAŽIVANJA**

Cilj istra

### **3. MATERIJALI I METODE**

### **3.1. Ustroj istraživanja**

Prema epidemiolo

cilj procijeniti intenzivnu tjelesnu aktivnost, umjerenu tjelesnu aktivnost, hodanje i sjedenje (32). Treba naglasiti da se odgovori trebaju odnositi samo na aktivnosti koje se provode bez prekida u trajanju od najmanje 10 minuta. Intenzivna tjelesna aktivnost podrazumijeva aktivnosti koje uzrokuju te

### **3.3.2. Upitnik o doživljavanju stresa**

U na

## **4. REZULTATI**

U analizu je uklju

**Tablica 1.** Osobine ispitanika s obzirom na studijski program

	Medicina HR N = 380	Medicina ENGL N = 123	Dentalna medicina N = 161	Farmacija N = 106	P
Spol; N (%)					<0,001*
Mu					

(Tablica 2). Nije pokazana statisti

hrvatskom jeziku iznosio je 18 (IKR=8,0), a najvi

**Tablica 4.** Razina tjelesne aktivnosti i do

**Tablica 5.** Razina tjelesne aktivnosti i do

**Tablica 6.** Razina tjelesne aktivnosti i do

**Tablica 7.** Korelacija izme

**Tablica 8.** Razina do

## **5. RASPRAVA**

U ovom istra

razinu tjelesne aktivnosti (7,4%) nego

razli

## **6. ZAKLJUČCI**

Kratki prikaz rezultata postignutih u ovom istra

## **7. POPIS CITIRANE LITERATURE**

1. Jakovljevic DG. Physical activity and cardiovascular aging: Physiological and molecular insights. *Exp Gerontol.* 2018;109:67-74.
2. Physical Activity Guidelines Advisory Committee. Part A: Executive Summary. *Nutr Rev.* 2009;67:114-20.
3. Gabriel BM, Zierath JR. The Limits of Exercise Physiology: From Performance to Health. *Cell Metab.* 2017;25:1000-11.
4. Tuka V, Da

Appl Physiol. 2008;105:1323-32.

15. Clarkson P, Montgomery HE, Mullen MJ, Donald AE, Powe AJ, Bull T, et al. Exercise training enhances endothelial function in young men. *J Am Coll Cardiol*. 1999;33:1379-85.
16. van Hall G. The Physiological Regulation of Skeletal Muscle Fatty Acid Supply and Oxidation During Moderate-Intensity Exercise. *Sport Med*. 2015;45:23-32.
17. Rennie MJ, Tipton KD. PROTEIN AND AMINO ACID METABOLISM DURING AND AFTER EXERCISE AND THE EFFECTS OF NUTRITION. *Annu Rev Nutr*. 2000;12:29-32.
18. Guimarães-Ferreira L, Cholewa JM, Naimo MA, Zhi XIA, Magagnin D, Dal Ponte de Sá RB, et al. Synergistic effects of resistance training and protein intake: Practical aspects. *Nutrition*. 2014;30:1097-103.
19. Churchward-Venne TA, Murphy CH, Longland TM, Phillips SM. Role of protein and amino acids in promoting lean mass accretion with resistance exercise and attenuating lean mass loss during energy deficit in humans. *Amino Acids*. 2013;45:231-40.
20. Allen AP, Kennedy PJ, Dockray S, Cryan JF, Dinan TG, Clarke G. The Trier Social Stress Test: Principles and practice. *Neurobiol Stress*. 2017;6:113-26.
21. Meadows J. Spirit and Capital in an Age of Inequality. Jones RP, Smith TA, editors. *Spirit and Capital in an Age of Inequality*. 1 [edition]. | New York

27. Mikkelsen S, Forman JL, Fink S, Vammen MA, Thomsen JF, Grynderup MB, et al. Prolonged perceived stress and saliva cortisol in a large cohort of Danish public service employees: cross-sectional and longitudinal associations. *Int Arch Occup Environ Health.* 2017;90:835-48.
28. DeBoer LB, Powers MB, Utschig AC, Otto MW, Smits JA. Exploring exercise as an avenue for the treatment of anxiety disorders. *Expert Rev Neurother.* 2012;12:1011-22.
29. Stubbs B, Vancampfort D, Rosenbaum S, Firth J, Cosco T, Veronese N, et al. An examination of the anxiolytic effects of exercise for people with anxiety and stress-related disorders: A meta-analysis. *Psychiatry Res.* 2017;249:102-8.
30. Wipfli BM, Rethorst CD, Landers DM. The anxiolytic effects of exercise: a meta-analysis of randomized trials and dose-response analysis. *J Sport Exerc Psychol.* 2008;30:392-410.
31. Beserra AHN, Kameda P, Deslandes AC, Schuch FB, Laks J, Moraes HS de. Can physical exercise modulate cortisol level in subjects with depression? A systematic review and meta-analysis. *Trends Psychiatry Psychother.* 2018;40:360-8.
32. Craig Marshall, A. L., Sjöström, M., Bauman, A. E., Booth, M. L., Ainsworth, B. E., et al. CL. International physical activity questionnaire: 12-country reliability and validity. *Med Sci Sports Exerc.* 2003;38:57-61.
33. Tompuri TT. Metabolic equivalents of task are confounded by adiposity, which disturbs objective measurement of physical activity. *Front Physiol.* 2015;6:34-9.
34. Gerber M, Ludyga S, Mücke M, Colledge F, Brand S, Pühse U. Low vigorous physical activity is associated with increased adrenocortical reactivity to psychosocial stress in students with high stress perceptions. *Psychoneuroendocrinology.* 2017;80:104-13.
35. VanKim NA, Nelson TF. Vigorous Physical Activity, Mental Health, Perceived Stress, and Socializing among College Students. *Am J Heal Promot.* 2013;28:7-15.
36. Coli

39. Abdulghani HM, AlKanhal AA, Mahmoud ES, Ponnamperuma GG, Alfaris EA. Stress and Its Effects on Medical Students: A Cross-sectional Study at a College of Medicine in Saudi Arabia. *J Heal Popul Nutr.* 2011;29:516-22.
40. Sievi N, Brack T, Brutsche M, Frey M, Irani S, Leuppi J, et al. Accelerometer- versus questionnaire-based assessment of physical activity and their changes over time in patients with COPD. *Int J Chron Obstruct Pulmon Dis.* 2017;12:1113-8.
41. Gorzelitz J, Peppard PE, Malecki K, Gennuso K, Nieto FJ, Cadmus-Bertram L. Predictors of discordance in self-report versus device-measured physical activity measurement. *Ann Epidemiol.* 2018;28:427-31.

## **8. SAŽETAK**

**Cilj istraživanja:** Cilj istra

**Zaključak:** U ovom istra

## **9. SUMMARY**

**Diploma thesis title:** Association between level of physical activity and experience of general stress in medical students, dental medicine students and pharmacy students

**Objective:** The aim of the study was to examine the association between physical activity and the level of general stress in medical students, dental medicine and pharmacy students at the University of Split, School of Medicine.

**Materials and Methods:** This cross-sectional study included 902 students at the University of Split Medical School, with a high response rate (79.7%). The study included 380 medical students in Croatian studies, 123 medical students in English studies, 161 dental medicine students and 106 pharmacy students during May and June 2018. In order to examine the physical activity of students, we used the International Physical Activity Questionnaire - Short Form (IPAQ-SF). The questions related to physical activity in the last 7 days lasting for at least 10 minutes, separately assessing intense level of physical activity, moderate physical activity and walking. To assess stress levels, we used the Perceived Stress Scale (PSS) questionnaire. The questionnaire consists of 10 questions and examines the feelings and thoughts in the last month. Subjects were divided into groups according to the study program (medicine in Croatian language, English medicine, dental medicine and pharmacy), sex and years of study (pre-clinical and clinical studies). We used chi-square test, Mann-Whitney U test and Kruskal-Wallis test, and Spearman's correlation test in data analysis.

**Results:** Students with a high level of physical activity more frequently reported lower level of stress (69% vs. 51% in low-level physical activity students). Statistically significant negative correlation was obtained for the level of stress perception and the MET-minutes for intensive physical activity ( $r=-0.144$ ,  $P<0.001$ ) and total physical activity ( $r=-0.128$ ,  $P<0.001$ ). Male students reported higher level of physical activity than female students (63.6% vs 51.3%). There was no statistically significant difference in the level of physical activity according to the study program ( $P=0.215$ ) and the study year group ( $P=0.267$ ). A statistically significant difference according to the study program was found for intensive physical activity expressed in MET-minutes per week ( $P=0.003$ ), but not for moderate physical activity level ( $P=0.420$ ) and walking ( $P=0.358$ ). There was no difference in the level of perceived stress according to the study program ( $P=0.522$ ). Male students less frequently reported high level of stress compared to female students (21.2% versus 39%). There was a statistically

significant difference in perception of stress compared to the years of study ( $P=0.006$ ), with students in their later, clinical study years reported lower perceived stress levels.

**Conclusion:** We confirmed the association between the level of physical activity and stress experience in medical students, dental medicine and pharmacy students, and high level of physical activity was associated with a lower level of perceived stress. This result should be used to motivate students to achieve higher levels of physical activity.

## **10. ŽIVOTOPIS**

**Osobni podaci:**

Ime i prezime: Vladimir Hui