

NAZIV DISERTACIJE: FUNKCIONALNA ANATOMIJA CERVICALNE KIČME I PROCJENA OGRANIČENJA AKTIVNOSTI STUDENATA**Autor:** Kenan Galijašević**Mentor:** Prof. dr. Emira Švraka**Datum odbrane:** 20.07.2022.**DOI:** <https://doi.org/10.17532/DD.2022.06>**Sažetak**

Uvod: Glavni faktor koji dovodi do smanjene pokretljivosti u cervikalnoj kičmi i ograničenja u aktivnostima dnevnog života je bol. Riziko faktori za pojavu bola u vratu studenata su: dnevna dužina sjedenja, učenja, korištenja računara i mobitela, te imaju direktan uticaj na funkcionalnu anatomiju cervikalne kičme, posturalne i psihološke reakcije.

Ciljevi istraživanja: Utvrditi ograničenje pokretljivosti cervikalne kičme, tjelesnih funkcija i aktivnosti studenata, utvrditi riziko faktore i intenzitet bola u vratu studentske populacije, ispitati uticaj riziko faktora na funkcionalnu anatomiju cervikalne kičme, utvrditi nivo funkcionalnosti u tjelesnim funkcijama i aktivnostima studenata, kroz indeks onesposobljenja zbog bola u vratu, ispitati postojanje depresivnosti studenata zbog bola u vratu, predložiti model prevencije koji bi imao za cilj smanjenje ograničenja pokretljivosti cervikalne kičme i poboljšanja psihičkog zdravlja studenata sa prijavljenim bolom u vratu.

Materijal i metode: Istraživanje je sprovedeno na četiri fakulteta (Medicinski, Mašinski, Pravni i Ekonomski) Univerziteta u Zenici u toku ljetnog semestra akademske 2020/2021. godine. U istraživanju su učestvovali studenti (redovni i redovni samofinansirajući) diplomskog studija, muškog i ženskog pola, starosne dobi od 19 do 26 godina, uz dobrovoljni pristanak na istraživanje. Istraživanje je zbog složene epidemiološke situacije i on line nastave provedeno putem google forms-a (on line obrazac) i trajalo je u periodu maj – juli 2021. godine. Upitnici su prosljeđeni na 896 e-mail adresa, od kojih je 420 studenata uredno popunila on line upitnike, a 13 studenata treće godine Mašinskog fakulteta je putem e-maila je poslalo odgovore na e-mail adresu istraživača, tako da ukupan uzorak čine 433. student. Od 433 studenata koji su učestvovali u istraživanju 283 su navela da nemaju bol u vratu. Bol u vratu je prijavilo 150 studenata, a od toga 3 studenata su navela da se liječe kod lekara zbog hroničnog bola u vratu. Ukupan uzorak studenata sa prijavljenim bolom u vratu kod kojih je procjenjivana funkcionalna sposobnost, psihičko zdravlje i jačina bola je 147, a iz studije je isključeno 286 studenata. Istraživanje je organizovano kao studija presjeka, a Instrumenti korišteni u ovom istraživanju su: Opšti upitnik, Indeks onesposobljenja zbog bola u vratu - (Neck disability index - Vernon and Mior Cervical Spine Questionnaire - NDI), Upitnik o zdravlju pacijenta 9 - (Patient health questionnaire - PHQ-9), te VAS skala. Rezultati: Na ukupnom uzorku od 433 studenata na četiri fakulteta Univerziteta u Zenici, bol u vratu je prijavilo 147 (34%) studenata, a 3 studenata od ranije imaju dijagnostikovan bol u vratu te se liječe kod lekara. Najviše studenata sa prijavljenim bolom u vratu dolazi sa prve, zatim sa druge, te sa treće godine studija. Dokazana je pozitivna korelacija u odnosu svih riziko faktora studenata sa prijavljenim bolom u vratu i ograničene pokretljivosti cervikalne kičme. Ograničena pokretljivost cervikalne kičme je povezana sa bolom u vratu i rezultira otežanim tjelesnim funkcijama i smanjenjem aktivnosti.

Zaključci: Utvrđeno je prisustvo lakšeg onesposobljenja kod 86 (58,5%), srednje teškog kod 35 (23,8%), a teškog kod 4 (2,7%) studenta. Blaga depresija je utvrđena kod 67 (45,6%) studenata sa prijavljenim bolom u vratu, umjereno jaka kod 8 (5,4%), a jaka kod 4 (2,7%) studenta. Model prevencije je predložen na osnovu utvrđenih pozitivnih korelacijskih testova u odnosu riziko faktora sa posturalnim i psihološkim reakcijama studenata i ogleda se u razvoju Strategije i interventnih aktivnosti u sklopu Univerziteta. Strategija podrazumjeva jasno definisane nivoe, koje čine akteri neophodni za ostvarenje modela prevencije. Potvrđena je prva radna hipoteza: Ograničena pokretljivost cervikalne kičme je povezana sa bolom u vratu i rezultira otežanim tjelesnim funkcijama i smanjenjem aktivnosti. Potvrđena je druga radna hipoteza: Procjena ograničenja aktivnosti studenata s bolom u vratu ukazuje na povezanost riziko faktora i tjelesnog odgovora u vidu posturalnih i psiholoških reakcija.

Ključne riječi: funkcionalna anatomija, cervikalna kičma, ograničenje aktivnosti studenat

DISSERTATION TITLE:**Author:** Kenan Galijašević**Mentor:** Prof. dr. Emira Švraka**Date of defence:** 20.July 2022.**DOI:** <https://doi.org/10.17532/DD.2022.06>**Abstract**

Introduction: The main factor that leads to reduced mobility in the cervical spine and limitations in daily activities is pain. Risk factors for the occurrence of pain in the neck of students are: daily length of sitting, studying, using computers and mobile phones, and have a direct impact on the functional anatomy of the cervical spine, postural and psychological reactions.

Research goals: To determine the limitation of cervical spine mobility, physical functions and activities of students, to determine risk factors and intensity of neck pain in students, to examine the impact of risk factors on functional anatomy of cervical spine, to determine the level of functionality in physical functions and activities. neck pain, examine the existence of student depression due to neck pain, propose a prevention model that would aim to reduce the limitations of cervical spine mobility and improve the mental health of students with reported neck pain. Material and methods: The research was conducted at four faculties (Faculty of Medicine, Faculty of Mechanical Engineering, Faculty of Law and Faculty of Economics) of the University of Zenica during the summer semester of the academic year 2020/2021. Students (full-time and full-time self-funded) undergraduate, male and female, aged 19 to 26, participated in the research, with voluntary consent to the research. Due to the complex epidemiological situation and online teaching, the research was conducted via google forms (online form) and lasted from May to July 2021. Questionnaires were forwarded to 896 e-mail addresses, of which 420 students duly filled out online questionnaires, and 13 third-year students of the Faculty of Mechanical Engineering sent answers by e-mail to the e-mail address of researchers, so that the total sample is 433. student. Of the 433 students who participated in the study, 283 stated that they did not have neck pain. 150 students reported neck pain, of which 3 students stated that they were being treated by a doctor due to chronic neck pain. The total sample of students with reported neck pain in whom functional ability, mental health and severity of pain were assessed was 147, and 286 students were excluded from the study. The study was organized as a cross-sectional study, and the instruments used in this study were: General Questionnaire, Neck Disability Index - Vernon and Mior Cervical Spine Questionnaire (NDI), Patient Health Questionnaire 9 - PHQ-9), and YOU scale. Results: In a total sample of 433 students at four faculties of the University of Zenica, 147 (34%) students reported neck pain, and 3 students had previously been diagnosed with neck pain and were treated by a doctor. Most students with reported neck pain come from the first, then from the second, and from the third year of study. A positive correlation has been proven in relation to all risk factors of students with reported neck pain and limited mobility of the cervical spine. Limited cervical spine motility is associated with neck pain and results in impaired bodily functions and decreased activity.

Conclusions: The presence of mild disability was found in 86 (58.5%), moderate in 35 (23.8%), and severe in 4 (2.7%) students. Mild depression was found in 67 (45.6%) students with reported neck pain, moderately severe in 8 (5.4%), and severe in 4 (2.7%) students. The prevention model was proposed on the basis of established positive correlation tests in relation to risk factors with postural and psychological reactions of students and is reflected in the development of the Strategy and intervention activities within the University. The strategy implies clearly defined levels, which are the actors necessary for the realization of the prevention model. The first working hypothesis was confirmed: Limited mobility of the cervical spine is associated with neck pain and results in impaired bodily functions and decreased activity. The second working hypothesis was confirmed: The assessment of the limitation of activity of students with neck pain indicates the connection between risk factors and physical response in the form of postural and psychological reactions.

Key words: functional anatomy, cervical spine, limitation of student activity