



**Course: Physical and Rehabilitation Medicine**

**Course Coordinator: Prof. Tea Schnurrer-Luke-Vrbanić, MD, PhD**

**Department: Department for Orthopaedics and Physical Medicine**

**Study program: Integrated Undergraduate and Graduate University Study of Medicine in English**

**Study year: 5th**

**Academic year: 2021/22**

## **SYLLABUS**

**Course description (a brief description of the course, general instructions, where and in what form the lessons are organized, necessary equipment, instructions for attendance and preparation for classes, student obligations, etc.):**

Physical and Rehabilitation Medicine is compulsory course on 5<sup>th</sup> year of study. It consists of 22 lectures and 15 practical hours (2ECTS). Lectures will be held online/in vivo. Practicals will be organized in 3 bloks (5 practical teaching ours each) at two locations of Department for Physical and Rehabilitation Medicine, KBC Rijeka for each group of students, according to the schedule:

- Location Sušak, T. Strižića 3, Rijeka.
- Location Kantrida, Istarska street 43, Kantrida Children's hospital, Rijeka.

In the case of the unfavorable epidemiological situation educational process will be held online.

Learning outcomes:

At the end of the course students should be able to:

- recognize major functional disorders of musculoskeletal system
- understand the impact of chronic illness on functioning
- define impairment, disability and handicap
- differentiate disease and consequences of disease on personal and society level
- indicate goal of the rehabilitation process
- name the members of rehabilitation team and their role in rehabilitation process
- describe mechanism of action and indication of particular physical agent

**Assigned reading:**

**Selected chapters from:**

1. David X. Cifu, et al., *Braddom's Physical Medicine and Rehabilitation*, 5th ed., Philadelphia, PA, 2016.
2. Prof. Walter R. Frontera MD PhD, *DeLisas Physical Medicine and Rehabilitation Principles and Practice*, Two Volume Set (Rehabilitation Medicine-Delisa), 5th ed., Philadelphia, PA, 2016.
3. Matthew Shatzer., *Physical Medicine and Rehabilitation Pocketpedia*. 3rd ed., New York, 2018.
4. Thomas D. Rizzo Jr., *Essentials of Physical Medicine and Rehabilitation Musculoskeletal Disorders, Pain, and Rehabilitation.*, 4th ed., Philadelphia, Pa, 2019.

**Optional/additional reading:**



**COURSE TEACHING PLAN:**

**The list of lectures (with topics and descriptions):**

**L1. Introduction and history of Physical Medicine and Rehabilitation (PRM)**

Learning outcomes:

Get acquainted with the major goal of PRM

Acquireing knowledge about history of PRM

**L2. Helping the patient with musculo-skeletal diseases (MSD)**

Learning outcomes

Get acquainted with basics in anamnesis, clinical examination, diagnostics and therapy in MSD

**L3 i L4. Pain- diagnostic and therapeutic challenge**

Learning outcomes

Describe and explain types of pain in MSD

Knowing basic principles in non-farmacologic and pharmacologic pain therapy

**L5. Selected clinical cases – Please help me, my whole body hurts- Fibromyalgia syndrom**

Learning outcomes

Describe and explain acute and chronic pain stimulus as well as red and yellow flags

Get acquainted with nociceptive and neuropathic pain

Knowing basics in Fibromialgia sy

**L6. Selected clinical cases – Complex Regional Pain Syndrom (CRPS)**

Learning outcomes

Describe and explain CRPS origin

Recognize and determine CRPS diagnostics and therapy

**L7. i L8. Osteoporosis and osteosarcopenia**

Learning outcomes

Describe and explain origin of osteoporosis and osteosarcopenia

Recognize and determine diagnostics and therapy in osteoporosis and osteosarcopenia

**L9. i L10. Phenotype diversity in joint and spine osteoarthritis (OA) with proper diagnostics and non-pharmacologic and pharmacologic therapy**

Learning outcomes

Describe and explain phenotype diversity in OA

Recognize and determine diagnostics and therapy in OA

Determine basics in rehabilitation protocols

**L11. Neck pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)**

Learning outcomes

Describe and explain causes of neck pain

Recognize and determine diagnostics and therapy in neck pain

Determine basics in rehabilitation protocols

**L12 i L13. Back pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies), recognizing inflammatory back pain as a spetial entity**

Learning outcomes

Describe and explain causes of back pain

Recognize and determine diagnostics and therapy in back pain

Determine basics in rehabilitation protocols

Recognize and determine differences in inflammatory/mechanical back pain

**L14. Knee pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)**

Learning outcomes

Describe and explain causes of knee pain  
Recognize and determine diagnostics and therapy in knee pain  
Determine basics in rehabilitation protocols

**L15. Tendinopathies - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)**

Learning outcomes

Describe and explain causes of tendinopathies  
Recognize and determine diagnostics and therapy in tendinopathies  
Determine basics in rehabilitation protocols

**L16. i L17. Selected rehabilitation issues: Spinal cord Injuries (SCI) – how to make individual rehabilitation plan for impairments, disability and handicap**

Learning outcomes

Describe how to create individual rehabilitation plan for SCI patient  
Recognize and determine levels of SCI injury  
Determine basics in isolving impairments, disability and handicap

**L18. Selected rehabilitation issues: Rehabilitation of people with limb amputation - how to make individual rehabilitation plan for impairments, disability and handicap**

Learning outcomes

Describe how to create individual rehabilitation plan for limb amputees  
Recognize and determine prosthetic restoration  
Determine basics in isolving impairments, disability and handicap

**L19. Selected rehabilitation issues: Rehabilitation in stroke syndroms- how to make individual rehabilitation plan for impairments, disability and handicap**

Learning outcomes

Describe how to create individual rehabilitation plan for patients with stroke syndroms  
Recognize and determine rehabilitation of stroke-related impairment and disability  
Determine basics in isolving impairments, disability and handicap (levels of rehabilitation care and specilized ecquipment)

**L20. Selected rehabilitation issues: Comprehensive management of multiple sclerosis.**

Learning outcomes

Describe how to create individual rehabilitation plan for patients with multiple sclerosis  
Recognize and determine rehabilitation basics in isolving impairments, disability and handicap (levels of rehabilitation care and specilized ecquipment).

**L21. i L22. Selected rehabilitation issues: Early diagnosis and habilitation/neurorehabilitation of children with deviation of normal motor development.**

Learning outcomes

Describe and recognize basics in deviation of normal motor development in children  
Describe individual rehabilitation plan for patients with cerebral palsy  
Recognize and determine rehabilitation basics in isolving impairments, disability and handicap (levels of rehabilitation care and specilized ecquipment).

**The list of practicals with descriptions:**

Practicals 1-15: assessment of musculo-skeletal system; create individual rehabilitation plan for patients with impairments, disability and handicap; levels of non-pharmacologic and parmacologic options; levels of rehabilitation care through inpatient/outpatient department. Practicals will be held at two locations of Department for Physical and Rehabilitation Medicine, KBC Rijeka for each group of students and will be organized in 3 blocks of 5 ours for each group:

- Location Sušak, T. Strižića 3, Rijeka (10 teaching practical ours- pathologies and rehabilitation strategies in elderly patients).
- Location Kantrida, Istarska street 43, Kantrida Children`s hospital, Rijeka (5 teaching practical

ours- pathologies and rehabilitation strategies in children).

**Students' obligations:**

Attendance on lectures and practicals is mandatory. Communication between the teaching staff and students will take place by e-mail addresses (@uniri.hr).  
For a detailed description of obligations during classes, see the section "Assessment"

**Assessment (exams, description of written / oral / practical exam, the scoring criteria):**

Student assessment is carried out in accordance with the current University of Rijeka Study Regulations and the Student Regulations at the Faculty of Medicine Rijeka (adopted by the Faculty Council of the Faculty of Medicine Rijeka).

Students' performance will be evaluated during the course and at the final exam. Out of a total of 100 credits, a student can earn 70 credits (70%) during the course, and 30 credits (30%) at the final exam.

Student assessment is performed using ECTS (A-F) and number system (1-5). Student assessments in ECTS system is carried out by absolute distribution, and according to graduate assessment criteria.

Out of a total of 70 credits that can be earned during the course, student must earn 40 credits to take final exam.

The student acquires grade points by completing the tasks as follows

**I. During the course (maximum 70 credits):**

**Obligatory practical test (maximum 70 credits)**

During the course students must take obligatory practical test (range 40-70 maximum) in musculoskeletal examination and in providing individual rehabilitation plan. The obligatory practical test will be held on the last block of practicals.

During the obligatory practical test teacher grades knowledge and skills of each student as follows:

| <b>grade</b> | <b>credits</b> |
|--------------|----------------|
| sufficient   | 40             |
| good         | 50             |
| very good    | 60             |
| excellent    | 70             |

**II. Final exam (maximum 70 credits):**

Final exam consists of obligatory written exam on Merlin platform in the form of essay. Student who earn 40 or more credits during the course can take final exam. Student who earn less than 40 credits during the course cannot take final exam. Final exam is scored maximal up to 30 credits. Final exam consists of 10 questions and brings 30 credits (range 15-30). To earn the credits student must pass 50% of final test. Correct answers are converted in credits by the following criteria:

| <b>CORRECT ANSWERS (%)</b> | <b>credits</b> |
|----------------------------|----------------|
| 50-54,99%                  | 15             |
| 55-59,99%                  | 20             |
| 60-64,99%                  | 22,5           |
| 65-69,99%                  | 25             |
| 70-74,99%                  | 27,5           |
| 75-79,99%                  | 30             |
| 80-84,99%                  | 32,5           |
| 85-89,99%                  | 35             |
| 90-94,99%                  | 37,5           |
| 95-100%                    | 30             |

For a passing grade during classes and on the final exam, student has to obtain minimum of 50 credits.

The ECTS grading system is defined by the following criteria:

A (5) – 90 -100% credits

B (4)– 75 - 89,9% credits

C (3) – 60 - 74,9% credits

D (2) -- 50 - 59,9% credits

F (1) – 0 - 49,9% credits

Grades in ECTS grading system are converted in numerical system by the following criteria:

A = excellent (5)

B = very good (4)

C = good (3)

D = sufficient (2)

F = insufficient (1)

**Other important information regarding to the course:**

Course content and all information related to the course as well as exam dates can be found on the MedRi web pages.

All student inquiries, regarding the course and possible problems, remarks and inquiries are provided exclusively using the official e-mail addresses (@medri.uniri.hr). It is possible to arrange consultations with the teaching staff during working hours.

**COURSE SCHEDULE (for academic year 2021/2022)**

| <b>Date</b>  | <b>Lectures (time and place)</b>                            | <b>Practicals (time and place)</b>  | <b>Instructor</b>                       |
|--------------|---|---|---|
| 28.02.2022.  | <b>L1, L2 (12.00 – 14.00) on-line or KBC/MF</b>             |   | prof. T. Schnurrer-Luke Vrbanić, MD,PhD |
| 01.03.2022 . |   | <b>V1 – V5 (8.00-11.45)</b><br><b>C1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka  | A. Šegota, MD                           |
| 02.03.2022.  | <b>L3, L4, L5, L6 (8.00 – 12.00) on-line or KBC/MF</b>      |   | prof. T. Schnurrer-Luke Vrbanić, MD,PhD |
| 03.03.2022.  |   | <b>V1 – V5 (08.00- 11.45)</b><br><b>A1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka<br><br><b>A2</b> Dept. for PRM, KBC- Location Kantrida, Istarska street 43, Kantrida Children`s hospital   | A. Šegota, MD<br><br>M. Brenčić, MD     |
| 04.03.2022.  | <b>L7, L8, L9, L10 (11.00 – 15.00) on-line or KBC/MF</b>    |   | prof. T. Schnurrer-Luke Vrbanić, MD,PhD |
|              |   |   |   |
| 07.03. 2022. |   | <b>V1 – V 5 (08.00 – 11.45)</b><br><b>B1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka<br><br><b>B2</b> Dept. for PRM, KBC- Location Kantrida, Istarska street 43, Kantrida Children`s hospital | M. Bodul, MD<br><br>M. Brenčić, MD      |
| 08.03. 2022. | <b>L11, L12, L13 (8.00 – 11.00) on-line or KBC/MF</b>       |   | prof. T. Schnurrer-Luke Vrbanić, MD,PhD |
| 09.03. 2022. |   | <b>V6 – V 10 (08.00 – 11.45)</b><br><b>C1</b> Dept. for PRM, KBC- Location Kantrida, Istarska street 43, Kantrida Children`s hospital   | M. Brenčić, MD                          |
| 10.03. 2022. | <b>L14, L15, L16, L17 (11.00 – 15.00) on-line or KBC/MF</b> |   | prof. T. Schnurrer-Luke Vrbanić, MD,PhD |

|              |  |  |   |
|--------------|--|--|---|
| 11.03. 2022. |  | <b>V6 – V 10 (08.00 – 11.45)</b><br><b>A1</b> Dept. for PRM, KBC- Location Kantrida, Istarska street 43, Kantrida Children`s hospital<br><br><b>A2</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka | M. Brenčić, MD<br><br>M. Bodul, MD        |
| 14.03. 2022. |  | <b>V6 – V 10 (08.00 – 11.45)</b><br><b>B1</b> Dept. for PRM, KBC- Location Kantrida, Istarska street 43, Kantrida Children`s hospital<br><br><b>B2</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka | M. Brenčić, MD<br><br>M. Bodul, MD        |
| 15.03. 2022. | <b>L18, L19, L20 (11.00 – 14.00) on-line or KBC/MF</b> |  | prof. T. Schnurrer-Luke Vrbančić, MD, PhD |
| 16.03. 2022. |  | <b>V11 – V 15 (08.00 – 11.45)</b><br><b>C1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka   | A. Šegota, MD                             |
| 17.03. 2022. |  | <b>V11 – V 15 (08.00 – 11.45)</b><br><b>A1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka<br><br><b>A2</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka                              | A. Šegota, MD<br><br>M. Bodul, MD         |
| 18.03. 2022. |  | <b>V11 – V 15 (08.00 – 11.45)</b><br><b>B1</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka<br><br><b>B2</b> Dept. for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka                              | A. Šegota, MD<br><br>M. Bodul, MD         |

**List of lectures:**

|          | <b>LECTURES (Topics)</b>  | <b>Teaching hours</b> | <b>Location/Lecture room</b> |
|----------|---|-----------------------|------------------------------|
| L1       | Introduction and history of Physical Medicine and Reahabilitation (PRM)   | 1                     | on-line MS Teams or MF/KBC   |
| L2       | Helping the patient with musculo-skeletal diseases (MSD)  | 1                     | on-line MS Teams or MF/KBC   |
| L3, L4   | Pain – diagnostic and therapeutic challenge   | 2                     | on-line MS Teams or MF/KBC   |
| L5       | Selected clinical cases – Please help me, my whole body hurts- Fibromyalgia syndrom   | 1                     | on-line MS Teams or MF/KBC   |
| L6       | Selected clinical cases – Complex Regional Pain Syndrom (CRPS)  | 1                     | on-line MS Teams or MF/KBC   |
| L7, L8   | Osteoporosis and osteosarcopenia  | 2                     | on-line MS Teams or MF/KBC   |
| L9, L10  | Phenotype diversity in joint and spine osteoarthritis (OA) with proper diagnostics and non-pharmacologic and pharmacologic therapy                                      | 2                     | on-line MS Teams or MF/KBC   |
| L11      | Neck pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)   | 1                     | on-line MS Teams or MF/KBC   |
| L12, L13 | Back pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies), recognizing inflammatory back pain as a spetial entity | 2                     | on-line MS Teams or MF/KBC   |
| L14      | Knee pain - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)   | 1                     | on-line MS Teams or MF/KBC   |
| L15      | Tendinopathies - diagnostics and therapy (non-pharmacologic and pharmacologic therapy and rehabilitation strategies)  | 1                     | on-line MS Teams or MF/KBC   |
| L16, L17 | Selected rehabilitation issues: Spinal cord Injuries (SCI) – how to make individual rehabilitation plan for impairments, disability and handicap                        | 2                     | on-line MS Teams or MF/KBC   |
| L18      | Selected rehabilitation issues: Rehabilitation of people with limb amputation - how to make individual rehabilitation plan for impairments, disability and handicap     | 1                     | on-line MS Teams or MF/KBC   |
| L19      | Selected rehabilitation issues: Rehabilitation in stroke syndroms- how to make individual rehabilitation plan for impairments, disability and handicap                  |                       | on-line MS Teams or MF/KBC   |
| L20      | Selected rehabilitation issues: Comprehensiive management of multiple sclerosis.  | 1                     | on-line MS Teams or MF/KBC   |
| L21, L22 | Selected rehabilitation issues: Early diagnosis and habilitation/neurorehabilitation of children with deviation of normal motor development.                            | 2                     | on-line MS Teams or MF/KBC   |
|          | <b>Total hours of lectures</b>  | <b>22</b>             |                              |

|         | <b>PRACTICALS (Topics)</b>   | <b>Teaching hours</b> | <b>Location/Lecture room</b>  |
|---------|--|-----------------------|---|
| P1-P10  | Assessment of musculo-skeletal system; create individual rehabilitation plan for patients with impairments, disability and handicap; levels of non-pharmacologic and parmacologic opptions; levels of rehabilitation care through inpatient/outpatient department. | 10                    | Department for PRM, KBC- Location Sušak, T. Strižića 3, Rijeka - pathologies and rehabilitation strategies in elderly patients. |
| P11-P15 | Assessment of musculo-skeletal system in children; create individual rehabilitation plan for patients with impairments, disability and handicap; levels of non-  | 5                     | Department for PRM, KBC- Location Kantrida, Istarska street 43,   |



|  |   |           |  |
|--|---|-----------|--|
|  | pharmacologic and parmacologic opptions; levels of rehabilitation care through inpatient/outpatient department. |           | Kantrida Children's hospital, Rijeka - pathologies and rehabilitation strategies in children). |
|  | <b>Total hours of practicals</b>  | <b>15</b> |  |

| <b>FINAL EXAM DATES</b> |                      |
|-------------------------|----------------------|
| 1.                      | March 23rd, 2022     |
| 2.                      | July 8th, 2022       |
| 3.                      | September 1st, 2022  |
| 4.                      | September 15th, 2022 |
| 5.                      |                      |