

	UČNI NAČRT PREDMETA/COURSE SYLLABUS
Predmet	Proprioceptivne spodbude pri gibanju
Course title	Proprioceptive Stimulation of Mobility

Študijski program in stopnja Study programme and level	Študijska smer Study field	Letnik Academic year	Semester Semester
Fizioterapija / 2. stopnja	Ni smeri študija	2. letnik	3.
Physiotherapy / 2 nd Cycle	No study field	2 nd year	3 rd

Vrsta predmeta/Course type obvezni/obligatory

Univerzitetna koda predmeta/University course code 2_FTH_2_UN1

Predavanja	Seminar	Sem. vaje	Lab. vaje	Teren. vaje	Samost. delo	ECTS
Lectures	Seminar	Tutorial	Laboratory work	Field work	Individ. work	
30		30			180	8

Nosilec predmeta/Lecturer: izr. prof. dr. Maja Pajek

Jeziki/ Languages:	Predavanja/Lectures:	slovenski/Slovenian
	Vaje/Tutorial:	slovenski/Slovenian

Pogoji za vključitev v delo oz. za opravljanje študijskih obveznosti:

- Vpis v drugi letnik študijskega programa.
- Študent mora pred izpitom pripraviti in predstaviti ter zagovarjati projektno/raziskovalno nalogo.

Prerequisites:

- A prerequisite for inclusion is enrolment in the second year of study.
- Student has to prepare, present and defend a project/research knowledge application task before the exam.

Vsebina:

Predmet zajema predstavitev osnovnih elementov gibalnega sistema (mišica, kost, sklep, receptorji, živčni sistem) s posebnim poudarkom predstavitve gibalnih strategij. Poleg teoretične predstavitve bodo predstavljeni praktični primeri. Študenti bodo na osnovi analize statične in dinamične telesne drže (gibalnega aparata) v različnih gibalnih strategijah izdelali profil stranke (pacienta) in jih povezali drugimi gibalnimi nalogami. Model za oceno delovanja gibalnega aparata bo vključeval dinamičnih in kinematične parametre.

Content (Syllabus outline):

The subject includes a presentation of the basic elements of the locomotor system (muscle, bone, joint, receptors, nervous system) with special emphasis on the presentation of locomotor strategies. In addition to the theoretical presentation, practical examples are also presented. Based on the analysis of the static and dynamic posture (movement apparatus) during different movement strategies, students create a profile of the client (patient) and connect them with other movement tasks. The model for assessing the performance of the locomotor system

<p>Vsebina predmeta:</p> <ul style="list-style-type: none"> • <i>Struktura in mehanika osnovnih elementov gibalnega aparata.</i> • <i>Motorična enota.</i> • <i>Refleksi.</i> • <i>Enosklepne in dvosklepne mišice in njihova vloga pri gibanju.</i> • <i>Propriocepcija (senzorji in delovanje).</i> • <i>Aktivacija in mehanika mišice.</i> • <i>Analiza telesne drže.</i> • <i>Analiza gibanj po FMS metodi.</i> • <i>Drže: sedenje, pokončna drža in ležanje (obremenitev hrbtenice, priporočeni položaji, ukrepi za zmanjšanje obremenitve).</i> • <i>Lokomocija: hoja, tek, šprint (ključne mehanske značilnosti in strategije).</i> • <i>Živčno – mišične osnove proprioceptivne vadbe.</i> • <i>Pomen dihalnih tehnik pri proprioceptivni vadbi.</i> • <i>Predstavitve in analiza vaj pri proprioceptivni vadbi.</i> • <i>Načrtovanje vadbe pri proprioceptivni vadbi.</i> • <i>Vadba za zaščito hrbtenice, ramena, kolena in skočnega sklepa: kombinacija vadbe za moč, gibljivost in propriocepcije.</i> • <i>Pomen različnih pripomočkov pri vadbi propriocepcije.</i> • <i>Vadba za gibljivost: ramenski obroč, hrbtenica, kolki, gleženj....</i> • <i>Učinki raztezanja mišic: lokalni, centralni.</i> • <i>Praktični prikaz vadbe za gibljivost s pravilno izvedbo posameznih metod raztezanja: pregled osnovnih vaj za posamezne mišične skupine.</i> • <i>Posebnosti vadbe za gibljivost za posamezne skupine: ženske, mladostniki, starostniki.</i> • <i>Vadba za moč.</i> 	<p>will include dynamic and kinematic parameters.</p> <p>Subject contents:</p> <ul style="list-style-type: none"> • <i>Structure and mechanics of basic elements of the locomotor system.</i> • <i>Motor unit.</i> • <i>Reflexes.</i> • <i>One-joint and two-joint muscles and their role in movement.</i> • <i>Proprioception (sensors and operation).</i> • <i>Muscle activation and mechanic.</i> • <i>Posture analysis.</i> • <i>Analysis of movements by FMS method.</i> • <i>Postures: sitting, upright posture and lying down (load on the spine, recommended positions, measures to reduce the load).</i> • <i>Locomotion: walking, running, sprinting (key mechanical characteristics and strategies).</i> • <i>Neuromuscular basics of proprioceptive exercise.</i> • <i>The importance of breathing techniques in proprioceptive training.</i> • <i>Presentation and analysis of exercises in proprioceptive exercise.</i> • <i>Exercise planning in proprioceptive training.</i> • <i>Exercise to protect the spine, shoulders, knees and ankles: combination of exercise for strength, mobility and proprioception.</i> • <i>The importance of various tools in the practice of proprioception.</i> • <i>Stretching: shoulder girdle, spine, hips, ankle...</i> • <i>Effects of muscle stretching: local, central.</i> • <i>Practical demonstration of stretching and mobility exercise with the correct implementation of individual stretching methods: review of basic exercises for individual muscle groups.</i> • <i>Specifics of mobility training and stretching for individual groups: women, adolescents, the elderly.</i> • <i>Strength training.</i>
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Temeljna literatura in viri/Readings:

Temeljna literatura/Basic literature

- Kaya, D., Yosmaoglu, B. in Doral, M. N. (2018). *Proprioception in Orthopaedics, Sports Medicine and Rehabilitation*. New York: Springer international publishing.
- Walker, B (2011). *Ultimate Guide to Stretching & Flexibility – 3rd edition*. New York: Injury fix and Stretching Institute.
- Kendall, F. P., Kendall McCreary, E., Provance, P. G., Rodgers, M. M. in Romani, A. W. (2005). *Muscles, Testing and Function with Posture and Pain - 5th edition*. Canada, Toronto: Williams and Willkins .

Priporočljiva literatura/Recommended literature

- Cardinale, M., Newton, R. in Nosaka K. (2011). *Strength and conditioning – biological principles and practical applications*. Chichester: Wiley-Blackwell.
- Enoka, R.M. (2001). *Neuromechanics of Human Movement*. Champaign: Human Kinetics.
- McGill, S. (2002). *Low Back Disorders*. Champaign: Human Kinetics.

Cilji in kompetence:

Cilji predmeta:

Razumeti delovanje osnovnih elementov gibalnega sistema (mišica, kost, sklep, receptorji, živčni sistem) s poznavanjem različnih gibalnih strategij. Učinkovito izvesti statično in dinamično analizo telesne drže ter pripraviti model proprioceptivne vadbe za paciente z okvarami mišično-skeletnega aparata. Razumeti pomen proprioceptivne vadbe, vadbe gibljivosti in vadbe moči pri različnih starostnih skupinah. Poznati praktične vaje za propriocepcijo in razvoj gibljivosti. Sposobnost prilagoditve vaj (propriocepcije, gibljivosti in moči) glede na potrebe pacienta.

Učna enota prispeva predvsem k razvoju naslednjih splošnih in specifičnih kompetenc:

- celovito kritično mišljenje, sposobnost analize, sinteze in predvidevanja rešitev na področju fizioterapije s pomočjo gibalnih intervencij in vadbe propriocepcije, gibljivosti in moči,
- profesionalna komunikacija z ostalimi strokovnjaki: kineziologi, zdravniki, psihologi in učinkovito delovanje v medpoklicnih timih,
- sposobnost pri delovanju v najzahtevnejših okoljih dela v fizioterapiji, sposobnost reševanja kompleksnih problemov,

Objectives and competences:

Course objectives:

To understand the functioning of the basic elements of the locomotor system (muscle, bones, joints, receptors, nervous system) with knowledge of different locomotor strategies. Effectively perform static and dynamic posture analysis and prepare a model for proprioceptive exercise for patients with musculoskeletal disorders. Understand the importance of proprioceptive training, mobility training and strength training in different age groups. Know the practical exercises for proprioception and mobility development. To be able to adapt exercises (proprioception, mobility and strength) according to the patient's needs.

The learning unit contributes mainly to the development of the following general and specific competences:

- comprehensive critical thinking, the ability to analyse, synthesize and predict solutions in the field of physiotherapy through movement interventions and the practice of proprioception, mobility and strength,
- professional communication with other professionals: kinesiologists, doctors, psychologists and effective work in interprofessional teams,
- the ability to work in the most demanding work environments of

<ul style="list-style-type: none"> • sposobnost kreativne uporabe pridobljenega znanja, • usposobljenost za kakovostno in varno strokovno delo, • avtonomnost pri odločanju in odgovornost za sprejete odločitve, • obvladovanje metod, postopkov, procesov in tehnologije pri gibalnih intervencijah, • usposobljenost za izvajanje inovativnih pristopov v strokovnem okolju, • ozaveščenost o nujnosti lastnega izpopolnjevanja, dopolnjevanja, poglobljanja in posodabljanja znanja s področja gibalnih pristopov in intervencij pri fizioterapiji. • razumevanje mehanike delovanja osnovnih elementov gibalnega aparata, • uporabo stimulacije propriocepcije ter različnih gibalnih in dihalnih tehnik, ki se pri tem uporabljajo. 	<ul style="list-style-type: none"> • physiotherapy, the ability to solve complex problems, • the ability to use the acquired knowledge creatively, • qualification for high quality and safe professional work, • autonomy in decision making and responsibility for decisions made, • mastery of methods, procedures, processes and technology in movement interventions, • the ability to take innovative approaches in a professional environment, • awareness of the need for self-improvement, supplementation, deepening and updating knowledge in the field of movement approaches and interventions in physiotherapy. • understanding of the mechanics of operation of the basic elements of the locomotor system, • the use of proprioception stimulation and various movement and breathing techniques used.
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Predvideni študijski rezultati:

Študent/študentka:

- pozna strukturo osnovnih elementov gibalnega aparata, pozna različne dihalne tehnike in njihovo uporabo pri vadbi propriocepcije, pozna vaje za trening propriocepcije in jih učinkovito uporabi pri fizioterapiji, pozna vaje za gibljivost in moč,
- razume mehaniko delovanja osnovnih elementov gibalnega aparata, razume vlogo enosklepnih in dvosklepnih mišic pri gibanju, razume delovanje motorične enote, refleksov in aktivacije mišic, razume pomen analize telesne drže pred gibalno intervencijo, razume pomen in posebnosti vadbe za gibljivost, vadbe za moč in propriocepcije pri pacientih z mišično-skeletnimi težavami,
- razvije sposobnost za učinkovito opazovanje pacienta pri izvedbi osnovnih gibalnih nalog, kot so hoja, tek, skoki in pri vsakdanjih opravilih,

Intended learning outcomes:

Students:

- know the structure of the basic elements of the musculoskeletal system, know the various breathing techniques and their use in the practice of proprioception, know the exercises for training proprioception and can use them effectively in physiotherapy, know the exercises for flexibility and strength,
- understand the mechanics of the basic elements of the musculoskeletal system, understand the role of one-joint and two-joint muscles in movement, understand the function of the motor unit, reflexes and muscle activation, understand the importance of posture analysis before movement intervention, understand the importance and peculiarities of mobility training, strength training and proprioception in patients with musculoskeletal problems,

<ul style="list-style-type: none"> • se usposobi za učinkovito analizo telesne drže in analizo gibanj po fms metodi, • se usposobi za praktično uporabo telovadnih vaj glede na izvedeno analizo telesne drže, • zna uporabljati različne pripomočke pri vadbi propriocepcije za različne starostne skupine, zna prilagoditi vaje glede na gibalne sposobnosti pacienta, • kritično presodi potrebo po gibalni intervenciji za različne dele telesa (roke in ramenski obroč, trup, noge) na podlagi analize telesne drže in gibanj, • na podlagi načrtovanja gibalne intervencije predvidi rezultate obravnave pacienta. 	<ul style="list-style-type: none"> • develop the ability to effectively observe the patient performing basic motor tasks such as walking, running, jumping and everyday tasks, • are trained in effective posture analysis and analysis of movements according to the FMS method, • are trained in the practical use of different exercises according to the performed posture analysis, • know how to use different aids in proprioception training for different age groups, know how to adapt exercises according to the patient's motor skills, • critically assess the need for movement intervention for different parts of the body (arms and shoulder girdle, torso, legs) based on the analysis of posture and movements, • predict the results of the patient's treatment based on the planning of the movement intervention.
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Metode poučevanja in učenja:

<ul style="list-style-type: none"> • <i>predavanja</i> z aktivno udeležbo študentov (razlaga, diskusija, vprašanja, primeri, reševanje problemov), • <i>seminarske vaje</i>: predstavitev in uspešen zagovor projektne/raziskovalne naloge (reševanje problemov, študije primera, kritično presojanje, diskusija, refleksija izkušenj, vrednotenje, projektno delo, timsko delo).

Learning and teaching methods:

<ul style="list-style-type: none"> • <i>lectures</i> with active student participation (explanation, discussion, questions, examples, problem solving), • <i>seminar tutorial</i>: presentation and successful defence of the project/research paper (problem solving, case studies, critical assessment, discussion, reflection on experiences, evaluation, project work, teamwork).

Načini ocenjevanja:

<p>Načini:</p> <ul style="list-style-type: none"> • izpit • izdelava, predstavitev in zagovor projektne/raziskovalne naloge <p>Ocenjevalna lestvica: ECTS.</p>
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Delež (v %)
Weight (in %)

70 %
30 %

Assessment:

<p>Types:</p> <ul style="list-style-type: none"> • examination • preparation, presentation and defence of the project/research paper <p>Grading scheme: ECTS.</p>
