

# SYLLABUS OF PHYSIOTHERAPY

## YEAR 1 / SEMESTER 1

### aBFAP0121c Anatomy of the Locomotor System I - seminar

Faculty of Medicine

Extent and Intensity 0/2/0. 3 credit(s). Type of Completion: z (credit).

#### Course objectives

Student is able to nominate anatomical structures of passive and active locomotor systems after lectures of the anatomy of locomotor system I. Student is able to explain the function of bones formations, movements of joints and muscles groups. Student will be able to use obtained theoretical and practical knowledge of locomotor units in the next study of normal anatomy. Student should be able to define mechanical system in joints, separate muscles and groups of muscles. Student should be theoretically prepared for consecutive study in the second term after lectures of the first semester. Student should be able to evaluate the normal stage of the locomotor system from the pathological one.

#### Syllabus

- 1. Anatomical terminology, introduction to radiology.
- 2. Skeleton of the thorax and spine.
- 3. Skeleton of the upper extremity.
- 4. Skeleton of the lower extremity
- 5. Skull - neurocranium and splanchnocranium (basis), skull as a whole.
- 6. Joints of the head, thorax and spine.
- 7. Muscles of the head, neck and thorax.
- 8. Muscles of the back and abdomen, inguinal canal.
- 9. Joints of the upper extremity.
- 10. Muscles of the upper extremity I.
- 11. Muscles of the upper extremity II.
- 12. Joints of the lower extremity.
- 13. Muscles of the lower extremity I.
- 14. Muscles of the lower extremity II.

#### Literature

required literature

- JOUKAL, Marek a Ladislava HORÁČKOVÁ. *Anatomie pohybového systému pro fyzioterapeuty (Anatomy of human locomotor system for physiotherapists)*. 1. vyd. Brno: Masarykova univerzita, 2013. ISBN 978-80-210-6602-1.

not specified

- NETTER, Frank H. *Atlas of human anatomy*. 5th ed. Philadelphia: Saunders/Elsevier, 2011. 1 v. ISBN 9781416059516.

- PÁČ, Libor, Ladislava HORÁČKOVÁ a Hana NECHUTOVÁ. *Anatomy of human locomotor system*. 1.

vyd. Brno: Masarykova univerzita Brno, 2010. 119 pp. ISBN 978-80-210-5258-1.

· HORÁČKOVÁ, Ladislava. *Anatomie pro antropology I (Anatomy for students of anthropology I)*. Brno: Nadace Universitas v Brně, Akademické nakladatelství CERM, Masarykova univerzita, 2007. 171 pp. ISBN 978-80-210-4449-4.

· NETTER, Frank H. *Anatomický atlas člověka*. Edited by John T. Hansen, Translated by Libor Páč - Petr Dubový. Vyd. 2., rozš. Praha: Grada, 2005. [14], 542. ISBN 8024711532.

### **Teaching methods**

To achieve the required knowledge of locomotor system I it is necessary to pass a theoretical preparation during the lessons and also individual study of student texts and the anatomical atlases. In practical courses students should verify their theoretical knowledge on anatomical models and human bones, joints and muscles. During individual studies students can borrow osteological preparations from the collections of the Anatomical department or study locomotor system on the preparations in the Anatomical museum. Also they can study locomotor system in the x-ray study room and use programmes with anatomy subjects in PC study room. Of course during the whole term can students consult difficult parts of anatomy with their lecturers.

### **Assessment methods**

Required level of knowledge is being continuously verified by short written tests and by evaluation of practical knowledge of particulate anatomical formations on preparations of human body in practical lessons. Student is evaluated for active presence in lessons by credits in the end of each term. To gain credit is necessary 95% presence at seminars.

## **aBFAP0121p Anatomy of the locomotor system I - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 0 credit(s). Type of Completion: z (credit).

### **Course objectives**

Student is able to nominate anatomical structures of passive and active locomotor systems after lectures of the anatomy of locomotor system I. Student is able to explain the function of bones formations, movements of joints and muscles groups. Student will be able to use obtained theoretical and practical knowledge of locomotor units in the next study of normal anatomy. Student should be able to define mechanical system in joints, separate muscles and groups of muscles. Student should be theoretically prepared for consecutive study in the second term after lectures of the first semester. Student should be able to evaluate the normal stage of the locomotor system from the pathological one.

### **Syllabus**

- 1. Introduction into the study of Anatomy, general osteology, skeleton of the thorax and spine.
- 2. Skeleton of the upper extremity.
- 3. Skeleton of the lower extremity.
- 4. Skull - neurocranium and splanchnocranium (basis), skull as a whole.
- 5. General arthrology, joints of the head, thorax and spine.
- 6. General myology, muscles of the head, neck and thorax.
- 7. Muscles of the back and abdomen, inguinal canal.
- 8. Joints of the upper extremity.
- 9. Muscles of the upper extremity I.
- 10. Muscles of the upper extremity II.

- 11. Joints of the lower extremity.
- 12. Muscles of the lower extremity I.
- 13. Muscles of the lower extremity II.
- 14. Spare lecture.

#### **Literature**

- PÁČ, Libor, Ladislava HORÁČKOVÁ a Hana NECHUTOVÁ. *Anatomy of human locomotor system*. 1. dotisk 1. vyd. Brno: Masarykova univerzita, 2012. 119 pp. ISBN 978-80-210-5258-1.
- NETTER, Frank H. *Atlas of human anatomy*. 5th ed. Philadelphia: Saunders/Elsevier, 2011. 1 v. ISBN 9781416059516.
- HORÁČKOVÁ, Ladislava. *Anatomie pro antropology I (Anatomy for students of anthropology I)*. Brno: Nadace Universitas v Brně, Akademické nakladatelství CERM, Masarykova univerzita, 2007. 171 pp. ISBN 978-80-210-4449-4.
- NETTER, Frank H. *Anatomický atlas člověka*. Edited by John T. Hansen, Translated by Libor Páč - Petr Dubový. Vyd. 2., rozš. Praha: Grada, 2005. [14], 542. ISBN 8024711532.

#### **Teaching methods**

To achieve the required knowledge of locomotor system I it is necessary to pass a theoretical preparation during the lessons and also individual study of student texts and the anatomical atlases. In practical courses students should verify their theoretical knowledge on anatomical models and human bones, joints and muscles. During individual studies students can borrow osteological preparations from the collections of the Anatomical department or study locomotor system on the preparations in the Anatomical museum. Also they can study locomotor system in the x-ray study room and use programmes with anatomy subjects in PC study room. Of course during the whole term can students consult difficult parts of anatomy with their lecturers.

#### **Assessment methods**

Assessment is carried out after completion of following subjects within the scope of anatomy final examination: BFAP0121c Anatomy of the Locomotor System I - seminar BFAP0222p Anatomy of the Locomotor System II - lecture BFAP0222c Anatomy of the Locomotor System II – seminar

## **aBFBC011p Biochemistry - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The subject follows secondary school chemistry and broadens the content considerably to the level required for the study of successive subjects. After the completion of the subject student will understand physico-chemical processes important for biological systems, will know the structures and names of biochemically important inorganic and organic compounds and explain their significance. He/she describes the structure and properties of saccharides, lipids, steroids, amino acids, proteins, nucleotides and nucleic acids. He/she will be able to explain the metabolism of nutrients and principles of its regulation. He/she understands how energy is generated, used, and stored by the various organs of the body. He/she will describe the biochemical processes typical for main organs and tissues in the body.

### **Syllabus**

- Basic terms. Solutions, concentrations. Electrolytes. Osmotic pressure.

- Protolytic reactions, acids, bases, pH. Hydrolysis of salts, buffers.
- Macrobiogenic and microbiogenic elements. Biochemically important inorganic compounds.
- Organic compounds, hydrocarbons and their derivatives. Alcohols, phenols, ethers. Carbonyl compounds. Ketone bodies. Carboxylic acids and their derivatives. Amines, heterocycles and their biochemically important derivatives. Nucleosides.
- The chemistry of saccharides. Important monosaccharides and their derivatives.
- Amino acids, peptides, proteins.
- Enzymes, structure, mechanism of action. Enzyme classification and nomenclature. Enzymes important in clinical biochemistry.
- Lipids, phospholipids, glycolipids. Eicosanoids, steroids overview. Cholesterol.
- Nucleosides and nucleotides, types of nucleic acids. replication, transcription.
- Hemoproteins. Hem. Bile pigments.
- General principles of metabolism. High-energy compounds. Citric acid cycle. Respiration chain, aerobic phosphorylation.
- Saccharide metabolism, glycolysis, gluconeogenesis, synthesis of glycogen.
- Metabolism of proteins and amino acids. Proteins in food and their digestion. Intracellular degradation of proteins. Common features of amino acid degradation. Synthesis of urea.
- Digestion and resorption of lipids. Fatty acid metabolism, ketogenesis. Cholesterol.
- Characteristic features of metabolism at various conditions. metabolic aspects of diabetes.
- Hormones, mechanism of their action. Neuron, neurotransmitters.
- Biochemistry of liver.
- Biochemistry of blood. Proteins in blood. Blood coagulation.
- Water and ions in organism.
- Biochemistry of kidneys.
- Muscle proteins, molecular principles of contraction and relaxation. Smooth muscle. Biochemical markers of infarction.
- Metabolism of xenobiotics.
- Structure and metabolism of connective tissue.
- Biochemistry of vision, rhodopsin cycle. Metabolism of the cornea and the lens.

### **Literature**

- required literature
- FRY, Mitchell. *Essential Biochemistry for Medicine*. 1st Ed. : Wiley-Blackwell, 2010. 308 pp. ISBN 978-0-470-74328-7.

### **Teaching methods**

Teaching forms are lectures, 2 hours per week.

### **Assessment methods**

The course is concluded by the oral examination. Examination is composed of two parts. First part is a simple test on a computer, the second part is oral. The test includes 25 basic questions from the whole content of the recommended book, including chapters 1-4, calculations of concentration, pH and osmolarity. Only those students who gain 13 correct answers at a minimum will be permitted to sit for the oral examination. The model test is available on IS MUNI in the ROPOT section. List of questions and other instructions you will find in the section Study materials of the course.

## **aBFBI011 Biology - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

After completion of the course student: understands elementary cellular processes; comprehends the complexity of intercellular communication and mutual regulation of individual cells in a multicellular organism; is able to explain the difference between healthy and pathologically working cell; is able to express basic coherence between malfunction in cellular processes and development of diseases, especially hereditary diseases, cancers or developmental defects. Student is also able to apply this knowledge and skills in following subjects.

### **Syllabus**

- Week 1: Introduction. Biopolymers I: proteins.
- Week 2: Biopolymers II: nucleic acids.
- Week 3: Genetic information and its realization.
- Week 4: Cell communication. Cell differentiation. Stem cells.
- Week 5: Membrane system in cells.
- Week 6: Cytoskeletal system in cells.
- Week 7: Mitosis and cytokinesis. Meiosis.
- Week 8: Cell division and cell cycle control.
- Week 9: Principles of heredity I.
- Week 10: Principles of heredity II.
- Week 11: Methods of genome studying. Gene diagnostics.
- Week 12: Bacteria and viruses.
- Week 13: Malignant transformation of cells. Cancer.
- Week 14: substitution lecture

### **Literature**

recommended literature

- *Medical genetics at a glance*. Edited by D. J. Pritchard - Bruce R. Korf. 3rd ed. Chichester, England: Wiley-Blackwell, 2013. 1 online r. ISBN 9781118689028.
- *Essential cell biology*. Edited by Bruce Alberts. 3rd ed. New York: Garland Science, 2009. 1 v. ISBN 9780815341307.

### **Teaching methods**

lecture and class discussion

### **Assessment methods**

Lecture attendance is compulsory. Possible absence has to be excused by the Office for Studies within 5 days from the beginning of the absence and introduced into the Information System (IS).

The course is completed with a written examination test. The test comprises of 30 questions: 15 test questions (multiple answers can be correct, negative marking is obtained for incorrect answers) + 15 given terms for written explanation. At least 30 points out of 60 are needed to pass.

# aBFCJ0161 Czech Language I - practice

## Faculty of Medicine

**Extent and Intensity** 0/3/0. 3 credit(s). Type of Completion: z (credit).

### Course objectives

The aim of the tuition is working knowledge of the Czech language on the A1 level of the "Common European Framework of Reference" (CEFR/Independent User) checked by an examination. After first year students can understand vocabulary and basic phrases related to students, their families, and their immediate specific surrounding, provided people speak clearly and at a slow rate. The knowledge enables students to communicate in common routine tasks, such as shopping, accommodation, using public transport, orientation in the city, asking the way, being able to describe their place of living and people they know by simple phrases and sentences. Students should also be able to fill in forms with personal data, such as name, nationality and address when applying for residence accommodation. Emphasis put on knowledge of parts of body and basic useful phrases in Medical communication.

### Syllabus

- 1st week: *Communicative Competency*: Introduction, Greetings. Where are you from? Phrases in the classroom. *Grammar*: Czech alphabet. The sounds of Czech and their pronunciation and spelling. Vowels, diphthongs. Consonants, assimilation of consonants in groups. The verb "to be".
- 2nd week: *Communicative Competency*: What do you do in Brno?. *Grammar*: Word and its forms in Czech. Natural/grammatical genders in Czech. Cardinal numerals 1 - 20.
- 3rd week: TEST 1 (L1). *Communicative Competency*: What is my friend like? *Grammar*: Three genders of Czech nouns. Nominative of singular in nouns, adjectives, pronouns, and numeral "one". Who is it? What is it? Where is ....?
- 4th week: *Communicative Competency*: My family. *Grammar*: Demonstrative pronouns. Possessive pronouns. Adjectives: hard and soft. Jaký, -á, -é? Cardinal numerals 21-1000.
- 5th week: TEST 2 (L2). *Communicative Competency*: Time and activities. *Grammar*: What time is it? Present tense of verbs (conjugation "-ám", "-uji, -ím, -u"). The verb "to have". Verb negation. Time expressions, days of the week, months. Project 1: My family.
- 6th week: *Communicative Competency*: I like/dislike doing st, I like/don't like st. *Grammar*: Modal verbs. Accusative case in singular (introduction), see 10th week. Project 2: Likes and dislikes.
- 7th week: *Communicative Competency*: Where is it? How can I get there? Orientation in the City. *Grammar*: Adverbs of place. Conjugation of verbs. Present tense, infinitive. The verb ,to go'.
- 8th weeks: TEST 3 (L3-4). *Communicative Competency*: My daily routine. University city Brno. *Grammar*: Locative case of nouns in singular (introduction). Where do you go versus Where are you?
- 9th week: *Communicative Competency*: How to write an informal letter in Czech. *Grammar*: Parts of body I. Revision. Project 3: My life in Brno.
- 10th weeks: TEST 4 (L1-4). *Communicative Competency*: Meals. Café, Restaurant. Likes and dislikes: rád+verb, mít rád, líbit se, chutnat. *Grammar*: Present tense, infinitive. Accusative of singular in nouns, adjectives, pronouns, and numeral "one". Verbs nad prepositions used with the accusative.
- 11th week: *Communicative Competency*: Conversation at restaurant. Personal pronouns in the accusative. Bolí mě... .Parts of body II.

- 12th -13th weeks: TEST 5. *Communicative Competency*: Visit. Czech traditions. Christmas. *Grammar*: Modal verb "to want". Prepositions do-na -v. Revision.
- 14th week: Final test.

### Literature

required literature

- HOLÁ LÍDA. *New Czech Step by Step*. 4. opr. vyd. Praha: Akropolis, 2008. 256 pp. ISBN 978-80-86903-73-6.
- HOLÁ, Lída. *New Czech step by step : activity book*. 3., opr. vyd. Praha: Filip Tomáš - Akropolis, 2006. 127 s. ISBN 8086903338.

recommended literature

- REMEDIOSOVÁ, H. a E. ČECHOVÁ. *Chcete mluvit česky? / Do you want to speak Czech? Textbook 1. A communicative course of contemporary Czech for English speakers (beginning to intermediate level)*. 5. vyd. Liberec: Harry Putz, 2005. 414 pp. ISBN 80-86727-04-1.
- GRUNDOVÁ, Dominika. *Needs of Patients. Czech-English Phrasebook for Beginners*. 2., revid. vyd. Praha: Eurolex Bohemia, 2004. 104 pp. ISBN 80-86432-86-6.

### Teaching methods

The tuition is realised in the form of practical courses. The following teaching methods are used: class discussion, roleplay, work in groups, reading, listening, writing HW (including Projects), word study. Emphasis put on selfstudy!

### Assessment methods

The tuition is realised in the form of practical courses. The students' presence in these courses is strictly required, maximally two properly apologised absences are tolerated provided a letter of excuse is handed in at the Department of Studies. It is highly recommended to make up for the absence in the same week. The tuition is finished by a course-unit credit given on the basis of the students' presence, preparation for classes, sitting for Progress Tests and their successful passing of a Final test. The basic limit for passing all tests is 70%. In case of passing five class tests, which are obligatory for all students, the basic limit in the credit test is reduced by 10%. Any copying, recording or leaking tests, use of unauthorized tools, aids and communication devices, or other disruptions of objectivity of exams will be considered non-compliance with the conditions for course completion as well as a severe violation of the study rules. Consequently, the teacher will finish the exam by awarding grade "NNN" in the Information System, and the Dean will initiate disciplinary proceedings that may result in study termination.

## aBFFI0121p Biophysics, Informatics I

Faculty of Medicine

**Extent and Intensity** 3/0/0. 3 credit(s). Type of Completion: z (credit).

### Course objectives

Students will understand the principles of the most important devices used in medicine; recognize possible risks connected with the use of some medical devices (of mechanical, electromagnetic or optical character, ionizing radiation); accept rules and methods of safe use of these devices - both in patients and in the healthcare professionals; understand physical principles of some physiological processes and their affection by external physical/environmental conditions (cardiovascular system, respiration, origin of membrane potentials); understand the main

concepts of the biophysics of sensory organs; understand the main concepts in information theory and namely the healthcare informatics

### **Syllabus**

Introduction into medical biophysics.

1. Introduction. Biophysical view on structure of matter. 2. Biological effects of ionising radiation. 3. Thermodynamic principles and entropy. 4. Thermodynamic processes in living organisms. 5. Introduction into molecular biophysics I (subject of study). 6. Introduction into molecular biophysics II (methods of study). 7. Biophysics of biomembranes. Bioelectric phenomena. 8. Biophysics of cardiovascular system. 9. Biophysics of respiratory system. 10. Biophysical function of sensory receptors. Biophysics of hearing. 11. Biophysics of vision. 12. Effects of mechanical forces and acoustic fields on the living organisms. 13. Biological effects of electromagnetic fields and non-ionising radiation. 14. Introduction into biocybernetics and modelling. 15. Free theme.

Physical principles of medical technology.

1. Medicine and technology. Biosignals and their processing. 2. Conventional X-ray imaging methods. 3. Modern tomographic methods (CT, MRI). 4. Radionuclide diagnostics. 5. Methods and instruments for ionising radiation therapy. 6. Measurement and registration of temperature. 7. Optical laboratory instruments. 8. Optical diagnostic instruments. 9. Electrodiagnostic methods. 10. Ultrasound imaging. 11. Ultrasound Doppler and duplex methods. 12. Measurement and registration of mechanical quantities. 13. Methods and instruments used in physiotherapy. 14. Modern physical methods in surgery. Lithotripsy. 15. Artificial body organs. Nanotechnology in medicine.

### **Literature**

recommended literature

- HRAZDIRA, Ivo, Vojtěch MORNSTEIN a Jiřina ŠKORPÍKOVÁ. *Základy biofyziky a zdravotnické techniky*. 1. vydání. Brno: Neptun, 2006. 312 stran. ISBN 8086850013.

### **Teaching methods**

lectures

### **Assessment methods**

Credits will be given based on regular attendance and a successful knowledge test.

## **aBFFY0121c Physiology I - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/1/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of the course, students should be able to apply practically the methods used for examination of the functions of human organ systems. Students will be capable of interpreting the acquired records with respect to physiological processes taking place in human organisms. Next, the students will derive and calculate other parameters and indices routinely used in clinical practice. Students will be able to evaluate the results acquired both by measurement and by calculation, and to explain possible deviations.

### **Syllabus**

- Methodology in physiology (experiment, work with animals, clinical tests, statistics, results).
- Red blood cell count, estimation of blood group, erythrocyte sedimentation rate, osmotic resistance of red blood cells.



- Blood pressure, apex beat, heart sounds, examination of pulse by palpation, heart rate in changes of posture.
- Blood pressure in man - rest condition, work load.
- Electrocardiography. Ergometry.

### Literature

recommended literature

- NOVÁKOVÁ, Marie. *Physiology and neuroscience practicals*. 1. vydání. Brno: Masarykova univerzita, 2013. 149 stran. ISBN 9788021063693.
- NOVÁKOVÁ, Zuzana a Robert ROMAN. *Praktická cvičení z fyziologie a neurovědy (Practicals in Physiology and Neuroscience)*. 1. vyd. Brno: Masarykova univerzita, 2013. 152 s. ISBN 9788021063723.
- NOVÁKOVÁ, Zuzana, Robert ROMAN, Mohamed AL-KUBATI, Markéta BÉBAROVÁ, Pavel BRAVENÝ, Alena DAMBORSKÁ, Bohumil FIŠER, Nataša HONZÍKOVÁ, Miloslav KUKLETA, Drahošlava MRÁZOVÁ, Jiří MOUDR, Kateřina NOGOVÁ, Marie NOVÁKOVÁ, Zuzana NOVÁKOVÁ, Michal PÁSEK, Miroslav SVĚTLÁK, Zdeněk WILHELM a Eva ZÁVODNÁ. *Praktická cvičení z fyziologie*. 2. dotisk 1. vyd. Brno: Masarykova univerzita, 2011. 118 pp. ISBN 978-80-210-4391-6.

### Teaching methods

The course is organized in the form of laboratory practices where students examine each other by given method, and they prepare the report from measured data.

### Assessment methods

Credits are given on the basis of full attendance in practices, handling of all laboratory reports, writing 3 topic-tests, and writing credit-test. The topic-test consists of 10 questions evaluated by 10 points - students successfully pass the test if they reach at least 5 points. The credit test consists of 20 questions evaluated by 20 points - students successfully pass the test if they reach at least 12 points.

## aBFFY0121p Physiology I - lecture

### Faculty of Medicine

**Extent and Intensity** 2/0/0. 0 credit(s). Type of Completion: z (credit).

### Course objectives

At the end of the course, students will have sufficient theoretical background required for their profession. Student should be able to recall principles of human body functions in detail - from a cell level, across particular organs to a complex human organism. Students will be able to explain relationships among chemical, physical and biological factors of living processes. An essential aim is that students acquire critical scientific thinking, ability of independent text analysis and fundamental information selection.

### Syllabus

- Introduce to Physiology, the cell (membranous structure of the cell, organelles, morphology and function), transport of substrates through the cell, membrane potentials, resting membrane potential, and action potential.
- Blood cells, immunity, blood clotting.
- The heart (anatomy, morphology, function, excitatory and conductive system of the heart).
- The cardiac cycle.
- Electrocardiography. Cardiology examination techniques.

- Myocardial infarction, heart failure, atherosclerosis.
- Physiology of circulation. Specialities of regional circulation, microcirculation.
- Respiration (mechanics of pulmonary ventilation, pulmonary volumes and capacities, transport of oxygen and carbon dioxide in the blood and body fluids).
- Regulation of respiration. Hypoxia.
- The kidneys (anatomy, morphology).
- Countercurrent multiplier system.
- The body fluids. Urine formation.
- Regulation of acid-base balance.

### Literature

recommended literature

- WILHELM, Zdeněk, Pavel BRAVENÝ, Bohumil FIŠER, Nataša HONZÍKOVÁ, Miloslav KUKLETA, Marie NOVÁKOVÁ, Zuzana NOVÁKOVÁ, Milena ŠIMURDOVÁ a Yveta ŠTOURAČOVÁ. *Stručný přehled fyziologie člověka pro bakalářské studijní programy (Medical Physiology - overview for bachelor study)*. 4. vyd. Brno: Masarykova univerzita, 2010. 117 pp. ISBN 978-80-210-5283-3.
- MOUREK, Jindřich. *Fyziologie : učebnice pro studenty zdravotnických oborů*. 2., dopl. vyd. Praha: Grada, 2012. 222 s. ISBN 9788024739182.
- ROKYTA, Richard. *Fyziologie : pro bakalářská studia v medicíně, ošetrovatelství, přírodovědných, pedagogických a tělovýchovných oborech*. 2., přeprac. vyd. Praha: ISV nakladatelství, 2008. 426 s. ISBN 808664247X.
- SILBERNAGL, Stefan a Agamemnon DESPOPOULOS. *Atlas fyziologie člověka*. 6. vyd., zcela přeprac. a r. Praha: Grada, 2004. xiii, 435. ISBN 802470630X.
- SILBERNAGL, Stefan a Florian LANG. *Atlas patofyziologie*. 2., české vyd. Praha: Grada, 2012. x, 406. ISBN 9788024735559.
- HALL, John E. a Arthur C. GUYTON. *Guyton and Hall textbook of medical physiology*. 12th ed. Philadelphia, Pa.: Saunders/Elsevier, 2011. xix, 1091. ISBN 9781416045748.

### Teaching methods

Lessons are held in the form of lectures.

### Assessment methods

Credits are given on the basis of written multiple-choice test which consists of 20 questions evaluated by 20 points - students successfully pass the test if they reach at least 12 points.

## aBFLT011 Medical Latin

### Faculty of Medicine

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: zk (examination).

### Course objectives General characteristics of the subject:

Medical Latin has the character of a preparatory subject whose sense is to facilitate for the students basic orientation in the professional language. The conception of tuition specifies three main tasks: (1) to provide elementary technical vocabulary from the field of anatomy where nouns and adjectives predominate and to provide instruction in the regular nominal inflexion, (2) to introduce to the field of clinical terminology and acquaint with the most frequent lexis of the obstetrics-gynecology medical reports as well as with basics of Latin syntax, (3) to present the theory of word formation on a professional level to students.

This is complemented with a getting knowledge of medical prescription Latin, and an informative view of select topics in the theory and history of medical terminology.

### **Learning outcomes:**

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

recognize and explain grammatical devices and rules relevant for acquisition of Greek-Latin medical terminology; translate expressions from particular field of studies; employ and understand basic medical terminology; recognize the semantic structure of selected anatomical and clinical terms; form compound words applying particular word-formation principles; explain syntactic structure of complex terms.

### **Syllabus**

#### **MEDICAL LATIN - practice. Syllabus.**

- *1st week:* Introduction to the study of the subject: significance and contents of the course, methodological instructions, study literature. Latin alphabet, pronunciation and its practising. Latin in anatomical terminology, Latin in physiotherapy medical reports, Latin in pharmacology. Dictionary entry, how to understand it and how to manage Latin vocabulary. System of Latin and Greek declensions and the paradigm chart.
- *2nd week:* Basic nominal categories number-gender-case. Syntactic relations among constituents of multiple terms (non-agreed attributes, prepositional phrases), word order. Latin nouns of 1st declension.
- *3rd week:* Syntactic relations among constituents of multiple terms (agreed attribute). Latin and Greek nouns and adjectives of 1st declension. Latin ordinal numerals.
- *4th week:* Latin and Greek nouns and adjectives of 2nd declension. Introduction to Latin clinical terminology I. (basic principles, word order, syntax, collocations): basic types of fractures.
- *5th week:* Revision and practising of the study material. **Progress test.** Introduction into Latin and Greek 3rd declension (consonant-ending roots).
- *6th week:* Latin and Greek nouns of 3rd declension (i-stems). Latin of medical reports: sample from the field of traumatology.
- *7th week:* Latin nouns of 4th and 5th declensions. Select suffixes: diminutive suffixes, derivation of adjectives using suffix *-ideus, a, um*.
- 8th week:* Revision and practising of study material. **Progress test.** Latin of medical reports samples from the fields of traumatology and physiotherapy. Introduction to Latin clinical terminology II. : Typology of wounds and injuries.
- *9th week:* Adjectives of 3rd declension (two-termination and one-termination types). Inflection of Adjectives of 3rd declension and agreed attribute with nouns of 1st and 2nd declensions. Derivation of adjectives using suffixes *-alis, e; -aris, e; -icus, a, um; eus, a, um*. Terms denoting position and orientation of the body parts. Terms denoting extremities.
- *10th week:* Comparison of adjectives (regular, irregular, defective). Comparatives and superlatives in anatomical terminology.
- *11th week:* Word-formation (1): Basic principles of derivation. Productive Latin and Greek prefixes and suffixes. Synonymy and antonymy of prefixes. Polysemy of suffixes.
- *12th week:* Word-formation (2): Basic rules of composition. The most frequently used Latin and Greek word-forming components. Terms for the inflammatory diseases. Diagnoses containing expressions *suspicio a suspectus, a, um*.
- *13th week:* Word-Formation (3): Latin and Greek word-forming components denoting general

terms and names of anatomical structures and body fluids.

- *14th week: Word-Formation (4):* Latin and Greek word-forming components for physiological and pathological processes ongoing in the human body, components denoting different qualities, characteristics and amount and components naming branches of medicine and types of interventions and examinations.
- *15th week:* Frequented diagnoses in the traumatology and physiotherapy. Revision, supplements and practicing of the study material. **Final test.**

### Literature

required literature

- PRUCKLOVÁ, Renata - SEVEROVÁ, Marta. *Introduction to Latin and Greek Terminology in Medicine.* Prague: Koniasch Latin Press, 2012. ISBN 978-80-86791-24-1

recommended literature

- *Atlas of anatomy : Latin nomenclature.* Edited by Anne Marie Gilroy - Brian R. MacPherson - Lawrence M. Ross - Michael S. New York: Thieme Medical, 2009. xv, 656. ISBN 9781604060997.

not specified

- Supplementary materials: ARTIMOVÁ, J. - DÁVIDOVÁ, E. - POŘÍZKOVÁ, K. - ŠVANDA, L. *Terminologia Graeco-Latina Medica*, Brno: MU 2015 (el. verze bude k dispozici 15.9. ve studijních materiálech předmětu v ISu)
- EHRlich, Ann a Carol L. SCHROEDER. *Medical terminology for health professions.* 6th ed. Clifton Park, NY: Delmar, Cengage Learning, 2009. xxvi, 582. ISBN 9781418072520.

### Teaching methods

lectures and presentations, translation and grammar exercises, drills, homework

### Assessment methods

Two class tests, which focus on declensions and word-formation, is a prerequisite for admission to the exam. The structure of particular test as well as the methodology of its marking is included among study materials of the subject as a specific document. The exam has a written and oral form. The student is expected to show the knowledge of studied language devices, phenomena and rules necessary for the basic orientation in Greek-Latin medical terminology, particularly in the area of his field of study. The limit for passing the exam test is 60%. Other requirements: regular class attendance, active participation in class, preparation for classes. The maximal number of absences is two. Both absences must to be properly excused (i.e. via the Study Department of the Faculty of Medicine).

## aBFMT0151c Methodology of Physical Education I - practice

Faculty of Medicine

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### Course objectives

The main aim of this subject - practise, is to familiarize with basic methodology of motor abilities and skills development with the inclusion of testing. Successful graduate student will be able to use his theoretical knowledge of basic laws of the process of education in practise adequately. He will be able to structure exercise units correctly, to prepare himself for the exercise unit and also to evaluate the results of educational process in an objective way. The student will prove his ability to understand and use adequate terminology of physical exercises in practise.

### Syllabus

- Introduction to practical education, conditions for credit obtainment, safety instructions for classes of Methodology of physical education. Course for adaptation. Entrance test of motor abilities (Unifit) I, II. Selected methodics for development and testing of motor strength I, II. Selected methodics for development and testing of motor velocity I, II. Selected methodics for development and testing of motor coordination I, II. Selected methodics for development and testing of motor flexibility I, II. Terminology of physical exercises. Evaluation of Unifit test results, credit assignment.

#### **Literature**

- RYCHTECKÝ, A., FIALOVÁ, L. Didaktika školní tělesné výchovy. Praha: Karolinum, 2002. 171 s.
- HURYCHOVÁ, A., VILÍMOVÁ, V. Didaktika tělesné výchovy. Brno: MU, 1997. 71 s. (ISBN 80-210-1525-X)
- APPELT, K., LIBRA, M.: Gymnastické názvosloví. Praha: Karolinum, 1998. 1. vyd. 88 s. (ISBN 80-7184-714-3)
- NOVÁČEK, V., MUŽÍK, V., KOPŘIVOVÁ, J.: Vybrané kapitoly z teorie a didaktiky tělesné výchovy. Brno: Masarykova Univerzita, 2001 (ISBN 80-210-2642-1)
- VILÍMOVÁ, V.: Didaktika tělesné výchovy. Brno: Paido, 2002. 103 s. (ISBN 80-7315-033-6)
- APPELT, K. et al: Názvosloví pro cvičitele. Praha: Olympia, 1989. 247 s. (ISBN 80-7033-011-2)
- DOVALIL, J. et al. Výkon a trénink ve sportu. Praha: Olympia, 2005, 2. vyd., 336 stran. (ISBN 80-7033-928-4)

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFMT0151p Methodology of Physical Education I - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: k (colloquium).

### **Course objectives**

The main aim of this subject is to acquaint with the content of the branch Didactics of Physical Education. Successful graduate student will be familiarized with the history of physical culture in the Czech Republic and in the world and will be conscious of the role of Didactics of Physical Education in present. He will also comprehend the basic laws of the process of education in the scheme of interaction between teacher - student - educational project - and the conditions of education. He will understand and respect physical, psycho-social and spiritual development of the student in respect to physical education, motion and ontogenesis. Further on, he will be able to define, differentiate and classify individual motor abilities and methods and the limiting factors of its development. He will be able to structure educational units correctly, to prepare himself for the education and also to evaluate the results of educational process in an objective way. The student will understand the terminology of physical exercises and will be able to use it appropriately.

### **Syllabus**

- Introduction to methodics of physical education; compendium of physical culture development in the Czech Republic and in the world; structure of the subject Didactics of physical education.

Conditions for physical education; system of didactic process and aims of physical education; characteristics of physical education curriculum, its content, structure, concoction and teaching plans. Types of learning and its system; course of motor learning and its phases. Physical, functional, psychosocial and spiritual development of a student in relation to physical education, motion and ontogenesis. Strength abilities, its definition, differentiation, classification, conditional factors and methods of development including basics of testing procedures. Velocity abilities, its definition, differentiation, classification, conditional factors and methods of development including basics of testing procedures. Endurance abilities, its definition, differentiation, classification, conditional factors and methods of development including basics of testing procedures. Flexibility abilities, its definition, differentiation, classification, conditional factors and methods of development including basics of testing procedures. Coordinative abilities, its definition, differentiation, classification, conditional factors and methods of development including basics of testing procedures. Teacher of physical education, structure of expectations and characteristics of teacher, typology and testing of teacher 's personality. Educational activities of teacher of physical education; implication of didactic principles to physical education. Educational methods of physical education, different forms of work organization; security in classes of physical education. Structure of teaching unit of physical education and preparation to the teaching unit. Evaluation of the effectivity and intensity of physical education classes; testing in physical education; research methods in physical education. Introduction to the terminology of physical exercises; standing positions and movements leading to standing positions; kneeling positions and movements leading to kneeling; lying positions and movements leading to lying; sitting positions and movements leading to sitting; support positions and movements leading to support positions; movements of the whole body and its parts.

#### **Literature**

- APPELT, K., LIBRA, M.: Gymnastické názvosloví. Praha: Karolinum, 1998. 1. vyd. 88 s. (ISBN 80-7184-714-3)
- HURYCHOVÁ, A., VILÍMOVÁ, V. Didaktika tělesné výchovy. Brno: MU, 1997. 71 s. (ISBN 80-210-1525-X)
- RYCHTECKÝ, A., FIALOVÁ, L. Didaktika školní tělesné výchovy. Praha: Karolinum, 2002. 171 s.
- DOVALIL, J. et al. Výkon a trénink ve sportu. Praha: Olympia, 2005, 2. vyd., 336 stran. (ISBN 80-7033-928-4)
- VILÍMOVÁ, V.: Didaktika tělesné výchovy. Brno: Paido, 2002. 103 s. (ISBN 80-7315-033-6)
- NOVÁČEK, V., MUŽÍK, V., KOPŘIVOVÁ, J.: Vybrané kapitoly z teorie a didaktiky tělesné výchovy. Brno: Masarykova Univerzita, 2001 (ISBN 80-210-2642-1)
- APPELT, K. et al: Názvosloví pro cvičitele. Praha: Olympia, 1989. 247 s. (ISBN 80-7033-011-2)

#### **Teaching methods**

lecture

#### **Assessment methods**

Final colloquial test.

## **aBFPP011c First Aid in Medicine**

### **Faculty of Medicine**

**Extent and Intensity** 0/1/0. 1 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of the course the students should know the way how to give the first

aid in frequent acute conditions threatening the life (see the programme). The students would be able

to describe symptoms of the condition and explain its cause.

### **Syllabus**

· Programme of the course Medical First Aid The first school year, specialization in medicine, physiotherapy, BFPP011c The course is given as PC and video presentations in most frequent acute conditions threatening the life. Each chapter involves definition, cause, symptoms, procedure in giving of first aid and basic treatment of the condition. There is a practical presentation and training of cardiopulmonary resuscitation on a model. Topics: Cardiopulmonary resuscitation Shock, circulatory failure, myocardial infarction Sepsis, allergy, respiratory insufficiency, aspiration, asthmatic attack Unconsciousness- extracranial and intracranial causes, epileptic seizure, stroke Acute conditions of the abdomen, colic, acute renal failure Injuries of bones and joints, injuries of the spine and of spinal cord, craniocerebral injuries Blast syndrome, burns, injury by electricity, by cold and hot conditions Drowning, cramps, spasm and convulsions Acute conditions in ENT, ophthalmology and gynecology Acute intoxications, drug addiction 30 th December, 2008

### **Literature**

· Rozkydal, Z., Kocourková, P.: Zdravotnická první pomoc

### **Teaching methods**

The lectures are given in a lecture hall with the use of Power Point presentations and videos.

### **Assessment methods**

Oral examination.

## **aBFUL0121c Introduction to Physiotherapy I - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/3/0. 3 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of this course students should be able to apply the classical manual massage, technique of classical massage of back, abdomen, neck, chest, upper and lower limbs. Students should be able to use the classic massage practices, the use of tools and indications and contraindications of massage, water massage, sports massage.

### **Syllabus**

- Introduction to study
- Effect of mechanotherapy. Receptors
- Superficial dermal sensitivity system. Therapy
- Physical therapy: mechanotherapy, thermotherapy, phototherapy
- Physical therapy: electrotherapy, magnetic therapy, hydrotherapy
- Climatic therapy, balneotherapy, hypotherapy
- Massage segmentation. History.
- Classical hand massage: mechanism of effect, massage preparation
- Technique of classical massage. Massage tools.
- Lower and upper limb massage procedures
- Back and stomach classical massage procedures
- Neck and chest classical massage procedures
- Massage indication and contraindication

- Massage in water, sports massage

#### **Literature**

- CAPKO, Ján. *Základy fyziatrické léčby*. 1. vyd. Praha: Grada, 1998. 394 s. ISBN 8071693413.
- FLANDERA, S. *Klasické masáže*. 1. vyd. Olomouc : Poznání, 2005. 212 s. ISBN: 80-86606-36-8.
- PEETERS. J. *Reflexní terapie*. Praha : Slovart, 2008. 96 s. ISBN 978-80-7391-140-9.
- PODĚBRADSKÝ, J. - VAŘEKA, I. *Fyzikální terapie II*. 1. vyd. Praha : Grada, 1998. 171 s. ISBN 80-7169-661-7
- STORCK, Ulrich. *Technika masáže v rehabilitaci*. Edited by Heinz-Otto Junker - Walter Rostalski. 1. české vyd. Praha: Grada, 2010. 191 s. ISBN 9788024726632.
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFUL0121p Introduction to Physiotherapy I - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 0 credit(s). Type of Completion: z (credit).

### **Course objectives**

Introduction to study of physical therapy. Superficial dermal sensitivity system.

Physical therapy: mechanotherapy, termotherapy, fototherapy, electrotherapy, magnetic therapy, hydrotherapy. Climatic therapy, balneotherapy, hipotherapy. Classical hand massage: mechanism of effect, massage preparation. Technique of classical massage. Massage tools. Massage indication and contraindication. Massage in water, sports massage.

### **Syllabus**

- Introduction to study
- Effect of mechanotherapy. Receptors
- Superficial dermal sensitivity system. Therapy
- Physical therapy: mechanotherapy, termotherapy, fototherapy
- Physical therapy: electrotherapy, magnetic therapy, hydrotherapy
- Climatic therapy, balneotherapy, hipotherapy & II Massage segmentation. History.
- Classical hand massage: mechanism of effect, massage preparation
- Technique of classical massage. Massage tools.
- Lower and upper limb massage procedures
- Back and stomach classical massage procedures
- Neck and chest classical massage procedures
- Massage indication and contraindication
- Massage in water, sports massage
- Internal organs massage

### **Literature**

- PODĚBRADSKÝ, J., PODĚBRADSKÁ, R. *Fyzikální terapie* Praha: Grada, 2009. 218 s. ISBN 978-80-247-2899-5.



- FLANDERA, S. Klasické masáže. 1. vyd. Olomouc: Poznání, 2005. 212 s. ISBN: 80-86606-36-8.
- PEETERS, J. Reflexní terapie. Praha: Slovart, 2008. 96 s. ISBN 978-80-7391-140-9.
- PODĚBRADSKÝ, J. - VAŘEKA, I. Fyzikální terapie II. 1. vyd. Praha: Grada, 1998. 171 s. ISBN 80-7169-661-7
- STORCK, Ulrich. *Technika masáže v rehabilitaci*. Edited by Heinz-Otto Junker - Walter Rostalski. 1. české vyd. Praha: Grada, 2010. 191 s. ISBN 9788024726632.
- JANDOVÁ, Dobroslava. *Balneologie*. 1. vyd. Praha: Grada, 2009. xvi, 404. ISBN 9788024728209.
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.

#### Teaching methods

lecture

#### Assessment methods

theoretical and practical exam

## aBFUR011 Introduction to Rehabilitation

### Faculty of Medicine

**Extent and Intensity** 2/0. 3 credit(s). Type of Completion: zk (examination).

#### Course objectives

The aim of introduction to physiotherapy is to study the basic of physiotherapy, balneotherapy. Physiotherapy is a team work. Continuity of the various components of the treatment field. The physiotherapy and therapeutic exercise is used in hospitals rehabilitation institutes, outpatient physiotherapeutical departments, physiotherapy in the spa, physiotherapical process and physiotherapical program, documentation required in the physiotherapy.

#### Syllabus

- Physiotherapy - definition.
- International classification of disease, of disability, of functional impairment.
- Kind of prevention - primary, secondary, tertiary.
- Physiotherapy and its forms - medical, social, occupational, psychological, pedagogical.
- Exercise therapy. Kinezioterapie. Physical therapy, ergotherapy, balneotherapy and climatotherapy, psychotherapy.

#### Literature

- 39. VOTAVA, J. Základy rehabilitace. Praha : Karolinum, 1997. 139 s. ISBN 80-7184-385-7
- *Funkční svalový test*. Edited by Vladimír Janda. Vyd. 1. Praha: Grada, 1996. 325 s. ISBN 8071692085.
- Vyhláška MPSV ČR z roku 1992 o provádění pracovní rehabilitace občanů se změněnou pracovní schopností

#### Teaching methods

lecture

#### Assessment methods

oral exam

## aBFZA011p Bases of Anatomy - lecture

### Faculty of Medicine

**Extent and Intensity** 3/0. 4 credit(s). Type of Completion: zk (examination).

#### Course objectives

At the end of the course student should be able to describe of individual organs and the basic topographical relations concerning anatomical structures of the individual systems – especially of the musculoskeletal, respiratory, cardiovascular, gastrointestinal, urogenital, and nervous systems, further student should be able to explain the basic principal relations between their structure and functions which, in further studies, are necessary for the comprehension of physiological, pathophysiological, and pathological contexts required to master both theoretical and practical clinical knowledge.

### **Syllabus**

· Introduction into anatomy: history of the discipline, planes, directions of the human body, tissues, fundamentals of osteology and arthrology. Skeletal axis, the skeleton of the skull (neuroand splanchnocranium), the skull of a newborn, the skeleton of the upper and lower extremities. General myology, muscles of mastication and facial expression, muscles of the trunk and extremities. Gastrointestinal system: general structure, oral cavity, rectum, large glands, peritoneum, hernias. Respiratory system: upper and lower respiratory tracts, mediastinum, pleurae. Cardiovascular system: heart, survey of arteries and veins, lymphatic system, spleen. Urinary system: kidney, formation of urine, urinary tract. Genital system of men and women, muscular fundus of the pelvis. Central nervous system: spinal cord, brain, ventricles and meninges of the brain. Peripheral nervous system: nerves of the head, spinal and vegetative nerves. Visual, auditory, and vestibular systems.

### **Literature**

- DRAKE, Richard L., Wayne VOGL a Adam W. M. MITCHELL. *Gray's basic anatomy*. Philadelphia, PA: Elsevier, 2012. xx, 610. ISBN 9781455710782.
- NAŇKA, Ondřej. *Přehled anatomie*. Edited by Miloslava Elišková - Oldřich Eliška - Lubomír Houdek. 2., dopl. a přeprac. vyd. Praha: Karolinum, 2009. xi, 416. ISBN 9788024617176.
- FIALA, Pavel, Jiří VALENTA a Lada EBERLOVÁ. *Anatomie pro bakalářské studium ošetrovatelství*. 1. vyd. Praha: Karolinum, 2004. 136 s. ISBN 8024608049.
- HOLIBKOVÁ, Alžběta. *Přehled anatomie člověka*. Edited by Stanislav Laichman. 3. vyd. Olomouc: Vydavatelství Univerzity Palackého v Olomouci, 2002. 140 s. ISBN 8024404958.

### **Teaching methods**

lecture

### **Assessment methods**

The final examination proceeds in the form of a test. To pass successfully the exam, the student has to obtain at least the grade E. The student has to obtain at least 9 out of 15 points in the test.

## **YEAR 1 / SEMESTER 2**

### **aBFAP0222c Anatomy of the Locomotor System II - seminar**

Faculty of Medicine

Extent and Intensity 0/2/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

Student is able to practically recognize and nominate anatomical structures of respiratory system, cardiovascular system, peripheral and central nerve systems after lectures of the

anatomy in second term. Student will be able to explain meaning of particular organs and whole organs systems. Student will be able to apply obtained knowledge to the function of active and passive locomotor systems. Student should be able to evaluate an interaction of particular organs of human body during its movement. Student should be theoretically prepared for study of pre- and clinical subjects after passing the anatomy lectures of the second term. Student should be able to evaluate the normal stage of human body during its rest and during movements as well as to use this knowledge in his/her practice.

### **Syllabus**

- 1) The survey of gastrointestinal and urogenital system including regional anatomy.
- 2) Respiratory system.
- 3) The heart.
- 4) Compendium of the arterial system. Compendium of venous and lymphatic systems.
- 5) Spinal nerve, dorsal rami of spinal nerves. Cervical plexus. Intercostal nerves.
- 6) Brachial plexus.
- 7) Lumbar plexus. Sacral plexus.
- 8) Regional anatomy of the limbs and back.
- 9) Verification - muscles, vessels and nerves of the limbs and back.
- 10) Spinal cord, covering of the central nervous system. Brain stem, cerebellum.
- 11) Telencephalon. Brain ventricles.
- 12) Cranial nerves. Vegetative nervous system, nervous pathways.
- 13)
- 14) 15) Consultation week.

### **Literature**

- NETTER, Frank H. *Anatomický atlas člověka*. Edited by John T. Hansen, Translated by Libor Páč - Petr Dubový. Vyd. 2., rozš. Praha: Grada, 2005. [14], 542. ISBN 8024711532.
- DOKLÁDAL, Milan a Libor PÁČ. *Anatomie člověka II. Splanchnologie a cévní systém (Human anatomy II. Splanchnology and vascular system)*. 2. přepracované. Brno: Masarykova univerzita, Lékařská fakulta, 2003. 136 pp. 2. ISBN 80-210-2886-6.
- DOKLÁDAL, Milan a Libor PÁČ. *Anatomie člověka III. (Human anatomy III)*. Brno, 1995. ISBN 80-210-1169-6.

### **Teaching methods**

To achieve the required knowledge of locomotor system I it is necessary to pass a theoretical preparation during the lessons and also individual study of student texts and the anatomical atlases. In practical courses students should verify their theoretical knowledge on anatomical models and human bones, joints and muscles. During individual studies students can borrow osteological preparations from the collections of the Anatomical department or study locomotor system on the preparations in the Anatomical museum. Also they can study locomotor system in the x-ray study room and use programmes with anatomy subjects in PC study room. Of course during the whole term can students consult difficult parts of anatomy with their lecturers.

### **Assessment methods**

Required level of knowledge is being continuously verified by short written tests and by evaluation of practical knowledge of particulate anatomical formations on preparations of human body in practical lessons. Student is evaluated for active presence in lessons by credits in the end of each term. To gain credit is necessary 95% presence at seminars.

## **aBFAP0222p Anatomy of the Locomotor System II - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Recommended Type of Completion: zk (examination).

Alternate Types of Completion: k (colloquium).

### **Course objectives**

Student is able to nominate anatomical structures of respiratory system, cardiovascular system, peripheral and central nerve systems after lectures of the anatomy in second term. Student is able to explain meaning of particular organs and whole organs systems. Student will be able to apply obtained knowledge to the function of active and passive locomotor systems. Student should be able to evaluate an interaction of particular organs of human body during its movement. Student lectures of the second term. Student should be able to evaluate the normal stage of human body during its rest and during movements as well and to use this knowledge in his/her practice.

### **Syllabus**

- 1) Respiratory system.
- 2) The heart.
- 3) Compendium of the arterial system. Compendium of venous and lymphatic systems.
- 4) Spinal nerve, dorsal rami of spinal nerves. Cervical plexus, intercostal nerves.
- 5) Brachial plexus.
- 6) Lumbar plexus. Sacral plexus.
- 7) Regional anatomy of the limbs and back.
- 8) Spinal cord, covering of the central nervous system.
- 9) Brain stem, cerebellum.
- 10) Brain ventricles, telencephalon - compendium.
- 11) Cranial nerves I.
- 12) Vegetative nervous system, nervous pathways.
- 13)
- 14)

### **Literature**

recommended literature

- JOUKAL, Marek a Lenka VARGOVÁ. *Anatomie dýchacího, kardiovaskulárního, lymfatického a nervového systému pro fyzioterapeuty (Anatomy of respiratory, cardiovascular, lymphatic and nervous system for physiotherapists)*. 1. vyd. Brno: Masarykova univerzita, 2014. 101 pp. ISBN 978-80-210-6779-0.

not specified

- DOKLÁDAL, Milan a Libor PÁČ. *Anatomie člověka II. Splanchnologie a cévní systém (Human anatomy II. Splanchnology and vascular system)*. 2. přepracované. Brno: Masarykova univerzita, Lékařská fakulta, 2003. 136 pp. 2. ISBN 80-210-2886-6.
- DOKLÁDAL, Milan a Libor PÁČ. *Anatomie člověka III. (Human anatomy III)*. Brno, 1995. ISBN 80-210-1169-6.
- NETTER, Frank H. *Anatomický atlas člověka*. Edited by John T. Hansen, Translated by Libor Páč - Petr Dubový. Vyd. 2., rozš. Praha: Grada, 2005. [14], 542. ISBN 8024711532.

### **Teaching methods**

To achieve the required knowledge of locomotor system I it is necessary to pass a

theoretical preparation during the lessons and also individual study of student texts and the anatomical atlases. In practical courses students should verify their theoretical knowledge on anatomical models and human bones, joints and muscles. During individual studies students can borrow osteological preparations from the collections of the Anatomical department or study locomotor system on the preparations in the Anatomical museum. Also they can study locomotor system in the x-ray study room and use programmes with anatomy subjects in PC study room. Of course during the whole term can students consult difficult parts of anatomy with their lecturers.

#### **Assessment methods**

Required level of knowledge is being continuously verified by short written tests and by evaluation of practical knowledge of particulate anatomical formations on preparations of human body in practical lessons. Student is evaluated for active presence in lessons by credits in the end of each term. Students have to demonstrate obtained knowledge by final written test in the end of second term. It is necessary to obtain at least 75% correct answers in the test to pass (written test with 16 questions; for completion of a course is necessary to answer minimally 12 of them correctly).

## **aBFCJ0262 Czech Language II - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/3/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The aim of the tuition is working knowledge of the Czech language on the A2 level of the "Common European Framework of Reference" (CEFR) checked by an examination.

### **Syllabus**

- Week1: REVISION LESSON. UNIT 8: *Conversation*: Plan your future. *Grammar*: Future tense of the verb BÝT, verbs of motion imperfective verbs.
- Week 2: UNIT 8: *Conversation*: Plan your future. *Grammar*: Future tense. Verbs of motion. Where are you going? (Prepositions NA, DO and K/KE). Human body (Revision I).
- Week 3: REVISION TEST 1 (L1-7, human body) REVISION LESSON. *Conversation*: Narrate about your past. Plan your future. Describing of Human body. *Grammar*: Past and Future tenses. Where are you going? Where did you go? Where are/were you?
- Week 4: UNIT 9: *Conversation*: U lékaře. *Grammar*: Nominative and accusative plural Mi, F, N.
- Week 5: PROGRESS TEST 2. UNIT 9: *Conversation*: U lékaře. Plans for summer holiday (Letter L 10). *Grammar*: Nominative and accusative plural Ma.
- Week 6: UNIT 9: *Conversation*: U lékaře. *Grammar*: Accusative object-centered constructions.
- Week 7: UNIT 10: *Conversation*: Travelling. Plans for summer holiday. *Grammar*: Genitive of singular. Prepositions with genitive.
- Week 8: PROGRESS TEST 3 (video). UNIT 11. *Conversation*: Daily routine, OD-DO. *Grammar*: Genitive singular of nouns, adjectives, possessive and interrogative pronouns. Prepositions used with the genitive. Time prepositions. Verbs with the genitive.
- Week 9: UNIT 11. *Conversation*: Czech Recipes. *Grammar*: Partitive genitive.
- Week 10: UNIT 12. *Conversation*: House cleaning. *Grammar*: The forming of Aspect.
- Week 11: PROGRESS TEST 4. UNIT 12. *Grammar*: Imperfective versus Perfective verbs.
- Week 12: UNIT 13. *Conversation*: How to give directions. *Grammar*: Verbs of motion with prefixes od-/ode- and při-.

- Week 13: UNIT 13. *Grammar: Verbs jít/chodit-jet/jezdit.*
- Week 14: PROGRESS TEST 5 (oral). REVISION LESSON.
- Week 15: Final Written Exam.

### Literature

required literature

- HOLÁ, Lída. *New Czech step by step*. V nakl. Akropolis 4., opr. v. Praha: Akropolis, 2008. 2 sv. ISBN 9788074700194.
- HOLÁ, Lída. *New Czech step by step : activity book*. V nakl. Akropolis 4., opr. v. Praha: Akropolis, 2008. 2 sv. ISBN 9788086903736.

not specified

- ČERMÁKOVÁ, Iveta. *Talking medicine : Czech for medical students*. 3., rev. English ed. Prague: Karolinum Press, 2012. 261 s. ISBN 9788024621043.

### Teaching methods

The tuition is realised in the form of practical courses. The following teaching methods are used: class discussion, roleplay, work in groups, reading, listening, writing HW (including Projects), word study.

### Assessment methods

The tuition is realised in the form of practical courses. The students' presence in these courses is strictly required; a maximum of two unexcused absences is tolerated. Students are allowed to substitute a maximum of TWO classes with another group. Substitutions are not possible in the weeks when Progress Test take place. If a student has more than two unexcused absences, they will not be allowed to take the Final test. The tuition is finished by an end-of-term examination (ETE) consisting of a WRITTEN and an ORAL part. Passing the examination is conditioned by proper attendance, active participation in practical courses, sitting for Progress Tests and successful passing of written and oral exams. The basic limit for passing all tests is 70%. In case of passing all class tests, which are obligatory for all students, the basic limit in the written exam is reduced by 10%. Without successful passing the written exam students will not be allowed to sit for the oral part! Any copying, recording or leaking tests, use of unauthorized tools, aids and communication devices, or other disruptions of objectivity of exams (credit tests) will be considered non-compliance with the conditions for course completion as well as a severe violation of the study rules. Consequently, the teacher will finish the exam by awarding grade " F " in the Information System.

## aBFFI0222c Biophysics, Informatics II

### Faculty of Medicine

**Extent and Intensity** 0/4/0. 4 credit(s). Type of Completion: zk (examination).

### Course objectives

At the end of the course students should be able: understand and explain biophysical principles and laws; operate basic biophysical devices; evaluate obtained data by the basic biophysical methods in light of a scientific, effective, safe and efficient attitude to their use; understand principles of the more complex therapeutical and diagnostical medical devices; discriminate possible usage of the biophysical techniques and medical devices in practice; and basic skills and habits in data handling and processing of health related data, information and concepts as defined in the following paragraphs. This course (in the part dedicated to healthcare informatics) is focused on discussing possibilities, limitations and risks of information and

communication technologies in the healthcare environment. It is not predominantly targeted at teaching computer skills. In the seminars devoted to " Health Informatics" focus is on obtaining insight and basic skills and habits in data handling and processing. This student will have to demonstrate the ability of making reasoned decisions in the following areas:

1. Searching, retrieval, storage, use of data, information and knowledge in medical decision making in diagnostics, treatment.
2. Improvement of skills in critical thinking.
3. Understanding the logics of the health and health care environment, communication with professionals and lay community (patients and their families).
4. Gaining initial insight in the core areas of health care informatics competences (possibilities, limitations and risks) in use of information and communication technologies in a medical environment. Seminars do not focus on training activities related to specific hardware or software resources. This is not a course in computer literacy (working with concrete software programs).

### **Syllabus**

#### **Practical exercises on biophysics**

- 1. Introduction, regulations of practical exercises, laboratory safety rules, etc. An introduction to the theory of measurement.
- 2. Information (overview and evolution). Medical informatics (definitions, the subject). Information technologies (hardware, software, OS, LAN, WAN).
- 3. Information resources (data mining - data warehousing). Information systems (HIS, expert systems, AI, CME).
- 4. Measurement of liquid viscosity. Measurement of surface tension of liquids
- 5. Eosin absorption curve. Spectrophotometrical determination of concentration of eosin. Refractometric determination of NaCl concentration. Polarimetry.
- 6. Audiometry. Measurement of the blood pressure. Ergometry.
- 7. Temperature measurement with a thermocouple. Measuring surface skin temperature with a thermistor. Measuring environmental parameters (noise).
- 8. Haemolysis of erythrocyte suspension by therapeutic ultrasound. Measuring ionising radiation absorption.
- 9. Measuring the voltage and frequency of electric signals by the oscilloscope. Measuring skin resistance. Measuring tissue model impedance. Analysis of acoustic elements of human voice.
- 10. Electromagnetic radiation Measuring the cooling effect of the environment. Catathermometry. Measuring the illuminance, Luxmeter.
- 11. Contact and contactless thermography. Thermocamera and thermovision. Physiotherapy.
- 12. Electrodiagnostic, electrotherapeutic methods. Individual measuring of the ECG. Electrical excitability. Effect of the direct and alternating currents.
- 13. Advanced imaging methods. Ultrasound - diagnostic and therapeutic usage. Doppler measuring of the velocity of the blood flow. X-rays and Tomography. NMR.
- 14. Final test.

In the seminars devoted to " **Health Informatics**" focus is on obtaining insight and basic skills and habits in data handling and processing:

1. Searching, retrieval, storage, use of data, information and knowledge in medical decision making in diagnostics, treatment.

2. Improvement of critical thinking abilities.
3. Understanding the logics of the health and health care environment, communication with professionals and lay community (patients and their families).
4. Gaining initial insight into core areas of health care informatics competences (possibilities, limitations and risks) in use of information and communication technologies in a medical environment.

Seminars do not focus on training activities related to specific hardware or software resources.

This is not a course in computer literacy (working with concrete software programs).

Seminars include a short multiple choice test which must be successfully passed in order to proceed to the final exam in biophysics.

### **Literature**

recommended literature

- MORNSTEIN, Vojtěch, Ivo HRAZDIRA a Aleš BOUREK. *Lékařská fyzika a informatika : (se zaměřením na zubní lékařství)*. [1. vydání]. Brno: Neptun, 2007. 352 stran. ISBN 9788086850023.
- HRAZDIRA, Ivo a Vojtěch MORNSTEIN. *Lékařská biofyzika a přístrojová technika*. 1. vyd. Brno: Neptun, 2001. viii, 381. ISBN 8090289614.
- MORNSTEIN, Vojtěch, Lenka FORÝTKOVÁ, Pavel GREC, Jiří LECHNER, Věra MARYŠKOVÁ a Jiřina ŠKORPÍKOVÁ. *Biofyzikální praktikum (Practical exercises in biophysics)*. editor Vojtěch Mornstein. 2. přeprac. vyd. Brno: Masarykova univerzita, 1996. 150 pp. ISBN 80-210-1416-4.

### **Teaching methods**

practicals / class discussion

### **Assessment methods**

Attendance of the seminars is mandatory. Obtained level of knowledge and understanding of the subject of the seminars will be verified by short "rhetorical exercises" of the students demonstrating the level of understanding of the subject of the seminar. Teaching is terminated by successfully passing all seminars and is credited.

## **aBFFY0222c Physiology II - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/1/0. 1 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of the course, students should be able to apply practically the methods used for examination of the functions of human organ systems. Students will be capable of interpreting the acquired records with respect to physiological processes taking place in human organisms. Next, the students will derive and calculate other parameters and indices routinely used in clinical practice. Students will be able to evaluate the results acquired both by measurement and by calculation, and to explain possible deviations.

### **Syllabus**

- Evaluation of nutritional state.
- Measurement of energy expenditure.
- Reflexes, reflex of Achilles tendon. Examination of muscle tone.
- Model of aortic function. Blood flow in vein.
- Reaction time.
- Vertigo and nystagmus.



- Visual field, blind spot. Visual acuity. Accommodation, astigmatism. Color blindness.

#### Literature

- WILHELM, Zdeněk a Zuzana NOVÁKOVÁ. Praktická cvičení z Fyziologie - pro studenty bakalářských oborů. In *Praktická cvičení z Fyziologie*. 1.vydání. Brno: Masarykova universita v Brně - Lékařská fakulta, 2004. p. 1-94, 94 pp. ISBN 80-210-2601-4.
- WILHELM, Zdeněk a Zuzana NOVÁKOVÁ. *Praktická cvičení z fyziologie pro studenty bakalářských oborů (Textbook of practical lessons of physiology for B.A. major)*. 1. vyd. Brno: Vydavatelství MU, Brno-Kraví hora, 2001. 93 pp. ISBN 80-210-2601-4.

#### Teaching methods

The course is organized in the form of laboratory practices where students examine each other by given method, and they prepare the report from measured data.

#### Assessment methods

Credits are given on the basis of full attendance in practices, handling of all laboratory reports, writing 3 topic-tests, and writing credit-test. The topic-test consists of 10 questions evaluated by 10 points - students successfully pass the test if they reach at least 5 points. The credit test consists of 20 questions evaluated by 20 points - students successfully pass the test if they reach at least 12 points.

## aBFFY0222p Physiology II - lecture

Faculty of Medicine, Spring 2016

Extent and Intensity 2/0/0. 3 credit(s). Type of Completion: zk (examination).

#### Course objectives

At the end of the course, students will have sufficient theoretical background required for their profession. Student should be able to recall principles of human body functions in detail - from a cell level, across particular organs to a complex human organism. Students will be able to explain relationships among chemical, physical and biological factors of living processes. An essential aim is that students acquire critical scientific thinking, ability of independent text analysis and fundamental information selection.

#### Syllabus

- Gastrointestinal tract - morphology and functions. Metabolism of substrates.
- Morphology and function of stomach, duodenum, pancreas and liver.
- Morphology and function of small intestine and colon.
- Nutrition
- General principles of regulation (endocrine, nervous). Endocrinology. Regulation of calcium, and sodium metabolism. Regulation of glycaemia.
- Stress. Physiology of reproduction. Pregnancy and lactation.
- Neuron, morphology and function, mediators-neurotransmitters.
- Morphology and function of spinal cord, reflexes.
- Morphology and function of brain stem, cerebellum, basal ganglia, cortex.
- Sensory physiology.
- Central nervous system, learning, memory, sleep.
- Physiology of childhood and adolescents, aging.

#### Literature

- ROKYTA, Richard. *Fyziologie : pro bakalářská studia v medicíně, ošetřovatelství, přírodovědných,*

*pedagogických a tělovýchovných oborech. 2., přeprac. vyd. Praha: ISV nakladatelství, 2008. 426s. ISBN 808664247X.*

- WILHELM, Zdeněk. *Stručný přehled fyziologie člověka pro bakalářské studijní programy.* Vydavatelství MU v Brně. Brno - Kraví Hora: Vydavatelství MU , Brno-Kraví Hora, 2002. 116 pp. ISBN 80-210-2837-8.
- SILBERNAGL, Stefan a Agamemnon DESPOPOULOS. *Atlas fyziologie člověka.* 6. vyd., zcela přeprac. a r. Praha: Grada, 2004. xiii, 435. ISBN 802470630X.
- WILHELM, Zdeněk a Zuzana NOVÁKOVÁ. Praktická cvičení z Fyziologie - pro studenty bakalářských oborů. In *Praktická cvičení z Fyziologie.* 1.vydání. Brno: Masarykova universita v Brně - Lékařská fakulta, 2004. p. 1-94, 94 pp. ISBN 80-210-2601-4.
- Boron W.F. et al.: *Medical Physiology.* Saunders, Philadelphia 2003.

### **Teaching methods**

Lessons are led in the form of lectures.

### **Assessment methods**

Oral examination - students randomly choose 3 questions and answer them after 15 minutes of preparation. Students pass the examination in Physiology on condition that they succeed in all three questions.

## **aBFHIO21c Histology - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/1/0. 1 credit(s). Type of Completion: z (credit).

### **Course objectives**

The aim of histology course is obtaining foundations of microscopic identification of human tissues in histological slides. At the end of this course, students should be able to understand principles of tissue processing for the light microscopy and to describe the structure and ultrastructure of the animal cells as well as key microscopic characteristics of various tissue types. Simultaneously they should be able correctly to use a light microscope and to interpret microscopic entities and findings.

### **Syllabus**

- Introduction to practical microscopy. Tissue processing and preparation of histological slides.  
Animal cells in the light microscope.
- Animal cells in the electron microscope. Ultrastructure of the cell nucleus, cell organelles, and inclusions. The cell membrane and its specializations.
- Correct use of a light microscope. Morphology of blood corpuscles and white blood cell count.
- Connective and supporting tissues I - connective tissue proper and special connective tissues.  
Cartilage.
- Connective and supporting tissues I - structure and development of the bone tissue.
- Muscle tissue.
- Nerve tissue
- Blood vessels.

### **Literature**

- ČECH, Svatopluk a Drahomír HORKÝ. *Histologie a mikroskopická anatomie pro bakaláře (Histology and microscopical anatomy for bachelors).* První. Brno: Vydavatelství MU, 2004. 137 pp. ISBN 80-210-2513-7.

- ČECH, Svatopluk, Drahomír HORKÝ, Irena LAUSCHOVÁ, Miroslava SEDLÁČKOVÁ a Jitka ŠŤASTNÁ. *Histologická praktika a metody vyšetřování tkání a orgánů (Histological practicals and methods of investigation of tissues and organs)*. První. Brno: Vydavatelství MU Brno-Kraví hora, 1998. 162 pp. ISBN 80-210-1774-0.

### **Teaching methods**

exercise

### **Assessment methods**

The histology course includes study of chosen slides and electron micrographs in microscopic hall as well as class discussion based on the use of materials in the text book. It is closed with a credit. A precondition for obtaining the course-unit credit is full attendance.

## **aBFHI021p Histology - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

Histology deals with microscopic structure of plant and animal organisms incl. the human body and involves cytology, general histology, and microscopic anatomy. At the end of the course students according to their future professional orientation (physiotherapists or optometrists) should be able to: a) define basic terms and categories of the subject and apply used classification system in the praxis; b) describe and explain structure and function of animal cells on submicroscopic and molecular levels; c) describe and explain structural characteristics of epithels, connective and supporting tissues (incl. their function), muscle tissue including mechanism of muscle contraction and nerve tissue; d) identify basic tissues in histological slides (physiotherapists only); e) analyze the microscopic structure and function of main organs of systems related to professional orientation (physiotherapists - muscles, joints and ligaments, central and peripheral nervous system; optometrists - organ of vision, central and peripheral nervous system); f) understand existing close interrelations between structure and function of individual tissues and organs of the human body.

### **Syllabus**

- Introduction. Histology - definition, classification and significance. Cytology I. The cell as a minimal unit of the living matter, overview of main cell components.
- Cytology II: Plasma membrane, cell surfaces and intercellular junctions. Cell cycle, cell division, and cell differentiation.
- Tissues - definition, origin and classification. Connective and supporting tissues - their general characteristics and components: cells, fibres and ground substance.
- The connective tissue proper and specialized connective tissue - types, chief distribution, and function.
- Supporting tissues: cartilage and bone - types, chief distribution, and function.
- Development of bone tissue (ossification). Repair of cartilage and bone and histophysiology of bone.
- Microscopic structure of joints. Muscle tissue I - classification, distribution and function. Smooth muscle tissue and cardiac muscle tissue.
- Muscle tissue II - Skeletal muscle tissue. Mechanisms of the muscle contraction. Microscopic structure of muscles. Development and regeneration of muscle tissue.
- Nerve tissue: neurones and their components. Synapses. Neuroglia. Conduction of nerve impulses.

- Overview of microscopic structure of the central nervous system.
- Overview of microscopic structure of the peripheral nervous system.
- Overview of microscopic structure of the eye. Layers of the eyeball - their morphology and function. Dioptric media of the eye. Eyelids. Lacrimal apparatus.
- Blood vessels and blood corpuscles: erythrocytes, leukocytes, and thrombocytes. Differential white cell count.
- Overview of microscopic structure of skin and skin appendages.

#### **Literature**

- ČECH, Svatopluk a Drahomír HORKÝ. *Histologie a mikroskopická anatomie pro bakaláře (Histology and microscopical anatomy for bachelors)*. První. Brno: Vydavatelství MU, 2004. 137 pp. ISBN 80-210-2513-7.

#### **Teaching methods**

lecture

#### **Assessment methods**

Students of optometry have only lectures, students of physiotherapy lectures and practicals. Subject is closed by oral examination in both specializations. Students are obliged to answer 1 question of general histology and 1 question of microscopic anatomy.

## **aBFLT0251c Bases of Therapeutic Exercise - practice**

Faculty of Medicine, Spring 2016

**Extent and Intensity** 0/4/0. 4 credit(s). Type of Completion: z (credit).

#### **Course objectives**

The main objective of the course is practical basics of therapeutic exercise. Practical basics of therapeutic exercise: the application of therapeutic exercise to a patient. The examination of the patients. Practical reassessment of the movement system using practical approach. The knowledge of the condition from which the patient suffers. The potential recovery rate. The complication of therapeutic exercise. Mechanical principles associated with the therapeutic exercise. The basic knowledge of anatomy, physiology and support of psychological approach of patients.

#### **Syllabus**

- Exercise Unit
- Therapeutic exercise program. Cooperation between medical doctor and physiotherapist
- Reeducation of movement
- Movement - basic property of muscle
- Types of movement
- Passive movement
- Mechanical movement
- Therapist performing movements
- Active movements: freely movement, assisted movements, resisted movements
- Respiratory basic exercise
- Relaxation
- Neurophysiology of movements (reflex, facilitation, conditioning, stimulation)

#### **Literature**

- HALADOVÁ, Eva. *Léčebná tělesná výchova : cvičení*. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1997. 134 s. ISBN 8070132361.

- HNÍZDIL, J. aj. Léčebné rehabilitační postupy Ludmily Mojžíšové. Praha : Grada, 1996. 16 s. ISBN 80-7169-187-9
- *Léčebná rehabilitace*. Edited by Jana Hromádková. 1. vyd. Jinočany: H & H, 1994. 391 s. ISBN 80-85787-69-5.
- HROMÁDKOVÁ, Jana. *Fyzioterapie*. Vydání 1. Jinočany: H & H, 1999. 428 stran. ISBN 8086022455.

### **Teaching methods**

exercise

### **Assessment methods**

theoretical and practical exam

## **aBFLT0251p Bases of Therapeutic Exercise - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The main objective of the course is basics of therapeutic exercise Basics of therapeutic exercise: the application of therapeutic exercise to a patient. An initial examination of the patients needs and a constant reassessment of the situation. The knowledge of the condition from which the patient suffers. The potential recovery rate. The complication of therapeutic exercise. Mechanical principles associated with the exercise. The basic knowledge of anatomy, physiology and psychological reaction of patients.

### **Syllabus**

- Exercise Unit.
- Therapeutic exercise program. Cooperation between medical doctor and physiotherapist.
- Reeducation of movement.
- Movement - basic property of muscle.
- Types of movement.
- Passive movement.
- Mechanical movement.
- Therapist performing movements.
- Active movements: freely movement, assisted movements, resisted movements.
- Respiratory basic exercise.
- Relaxation.
- Neurophysiology of movements (reflex, facilitation, conditioning, stimulation)

### **Literature**

- HALADOVÁ, Eva. *Léčebná tělesná výchova : cvičení*. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1997. 134 s. ISBN 8070132361.
- *Léčebné rehabilitační postupy Ludmily Mojžíšové*. 1. vyd. Praha: Grada, 1996. 213 s. ISBN 80-7169-187-9.
- DVOŘÁK, R. *Základy kinezioterapie*. Olomouc : Univerzita Palackého, 1998. 73 s. ISBN 80-7067-688-4
- *Léčebná rehabilitace*. Edited by Jana Hromádková. 1. vyd. Jinočany: H & H, 1994. 391 s. ISBN 80-85787-69-5.
- CHALOUPKA, Richard. *Vybrané kapitoly z LTV v ortopedii a traumatologii (Selected chapters of*

*physiotherapy in orthopedics and traumatology*). první. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví, 2001. 186 pp. ISBN 80-7013-341-4.

### **Teaching methods**

lecture

### **Assessment methods**

oral exam

## **aBFMT0252 Methodology of Physical Education II**

### **Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

The main aim of this subject - practise, is to familiarize with basic methodology of motor abilities and skills development with the inclusion of testing. Successful graduate student will be able to use his theoretical knowledge of basic laws of the process of education in practise adequately. He will be able to structure exercise units correctly, to prepare himself for the exercise unit and also to evaluate the results of educational process in an objective way. The student will prove his ability to understand and use adequate terminology of physical exercises in practise.

### **Syllabus**

Introduction to practical education, conditions for credit obtainment, safety instructions for classes of Methodology of physical education. Selected methodics for development and testing of balance I, II. Selected methodics for development and testing of physical endurance I-IV. Selected techniques of sensorimotor stimulation in physical education. Pedagogic psychomotorics I, II. Methodics of physical exercises with the use of overballs. Methodics of physical exercises with the use of gymballs. Methodics of physical exercises with the use of medicineballs. Methodics of physical exercises for the compensation of unilateral physical exertion of sport and non-sport character.

### **Literature**

- NOVÁČEK, V., MUŽÍK, V., KOPŘIVOVÁ, J.: Vybrané kapitoly z teorie a didaktiky tělesné výchovy. Brno: Masarykova Univerzita, 2001 (ISBN 80-210-2642-1)
- VILÍMOVÁ, V.: Didaktika tělesné výchovy. Brno: Paido, 2002. 103 s. (ISBN 80-7315-033-6)
- RYCHTECKÝ, A., FIALOVÁ, L. Didaktika školní tělesné výchovy. Praha: Karolinum, 2002. 171 s.
- DOVALIL, J. et al. Výkon a trénink ve sportu. Praha: Olympia, 2005, 2. vyd., 336 stran. (ISBN 80-7033-928-4)
- APPELT, K., LIBRA, M.: Gymnastické názvosloví. Praha: Karolinum, 1998. 1. vyd. 88 s. (ISBN 80-7184-714-3)
- APPELT, K. et al: Názvosloví pro cvičitele. Praha: Olympia, 1989. 247 s. (ISBN 80-7033-011-2)
- HURYCHOVÁ, A., VILÍMOVÁ, V. Didaktika tělesné výchovy. Brno: MU, 1997. 71 s. (ISBN 80-210-1525-X)

### **Teaching methods**

exercise

### **Assessment methods**

theoretical and practical exam

## **aBFPA021p Pathology**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: k (colloquium).

### **Course objectives**

Pathology gives a comprehensive summary of knowledge concerning all pathological processes occurring in the organism. General Pathology gives a definition of the basic pathological changes; Special Pathology gives a description of the disorders of individual systems of the organism.

### **Syllabus**

General Pathology Definition of the discipline, importance of pathology in contemporary medicine. Methods of pathology: dissection (macro- and microfindings), correlation of clinical and pathological diagnosis, bioptic examination, methods of removal and fixation of material. Cytological examination. Disease: its definition, characteristics, course. External and internal causes. Prevention. Extinction of the organism: clinical death, biological death. Signs of death. Regressive changes: necrosis - its kinds and causes. Atrophy: simple a., numerical a. Basic causes. Dystrophy: disorders of the metabolism of proteins, saccharides, fats, water, minerals (lithiasis), pigments (incl. icterus). Inflammation: definition, local and generalised manifestations, both macroscopic and microscopic. Causes and forms of inflammation, classification, terminology (incl. examples). Disorders of immunity, transplantation. Progressive changes. Regeneration, repair, healing of wounds (incl. bone fractures). Hypertrophy, hyperplasia, metaplasia, dysplasia. Pseudotumours: cysts, pseudocysts, inflammatory tumours, disorders of embryonic development. Tumour: definition, general properties, causes of its origin, precancerous states. Biological character of tumours: benign tumours, malignant tumours, of uncertain biological character. The systematics of tumours: epithelial t., mesenchymal t., haemoblastoses and lymphomas, neuroectodermal t., germinal t., mixed t., choriocarcinoma, mesothelioma. Special Pathology Disease of the heart, blood and lymph circulation. Heart defects: congenital h.d., acquired h.d., changes in heart shape and size, pathological contents of pericardium, inflammations, ischaemic heart disease – myocardial infarction. Symptoms of circulatory insufficiency. Hypertension disease. Diseases of arteries and veins: arteriosclerosis, aneurysms, inflammations, anomalies in quantity and composition of blood, anaemias, polycythaemias. Local disorders of circulation: thrombosis, embolism. Haemorrhage. Disorders of circulation. Lymphadenitides. Tumours. Diseases of the respiratory tract. Pathology of the upper respiratory tract: coryza, sinusitides, laryngitides, bronchitides, changes of the lumen, true and false tumours. Changes in pulmonary ventilation, circulatory disorders (venostasis, oedema, induration, infarction, embolism), dusting of the lungs. Pneumonias: superficial p., interstitial p., and specific p. (TBC). Pulmonary tumours. Pathology of the pleura. Diseases of the gastrointestinal tract. Pathology of the oral cavity, incl. dentition, pharynx, and tonsils (especially tonsillitis), oesophagus: bleeding of the varices, luminal changes, tumours. Gastritides, ulcer disease, tumours of the stomach. Pathology of the intestines: circulatory disorders, inflammations incl. cholera, dysentery, typhus, and Crohn's disease. Appendicitis, malabsorption syndrome. Acquired changes in the position and lumen of the intestines: ileus, hernias, tumours. Inflammations of the pleura and pathological contents of abdominal cavity. Hepatitides, cirrhosis, tumours. Pathology of the gallbladder and biliary tract: stones, inflammations, obstructive jaundice, tumours. Pancreas: pancreatitides (incl. acute haemorrhagic necrosis), pancreas in diabetes, tumours. Pathology of the urinary tract: nephrolithiasis, inflammations (pyelonephritides, glomerulonephritides), nephroses. Uraemias. Tumours of the kidneys and urinary bladder. Pathology of the male genital system, especially prostate and testes (hyperplasias, inflammations, tumours). Pathology of the female genital system: disorders of fertility, inflammations of the adnexa, uterus, vagina, precancerous states, and tumours. Pathology of pregnancy. Pathology of the mammary gland: inflammations, dysplasias, tumours.

Pathology of the central and peripheral nervous systems: traumas, bleeding, cerebral strokes: ischaemias, inflammations, tumours. Changes of the pia mater, drainage disorders of the cerebrospinal fluid, oedema. Tumours of PNS. Pathology of the eye: traumas, inflammations, tumours. Pathology of the thyroid gland: struma, thyrotoxicosis, tumours. Pathology of the skin: burns, frostbites, inflammations, tumorigenic lesions and neoplasms. Pathology of skeletal muscles: atrophy, myasthenia gravis, ruptures, haemorrhages, inflammations, tumours. Diseases of the skeletal system: fractures, inflammations, tumours. Pathology of the child age: genetically conditioned diseases, pathology of the foetus and the neonate with special focus on diseases affecting the sight.

#### **Literature**

- J. Stříteský, Patologie pro II. Ročník SZŠ, 2 díly
- MAČÁK, Jiří. *Obecná patologie*. Olomouc, 2002.

#### **Teaching methods**

lecture

#### **Assessment methods**

theoretical oral exam

## **aBFRP0221c Propedeutics of Rehabilitation I - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/3/0. 3 credit(s). Type of Completion: z (credit).

#### **Course objectives**

The main objective of the course is clinical rehabilitation. Examination methods in clinical rehabilitation, including practical exercises with the patients.

#### **Syllabus**

- Case history in clinical rehabilitation
- Anthropometry - definition
- Introduction to the objective examination
- Introduction to goniometry
- Introduction to biomechanics
- Goniometry - basic concepts
- Introduction to neurological examination
- Introduction to examination of the head and neck
- Examination of the trunk and pelvic girdle
- The examination sitting, standing, pathology
- Examination of walking, pathology
- Examination of the backbone, statics and dynamics

#### **Literature**

- PLATZER, Werner. *Atlas topografické anatomie*. Vyd. 1. Praha: Grada, 1996. 290 s. ISBN 807169214X.
- *Funkční svalový test*. Edited by Vladimír Janda. Vyd. 1. Praha: Grada, 1996. 325 s. ISBN 8071692085.

#### **Teaching methods**

theoretical and practical exam

#### **Assessment methods**

credit



## **aBFRP0221p Propedeutics of Rehabilitation I - lecture**

**Faculty of Medicine**

**Extent and Intensity** 2/0/0. 2 credit(s). Type of Completion: k (colloquium).

### **Course objectives**

The main objective of the course is clinical rehabilitation. Examination methods in clinical rehabilitation, including practical exercises with the patients.

### **Syllabus**

- Muscle test - basic concepts, the importance of rehabilitation
- Muscle test, face, neck
- Muscle test, chest, abdomen, pelvis
- Muscle test, upper limb
- Muscle test, leg
- Mouse stereotypes, external and internal manifestations of the movement stereotypes phasic and postural muscles, muscle hypermobility
- Short muscle, pseudoparesis, an overview of the affected groups
- Muscular imbalance, basic concepts, the creation of functional and partly structural changes
- upper and lower cross-bred syndrome
- Protocol layering syndrome, accreditation
- Kineziology analysis + breath tests

### **Literature**

- PLATZER, Werner. *Atlas topografické anatomie*. Vyd. 1. Praha: Grada, 1996. 290 s. ISBN 807169214X.
- *Funkční svalový test*. Edited by Vladimír Janda. Vyd. 1. Praha: Grada, 1996. 325 s. ISBN 8071692085.

### **Teaching methods**

lecture

### **Assessment methods**

written theory test

## **aBFUL0222c Introduction to Physical Therapy II - practice**

**Faculty of Medicine**

### **Course objectives**

At the end of this course students should be able to apply the classical manual massage, technique of classical massage of back, abdomen, neck, chest, upper and lower limbs. Students should be able to use the classic massage practices, the use of tools and indications and contraindications

of massage, water massage, sports massage, massage internal organs

### **Syllabus**

- Teoretical background of reflex mechanism.
- Examination of reflex changes, effect of reflex massage.
- Viscerovertebral relationships.
- Reflex changes and reflex massage by vertebrogenic disease.
- Reflex changes and reflex massage by chest organ disease.

- Reflex changes and reflex massage by abdominal organ disease.
- Reflex changes and reflex massage by pelvic organ disease.
- Reflex massage in the internal diseases, neurological diseases, surgery, traumatology, orthopedics and gynecology.
- Effect of climatic changes on human being. Climatotherapy.
- Balneotherapy.
- Effect of mineral water bath.
- Hydrotherapy.
- Effect of different bath.

#### **Literature**

- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.
- CAPKO, Ján. *Základy fyziotrické léčby*. 1. vyd. Praha: Grada, 1998. 394 s. ISBN 8071693413.
- VAŘEKA, Ivan. *Základy fyzikální terapie*. 1. vyd. Olomouc: Vydavatelství University Palackého, 1995. 83 s. ISBN 8070674911.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFUL0222p Introduction to Physical Therapy II - lecture**

### **Faculty of Medicine**

#### **Course objectives**

At the end of this course, students have knowledge of the principles of action and the implementation of various types of reflexology massage, thermotherapy, hydrotherapy, balneology. They have a general knowledge about phototherapy and climatotherapy.

#### **Syllabus**

1. Reflexology Massage - general principles of behavior, examination, viscerovertebrální relations
2. The segment reflex massage - The backrest assembly. Sets for the neck and head. Thoracic assembly. Pelvic assembly.
3. Reflexology Massage - Periostosis RM. RM ligament.
4. Reflexology Massage - Using RM in diseases of internal organs
5. Thermotherapy - physiology of thermoregulation
6. Thermotherapy - Creation of heat and heat loss
7. Thermotherapy - Effects of heat on the human body
8. Positive thermotherapy
9. On the negative thermotherapy. Cryotherapy.
10. Balneology
11. Hydrotherapy
12. Phototherapy - General Introduction
13. Climatotherapy - General Introduction
14. Specific types of massage

#### **Literature**

- CAPKO, Ján. *Základy fyziatrické léčby*. 1. vyd. Praha: Grada, 1998. 394 s. ISBN 8071693413.
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.
- PODĚBRADSKÝ, J. - VAŘEKA, I. *Fyzikální terapie II*. 1. vyd. Praha : Grada, 1998. 171 s. ISBN 80-7169-661-7
- JANDOVÁ, Dobroslava. *Balneologie*. 1. vyd. Praha: Grada, 2009. xvi, 404. ISBN 9788024728209.
- HUPKA, J, J KOLESÁR a K ŽALOUDEK. *Fyzikální terapie: učebnice pro střední zdravotnické školy, obor rehabilitační pracovník*. Praha: Avicenum, 1988.

### Teaching methods

lecture

### Assessment methods

oral exam

## YEAR 2 / SEMESTER 3

### aBFET031 Health Care Ethics

#### Faculty of Medicine

**Extent and Intensity** 1/0. 2 credit(s) (plus 2 credits for an exam). Recommended Type of Completion: k (colloquium). Alternate Types of Completion: zk (examination).

#### Course objectives

The course gives an introduction to health care ethics, focusing on ethical problems of health care professions. The aim of the course is: to introduce to health care ethics; to inform about ethical dilemmas in health care professions; to learn how to solve ethical problems in health care, including argumentation; to develop the ability to perceive ethical questions within health care – to learn how to prevent problems observing ethical professional standards.

#### Syllabus

- 1. Introduction to health care ethics. 2. Models of relationships within health care (and their development). 3. Informed consent. 4. Patient rights. 5. Medical information treatment. 6. Personal data protection in health care. 7. Ethics in PND and PGD. 8. Ethics in care for dying persons. 9. Euthanasia, assisted suicide. 10. Ethics in biomedical research. 11. Human subject research. 12. Animal research. 13. Human biological material for research. 14. Ethics and law (Convention on Human Rights and Biomedicine, Declaration on Human Rights and Bioethics).

#### Literature

- *The Sage handbook of health care ethics : core and emerging issues*. Edited by Ruth F. Chadwick. 1st ed. Thousand Oaks, CA: SAGE Publications Ltd, 2011. xxi, 454. ISBN 9781446200971.
- *Ethics the heart of health care*. Edited by David Seedhouse. 3rd ed. Chichester, U.K.: Values Exchange, 2009. lx, 212 p. ISBN 0470018135.
- *Principles of health care ethics*. Edited by Richard E. Ashcroft. 2nd ed. Chichester: John Wiley & Sons, 2007. xx, 838. ISBN 9780470027134.
- HELD, Virginia. *The ethics of care : personal, political, and global*. New York: Oxford University Press, 2006. viii, 211. ISBN 9780195325904.

- HALL, Robert T. *An introduction to healthcare organizational ethics*. New York: Oxford University Press, 2000. xii, 265. ISBN 0195135601.
- *A cross-cultural dialogue on health care ethics*. Edited by Harold G. Coward - Phinit Rattanakun. Waterloo, Ont.: Wilfrid Laurier University Press, 1999. xii, 274 p. ISBN 0889203253.

#### **Teaching methods**

lecture

#### **Assessment methods**

Final written test (colloquium), paper (exam).

### **aBFFT0341c Physiotherapy I - practice**

#### **Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

#### **Course objectives**

At the end of this course, the student has the knowledge application of galvanic current, iontophoresis, diadynamic, low-frequency currents and their application through mid-frequency currents, ultrasound and application of combination therapy.

#### **Syllabus**

1. Galvanotherapy.
2. Diadynamic
3. Low-frequency currents. Classic analgetic currents.
4. Lowfrequency currents applied through the ' medium frequency' currents
5. Transcutaneous Electrical Nerve Stimulation (TENS)
6. Ultrasound
7. Combined therapy

#### **Literature**

- 30. PODĚBRADSKÝ, J. - VAŘEKA, I. *Fyzikální terapie II*. 1. vyd. Praha : Grada, 1998. 171 s. ISBN 80-7169-661-7
- JANDOVÁ, Dobroslava. *Balneologie*. 1. vyd. Praha: Grada, 2009. xvi, 404. ISBN 9788024728209.
- PODĚBRADSKÝ, Jiří a Radana PODĚBRADSKÁ. *Fyzikální terapie : manuál a algoritmy*. Praha: Grada, 2009. 200 s. ISBN 9788024728995.
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

### **aBFFT0341p Physiotherapy I - lecture**

#### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 0 credit(s). Type of Completion: z (credit).

#### **Course objectives**

At the end of this course the student has the knowledge of theory of action and the application of galvanic current, diadynamic, low-frequency currents and their medical application

through mid-frequency currents, ultrasound application and combination therapy.

### **Syllabus**

1. Effects of electric current on the human organism. Galvanotherapy.
2. Diadynamic
3. Lowfrequency currents. Classic analgetic currents.
4. Low-frequency currents applied through the " medium frequency" currents
5. Transcutaneous Electrical Nerve Stimulation (TENS)
6. Ultrasound
7. Combined therapy

### **Literature**

- PODĚBRADSKÝ, Jiří a Radana PODĚBRADSKÁ. *Fyzikální terapie : manuál a algoritmy*. Praha: Grada, 2009. 200 s. ISBN 9788024728995.
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.
- VAŘEKA, Ivan. *Základy fyzikální terapie*. 1. vyd. Olomouc: Vydavatelství University Palackého, 1995. 83 s. ISBN 8070674911.

### **Teaching methods**

lecture

### **Assessment methods**

oral exam

## **aBFFZ031 Exercise Physiology - lecture**

### **Faculty of Medicine**

### **Course objectives**

The main goal of this study unit is to introduce the students to physical fitness and exercise physiology. The unit allows them to gain experience and to develop their own training and rehabilitation programs in order to improve fitness, health and quality of life through exercise and physical activity.

### **Syllabus**

- Basic concepts (performance, strength, workload, pressure, capacity, efficiency, etc.)
- Reactivity and adaptation (desadaptation, maladaptation) to physical stress
- Fitness and performance - definition (general fitness, physical fitness, physical performance), factors limiting fitness and performance
- Somatic status as the limiting factor of fitness and performance
- Musculoskeletal system - muscular strength and its components (isometric, isotonic, isokinetic, special), muscle strength, peak torque, workload (anaerobic, aerobic), muscular endurance (static, dynamic), muscular flexibility (static, dynamic)
- Transport system - transport system capacity, cardiovascular system (limiting factors, response and adaptation), respiratory system (functional parameters, reaction and adaptation to physical stress), relations between the parameters of transport system
- Metabolism - energetic metabolism, inner environment, acid-base balance, thermoregulation during exercise Influence of regular physical activity (training) on the fitness and performance

- Environmental factors (height, cold, heat, moisture) on the fitness and performance
- Age and sex-related particularities of the reactivity and adaptation to physical stress
- Other factors affecting fitness and performance (fatigue, recovery, nutrition, etc.)

#### Literature

- PLACHETA, Zdeněk. *Zátěžová funkční diagnostika a preskripce pohybové léčby ve vnitřním lékařství*. 2. přeprac. vyd. Brno: Vydavatelství Masarykovy univerzity, 1995. 145 s.; př. ISBN 80-210-1170-X.
- PLACHETA, Zdeněk, Jarmila SIEGELOVÁ a Miloš ŠTEJFA. *Zátěžová diagnostika v ambulanci a klinické praxi (Exercise testing in patients in clinic and out patients)*. první. Praha: Grada Publishing, 1999. 276 pp. ISBN 80-7169-217-9.
- MÁČEK, Miloš a Jiřina MÁČKOVÁ. *Fyziologie tělesných cvičení*. Brno: Masarykova univerzita v Brně, 2002. 112 s. ISBN 8021016043.

#### Teaching methods

lecture

#### Assessment methods

oral exam from theory

## aBFCH031 Surgery

### Faculty of Medicine

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

#### Course objectives

Surgery introduces students to general and special surgery. Procedure of surgical therapy is shown in out patients departments and clinical departments of surgical clinics. Basic procedures of therapy of surgical diagnosis is presented for the students. The cooperation between surgical team and physiotherapists is presented as a practical example.

#### Syllabus

- Preparation for the surgical procedure Surgical approaches Intensive care unit after surgical procedure
- Examination of the patients before surgical therapy
- Anesthetic therapy.
- Shock - the type, stage, treatment
- Surgical therapy after operation
- Oncology - chemotherapy, radiotherapy, staging, grading, TNM
- Neck surgery
- Chest surgery
- Abdominal surgery
- Peritonitis
- Haemoperitoneum
- Apendicitis acuta
- Surgery of central nervous system
- The transplantation of the liver, kidneys, heart - diagnosis, indications, implementation
- Tendon surgery

- Microsurgery
- Urology
- Cardiopulmonary resuscitation

#### **Literature**

- *Chirurgická propedeutika :učebnice pro lékařské fakulty*. Edited by Vladimír Balaš - Jarmila Drábková - Miloslav Duda - Milan Med. [1. vyd.]. Praha: Grada-Avicenum, 1993. 487 s. ISBN 80-85623-45-5.

#### **Teaching methods**

lecture

#### **Assessment methods**

oral exam from theory

## **aBFKI031 Kinesiology - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The main objective of the course is kinesiology. Basic of kinesiology deals with complexity of human body movement. It includes the whole complexity of neuromuscular control of motor functions in health and diseases and the physiotherapy of motor function. The complexity is very important in exercise therapy in different pathological conditions.

### **Syllabus**

- Basic of muscle function
- Fundamental construction of motor system
- Motor unit
- Physiology and pathology of muscle function
- Function unit of motor system
- Nervous regulation of motor function
- Basic kinesiology
- Movements of the head, physiology, pathology, physiotherapy
- Movements of the neck, physiology, pathology, physiotherapy
- Movements of the upper trunk, physiology, pathology, physiotherapy
- Movements of the lower trunk, physiology, pathology, physiotherapy
- Movements of the upper extremity, physiology, pathology, physiotherapy
- Movements of the lower extremity, physiology, pathology, physiotherapy
- Respiratory care and basic exercises, physiology, pathology, physiotherapy
- System of communications: mimic function, speech, formation of speech, smell, taste, vision, hearing, mastication (chewing)
- Function of lower extremities, physiology, pathology, physiotherapy
- Basic mechanisms of movement stereotypes of lower extremities
- Physiotherapy of lower extremities and its complex functions
- Function of upper extremities, physiology, pathology, physiotherapy
- Basic mechanisms of movement stereotypes of upper extremities
- Physiotherapy of upper extremities and its complex functions

## Literature

- DYLEVSKÝ, Ivan. *Obecná kineziologie*. 1. vyd. Praha: Grada, 2007. 190 s. ISBN 9788024716497.
- DYLEVSKÝ, Ivan. *Speciální kineziologie*. 1. vyd. Praha: Grada, 2009. 180 s. ISBN 9788024716480.
- MÜLLER, I. *Kineziologie I*. Brno : NCONZO, 2008. 35 s.
- DYLEVSKÝ, Ivan. *Kineziologie : základy strukturální kineziologie*. Vyd. 1. Praha: Triton, 2009. 235 s. ISBN 9788073873240.
- DYLEVSKÝ, Ivan. *Kineziologie : základy strukturální kineziologie*. Vyd. 1. Praha: Triton, 2009. 235 s. ISBN 9788073873240.
- VÉLE, František. *Kineziologie : přehled klinické kineziologie a patokineziologie pro diagnostiku a terapii poruch pohybové soustavy*. 2., rozš. a přeprac. vyd. Praha: Triton, 2006. 375 s. ISBN 8072548379.
- TROJAN, Stanislav. *Fyziologie a léčebná rehabilitace motoriky člověka [Trojan, 2001]*. 2., přeprac. vyd. Praha: Grada Publishing, 2001. 226 s. : i. ISBN 80-247-0031-X.
- TROJAN, Stanislav. *Fyziologie a léčebná rehabilitace motoriky člověka*. Vyd. 1. Praha: Grada, 1996. 175 s. ISBN 8071692573.

## Teaching methods

lecture

## Assessment methods

oral exam from theory

## aBFLN0352c Exercise Therapy Programme in Neurology - practice

### Faculty of Medicine

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### Course objectives

The main objective of the course is clinical rehabilitation. Clinical rehabilitation in neurology with the practical applications will be introduced to students. Physiotherapy at bedside of clinical departments.

### Syllabus

- Examinations of patients neurology: anamnesis, standing and walking tests, pathophysiological analysis, exercise therapy program
- The main neurological syndromes
- Spinal syndromes, stem and subcortical syndromes
- Syndromes of cortex
- Fatic disorders
- Gnostic functions and practices neurological disease

### Literature

- DVOŘÁK, Radmil. *Základy kinezioterapie*. 2. přeprac. vyd. Olomouc: Univerzita Palackého v Olomouci, 2003. 104 s. ISBN 8024406098.
- DYLEVSKÝ, Ivan, Rastislav DRUGA a Olga MRÁZKOVÁ. *Funkční anatomie člověka*. 1. vyd. Praha: Grada, 2000. 664 s. ISBN 8071696811.

## Teaching methods

exercise

## Assessment methods

theoretical and practical exam



## **aBFLN0352p Exercise Therapy Programme in Neurology - lecture**

**Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The main objective of the course is clinical rehabilitation. Clinical rehabilitation in neurology with the practical applications will be introduced to students. Physiotherapy at bedside of clinical departments.

### **Syllabus**

- Examinations of patients neurology: anamnesis, standing and walking tests, pathophysiological analysis, exercise therapy program.
- Exercise therapy of the main neurological syndromes, syndromes of peripheral motoneurons injury, the central motoneurons diseases, extrapyramidal syndrome in neurological diseases, cerebular disturbances, vestibular disturbances, sensitives meningeal syndrome disturbances and intracranial hypertension
- Spinal syndromes, stem and subcortical syndromes
- Syndromes of cortex
- Fatic disorders
- Gnostic features, apraxia
- Primary muscle disease
- Peripheral nerves injury and their disability
- Vertebral disease
- Spinal disease
- Vascular diseases of the brain
- Traumatic disorders of the brain
- Degenerative brain disease
- Demyelination diseases of the brain
- Exercise therapy and social and occupational work in neurology

### **Literature**

- DYLEVSKÝ, Ivan, Rastislav DRUGA a Olga MRÁZKOVÁ. *Funkční anatomie člověka*. 1. vyd. Praha: Grada, 2000. 664 s. ISBN 8071696811.
- HROMÁDKOVÁ, Jana. *Fyzioterapie*. Vydání 1. Jinočany: H & H, 1999. 428 stran. ISBN 8086022455.

### **Teaching methods**

lecture

### **Assessment methods**

theoretical and practical exam

## **aBFLT0352c Exercise Therapy Programme in Internal Medicine - practice**

**Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

The main objective of the course is clinical rehabilitation. Clinical rehabilitation in internal medicine with the practical application physiotherapy at bedside of clinical departments.

## Syllabus

- Exercise therapy in the circulatory diseases. Exercise training in cardiology patients. Functional limitations of physical load in patients with ischemic heart disease.
- Exercise therapy in hypertension, in patients with neurocirculatory asthenia.
- Disorders of peripheral circulation. Arteriosclerosis of arteries of lower limbs. Exercise therapy in patients with varices cruris, thrombophlebitis, phlebotrombosis, Raynaud's disease.
- Exercise therapy in the disease of digestive system: constipation, diarrhea, peptic ulceration.
- Exercise therapy in endocrine diseases: obesity, malfunction of the thyroid gland.
- Exercise therapy in the blood system diseases: hemophilia.
- Respiratory physiotherapy and breathing stereotype changed in respiratory diseases.  
Physiotherapy in respiratory diseases.
- Exercise therapy in geriatric patients. Geriatric diseases: rheumatology, stroke, heart diseases and others.
- Exercise therapy and the issue of social and occupational rehabilitation for internal diagnosis.

## Literature

- 38. VESELÝ, J. a kol. Základy poúrazové rehabilitace ruky standardními metodami. Brno : Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1994. 81s. ISBN 80-7013- 172-1
- HALADOVÁ, Eva. *Léčebná tělesná výchova : cvičení*. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1997. 134 s. ISBN 8070132361.
- *Léčebné rehabilitační postupy Ludmily Mojžíšové*. 1. vyd. Praha: Grada, 1996. 213 s. ISBN 80-7169-187-9.
- *Léčebná rehabilitace*. Edited by Jana Hromádková. 1. vyd. Jinočany: H & H, 1994. 391 s. ISBN 80-85787-69-5.

## Teaching methods

exercise

## Assessment methods

theoretical and practical exam

## aBFLT0352p Exercise Therapy Programme in Internal Medicine - lecture

### Faculty of Medicine

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### Course objectives

The main objective of the course is clinical rehabilitation. Clinical rehabilitation in internal medicine with the practical application physiotherapy at bedside of clinical departments.

## Syllabus

- Exercise therapy in the circulatory diseases. Exercise training in cardiology patients. Functional limitations of physical load in patients with ischemic heart disease.
- Exercise therapy in hypertension, in patients with neurocirculatory asthenia.
- Disorders of peripheral circulation. Arteriosclerosis of arteries of lower limbs. Exercise therapy in patients with varices cruris, thrombophlebitis, phlebotrombosis, Raynaud's disease.
- Exercise therapy in the disease of digestive system: constipation, diarrhea, peptic ulceration.
- Exercise therapy in endocrine diseases: obesity, malfunction of the thyroid gland.
- Exercise therapy in the blood system diseases: hemophilia.

- Respiratory physiotherapy and breathing stereotype changed in respiratory diseases.  
Physiotherapy in respiratory diseases.
- Exercise therapy in geriatric patients. Geriatric diseases: rheumatology, stroke, heart diseases and others.
- Exercise therapy and the issue of social and occupational rehabilitation for internal diagnosis.

#### **Literature**

- 38. VESELÝ, J. a kol. Základy poúrazové rehabilitace ruky standardními metodami. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1994. 81s. ISBN 80-7013-172-1
- HALADOVÁ, Eva. *Léčebná tělesná výchova: cvičení*. Brno: Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1997. 134 s. ISBN 8070132361.
- *Léčebné rehabilitační postupy Ludmily Mojžíšové*. 1. vyd. Praha: Grada, 1996. 213 s. ISBN 80-7169-187-9.
- *Léčebná rehabilitace*. Edited by Jana Hromádková. 1. vyd. Jinočany: H & H, 1994. 391 s. ISBN 80-85787-69-5.

#### **Teaching methods**

lecture

#### **Assessment methods**

oral exam

## **aBFMT0353 Methodology of Physical Education III - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

#### **Course objectives**

The main aim of this subject - practise, is to familiarize with basic methodology of motor abilities and skills development with the inclusion of testing. Successful graduate student will be able to use his theoretical knowledge of basic laws of the process of education in practise adequately. He will be able to structure exercise units correctly, to prepare himself for the exercise unit and also to evaluate the results of educational process in an objective way. The student will prove his ability to understand and use adequate terminology of physical exercises in practise. this subject succesfully. Students are obliged to prepare and realize methodic performance on given theme to obtain the credit.

#### **Syllabus**

Introduction to practical education, conditions for credit obtainment, safety instructions for classes of Methodology of physical education Methodics of physical exercises in individuals with decreased physical activities. Methodics of physical exercises in obese individuals. Methodics of physical exercises in psychotherapy. Methodics of physical exercises in pregnancy and confinement. Methodics of physical exercises with the use of yoga. Methodics of physical exercises with the use of music-therapy and dancing. Methodics of physical exercises with the use of former combat arts (Tai-chi atd.) Methodics of physical exercises - aerobic, step aerobic, body step, P-class etc. like exercises. Methodics of physical exercises - body building, body styling etc. like exercises. Methodics of physical exercises with the use of calanetics. Methodics of physical exercises with the use of sticks, hoops, dumb-bells, thera-bands etc. Other methodics of physical exercises according to professional profilation of students.

#### **Literature**

- APPELT, K., LIBRA, M.: Gymnastické názvosloví. Praha: Karolinum, 1998. 1. vyd. 88 s. (ISBN 80-7184-714-3)
- DOVALIL, J. et al. Výkon a trénink ve sportu. Praha: Olympia, 2005, 2. vyd., 336 stran. (ISBN 80-7033-928-4)
- NOVÁČEK, V., MUŽÍK, V., KOPŘIVOVÁ, J.: Vybrané kapitoly z teorie a didaktiky tělesné výchovy. Brno: Masarykova Univerzita, 2001 (ISBN 80-210-2642-1)
- VILÍMOVÁ, V.: Didaktika tělesné výchovy. Brno: Paido, 2002. 103 s. (ISBN 80-7315-033-6)
- HURYCHOVÁ, A., VILÍMOVÁ, V. Didaktika tělesné výchovy. Brno: MU, 1997. 71 s. (ISBN 80-210-1525-X)
- APPELT, K. et al: Názvosloví pro cvičitele. Praha: Olympia, 1989. 247 s. (ISBN 80-7033-011-2)
- RYCHTECKÝ, A., FIALOVÁ, L. Didaktika školní tělesné výchovy. Praha: Karolinum, 2002. 171 s.

### **Teaching methods**

exercise

### **Assessment methods**

Practical methodic performance on given theme.

## **aBFNE0321 Neurology and Neurophysiology I**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of the course students should be able to: understand and explain the principles of the anatomical and functional organization of the nervous system, basics of the clinical neurological examination, neurological topical and syndromological diagnosis. work with information on the structure of the neurological examination, to understand the indication, contraindication and complications of the paraclinical examinations; make reasoned decisions about main groups of neurological disorders: in the childhood and adults (stroke, epilepsy, movement disorders, vertebrogenic, neuromuscular disorders, multiple sclerosis, neurodegenerative disorders, neurotraumas, neuroinfections): theoretical background, current diagnostic procedures and therapy, typical case reports. To interpret clinal and paraclinical korelations.

### **Syllabus**

1. Definition of neurology and neurophysiology, the content.
2. History taking in neurology. The importance of the family history, objective history.
3. Reflexology. The principles and the significance of the reflexologic examination.
4. Cranial nerves I-VI. Anatomy, physiology, and pathophysiology.
5. Cranial nerves VII-XII. Anatomy, physiology, and pathophysiology.
6. Pyramidal syndrome, types of palsies. Pyramidal pathways, anatomy and physiology.  
Pyramidal signs.
7. Stroke, muscle disorders. Motor pathway, central and peripheral motoneuron, the disorders of the transmission.
8. Sensitive system. Spinal cord syndromes. The anatomy and physiology of the sensitive pathways. Pathophysiology of the sensory disorders. Transversal and cordonal spinal cord syndromes.
9. The cerebellum. Anatomy, function and clinical pathophysiology of the cerebellum. Cerebellar symptoms and syndromes.

10. Extrapyrarnidal system. Anatomy, physiology and clinical pathophysiology of the extrapyramidal structures. Extrapyrarnidal syndromes and symptoms.
11. Examination of the spine. Anatomy and physiology of the spine structures. Principles of the manipulation therapy.
12. Compressive syndromes. Spinal compressive syndromes, the etiology.
13. Unconsciousness. The rating scale. Brainstem syndromes.
14. Meningeal syndrome. The syndrome of the intracranial hypertension. anatomy and function of the meninges.
15. Paraclinical examinations in neurology- Xray, CT, DSA, MRI, PET, SPECT.
16. Paraclinical examinations in neurology- neurophysiology (EMG, EP, EEG and oher specialized techniques).

#### Literature

- ŠTOURAČ, Pavel, Josef BEDNAŘÍK, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Marek MECHL, Jiří PRÁŠEK, Ivan REKTOR, Irena REKTOROVÁ a Radomír ŠLAPAL. *Učebnice obecné neurologie (Textbook of General Neurology)*. 2., přepracované. Brno: Masarykova universita v Brně, 2003. 197 pp. ISBN 80-210-3309-6.
- BEDNAŘÍK, Josef, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Robert KUBA, Michal PELLAR, Ivan REKTOR, Irena REKTOROVÁ, Radomír ŠLAPAL, Pavel ŠTOURAČ, Stanislav VOHÁŇKA a Miroslav MORAŇ. *Učebnice speciální neurologie (Textbook of Neurology)*. 2. přepracované vydání. Brno: Masarykova universita, 1999. 285 pp. ISBN 80-210-2125-X.
- NEVŠÍMALOVÁ, Soňa, Evžen RŮŽIČKA a Jiří TICHÝ. *Neurologie*. 1. vyd. Praha: Galén, 2002. xiv, 368. ISBN 8072621602.
- Nevšimalová, S. Růžička E., Tichý J.: *Neurologie*. Galén, Praha 2005

#### Teaching methods

seminars, internship

#### Assessment methods

final credit. Oral exam.

## aBFPF031 Clinical Physiology General

### Faculty of Medicine

**Extent and Intensity** 2/0. 3 credit(s). Type of Completion: zk (examination).

#### Course objectives

Basic clinical physiology provides students with a comprehensive understanding of the activities of a healthy human body and the changes under pathology conditions. It is selected to enable students to acquire basic theoretical knowledge necessary to study other preclinical and clinical disciplines in the field of optometry, physiotherapy. The basic clinical physiology introduce the principles of certain laboratory and clinical investigative examinations and procedures.

#### Syllabus

Basic clinical physiology provides students with a comprehensive understanding of the activities of a healthy human body and the changes under pathology conditions. It is selected to enable students to acquire basic theoretical knowledge necessary to study other preclinical and clinical disciplines in the field of optometry, physiotherapy. The basic clinical physiology introduce the principles of certain laboratory and clinical investigative examinations and procedures. Fundamentals of clinical physiology. Human body and environment. Cells, biological membranes,

blood physiology and its functions in the body in health and pathology. Basic immunology, immune system disorders. Basic microbiology. Pathology of cardiovascular system, respiratory system, digestion and absorption. Basic soft diseases of urogenital system, endocrinology. The human body temperature in health and disease. Basics of nervous system and eye pathology. Biopolymers, cytology, the expression of genetic information, mutations and mutagenic factors, cell genome, cell cycle, cytogenesis, the basics of heredity higher organisms, inheritance and sex linkage of genes, methods of human genetics. Fundamentals of medical first aid. Transportation position of patients. Unconscious, training and implementation of cardiopulmonary resuscitation.

#### **Literature**

- PLACHETA, Z. a kol. Zátěžové vyšetření a pohybová léčba ve vnitřním lékařství. Brno : MU, 2001. 179 s. ISBN 80-210-2614-6
- PLACHETA, Zdeněk, Jarmila SIEGELOVÁ a Miloš ŠTEJFA. *Zátěžová diagnostika v ambulantní a klinické praxi (Exercise testing in patients in clinic and out patients)*. první. Praha: Grada Publishing, 1999. 276 pp. ISBN 80-7169-217-9.
- *Essentials of pathophysiology : concepts and applications for health care professionals*. Edited by Thomas J. Nowak - A. Gordon Handford. [1st ed.]. Dubuque: W.C. Brown, 1994. xviii, 666. ISBN 0-697-13314-1.

#### **Teaching methods**

lectures

#### **Assessment methods**

oral exam

## **aBFPL031p Psychology**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

#### **Course objectives**

This course deals with human development since born to senior age. Inform students about psychological effects of disturbance of CNS . infection, accident, tumours, paroxysms diseases. Physic, sense and mental handicap, disturbances of speech. Explains works as: frustration, stress, conflict, trauma, deprivation and their psychic conclusions. Explain to students adaptive and maladaptive type of coping and problem of death and dying.

#### **Syllabus**

- Psychology.
- 1. Definition of psychology, methods..
- 2. Development, stage of development . Ericson, Piaget.
- 3. Psycho-motor development since born till senior age, problems of newborn with extreme low weight.
- 4. Somatic disease and its subjective figure.
- 5. Psychic reaction on somatic disease.
- 6. Rational and emotional evaluation of disease.
- 7. Quality of life and disease, evaluation of disease in society.
- 8. Ill children, its reaction and needs.
- 9. Subjective problems of ill adults.
- 10. Adaptation of family on ill or disturbed child.

11. Organic disturbances CNS and its psychic problems.
12. Infection of CNS and its psychic effects.
13. Tumours of CNS and its psychic problems.
14. Accident of Head and its psychic effects.
15. Epilepsy and its psychic problems.
16. Combined disturbances.
17. Physical disturbances, inborn and obtained and their psychic effects.
18. Health disturbances and their reflection in the psychic of patients.
19. Visual and auditive disturbances and speech problems.
20. Mentally retardation.
21. Hurt and its management.
22. Death and dying.
23. Frustration, stress, crisis, trauma, deprivation
24. Fear and anxiety. 2
25. Relax method as prevention of burn-out syndrome.

### **Literature**

required literature

- VÁGNEROVÁ, Marie. *Vývojová psychologie*. Vyd. 1. Praha: Karolinum, 2007. 461 s. ISBN 9788024613185.
- LANGMEIER, Josef a Dana KREJČÍŘOVÁ. *Vývojová psychologie*. 2., aktualizované vydání. Praha: Grada, 2006. 368 stran. ISBN 9788024712840.
- VÁGNEROVÁ, Marie. *Vývojová psychologie*. Vyd. 1. V Praze: Karolinum, 2005. 467 s. ISBN 9788024609560.

### **Teaching methods**

During lectures is used data projector with ppt projection of basic and most substantial points of the subject.

### **Assessment methods**

lectures, oral examination, seminary work. During the lessons there are most of examples and casuistics for better income in the lectured problems. To the exam there is necessary to perfect knowledges about the lectured problems. There are in the script's, students have free admission in IS

## **aBFRP0322c Propedeutics of Rehabilitation II - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/3/0. 3 credit(s). Type of Completion: z (credit).

### **Course objectives**

The main objective of the course is clinical rehabilitation. Examination methods in clinical rehabilitation, including practical exercises with the patients.

### **Syllabus**

- Muscle test - basic concepts, the importance of rehabilitation
- Muscle test, face, neck
- Muscle test, chest, abdomen, pelvis
- Muscle test, upper limb
- Muscle test, leg
- Movement stereotypes, external and internal manifestations of the movement stereotypes phasic and

postural muscles, muscle hypermobilita

- Short muscle, pseudoparesa, an overview of the affected groups
- Muscular imbalance, basic concepts, the creation of functional and partly structural changes upper and lower cross-bred syndrome
- Protocol layering syndrome, accreditation
- Kineziology analysis + breath tests

#### **Literature**

- PLATZER, Werner. *Atlas topografické anatomie*. Vyd. 1. Praha: Grada, 1996. 290 s. ISBN 807169214X.
- *Funkční svalový test*. Edited by Vladimír Janda. Vyd. 1. Praha: Grada, 1996. 325 s. ISBN 8071692085.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFRP0322p Propedeutics of Rehabilitation II - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The main objective of the course is clinical rehabilitation. Examination methods in clinical rehabilitation, including practical exercises with the patients.

### **Syllabus**

- Muscle test - basic concepts, the importance of rehabilitation
- Muscle test, face, neck
- Muscle test, chest, abdomen, pelvis
- Muscle test, upper limb
- Muscle test, leg
- Mouse stereotypes, external and internal manifestations of the movement stereotypes phasic and postural muscles, muscle hypermobilita
- Short muscle, pseudoparesa, an overview of the affected groups
- Muscular imbalance, basic concepts, the creation of functional and partly structural changes upper and lower cross-bred syndrome
- Protocol layering syndrome, accreditation
- Kineziology analysis + breath tests

#### **Literature**

- PLATZER, Werner. *Atlas topografické anatomie*. Vyd. 1. Praha: Grada, 1996. 290 s. ISBN 807169214X.
- *Funkční svalový test*. Edited by Vladimír Janda. Vyd. 1. Praha: Grada, 1996. 325 s. ISBN 8071692085.

#### **Teaching methods**

lecture

#### **Assessment methods**

oral exam



# **aBFVL0321 Internal Medicine, Rheumatology I**

## **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

Internal medicine is the cardinal medical discipline. Its main feature is integrating and coordinating function. It enables wider survey about the basic diagnostic methods, clinical symptoms and the course of illness. After finishing this subject students will have the basic knowledge about clinical course of internal disorders.

### **Syllabus**

- General history. Elemental clinical examination.
- Presenting problems in cardiovascular disease
- Coronary artery disease
- Inflammatory cardiac disease.
- Disorders of heart rate, rhythm and conduction
- Cardiac heart failure
- Diseases of the heart valves
- Vascular disease
- Hypertension
- Pericarditis
- Cardiomyopathy
- Laboratory diagnostic test and clinical examination of the kidney and urinary tract diseases. Differential diagnostic.
- Glomerular diseases
- Nephrotic syndrome
- Diabetic nephropathy
- Tumours of the kidney and urinary tract
- Acute and chronic renal failure
- Renal transplantation
- Clinical examination of the gastrointestinal tract
- Diseases of the oesophagus, stomach and duodenum
- Disorders of the colon, small intestine and rectum.
- Motility disorders
- Inflammatory bowel disease
- Diseases of the pancreas
- Investigation of hepatobiliary disease, icterus
- Cholecystitis, choledocholithiasis,
- Bleeding from gastrointestinal tract
- Diff. diagnosis of the abdominal pain
- Clinical examination in blood disorders
- Anaemia, bleeding disorders
- Haematological malignancies

### **Literature**

required literature

- Navrátil L. a kol: Vnitřní lékařství pro nelékařské zdravotnické obory, Grada Publ. 2008
- not specified
- Blaha M. a kolektiv. Vnitřní lékařství II. díl. Vybrané kapitoly z diagnostiky, léčby a speciální ošetrovatelské péče. Díl I., II. IDVPZ Brno, 1999
  - ZELENKOVÁ, Jana. Příručka interní propedeutiky. 1.vydání. : Triton, 2002. 173 s. ISBN 80-7254-227-3.
  - BLAHA, Mojmir. Vnitřní lékařství 1. díl (Internal medicine I.). In *učebnice*. Brno 1997: LF MU Brno, 1997. p. 259. ISBN 80-7013-256-6.

### Teaching methods

lecture

### Assessment methods

Type of education is seminar form, attendance is obligatory, the practice is closed by active implication in education and knowledge.

## aBFZF031c Bases of Pharmacology - practice

### Faculty of Medicine

**Extent and Intensity** 0/0.5/0. 1 credit(s). Type of Completion: z (credit).

### Course objectives

At the end of the course students will know what the principles of drug prescription are and what information is available in the Pharmacopoea. They will be able to describe possibilities of pharmacological manipulation with the activities of both sympathetic and parasympathetic nervous system.

### Syllabus

- **1st.lesson:** Survey of drug dosage forms and application routes. Drug information sources (SUKL, pharmacopoea, AISLP, EMA). Legislation on drug regulation.
- **2nd.lesson:** Pharmacokinetic case-reports, demonstration of software MW PHARM. Pharmacological calculations.
- **3rd.lesson:** Analgesics. Nonsteroidal anti-inflammatory drugs. Antiuratics.
- **4th.lesson:** Neuromuscular-blocking agents. Local anaesthetics. Credits.

### Literature

required literature

- MARTÍNKOVÁ, Jiřina. *Farmakologie pro studenty zdravotnických oborů*. 2., zcela přeprac. a doplň. Praha: Grada, 2014. ISBN 9788024713564.

recommended literature

- Výběr z učebnice *Farmakologie pro studenty zdravotnických oborů*. Edited by Jiřina Martínková. 1. vyd. Praha : Grada, 2007. 379 s. ISBN 9788024713564.

not specified

- SLÍVA, Jiří a Martin VOTAVA. *Farmakologie*. 1. vyd. Praha: Triton, 2011. 394 s. ISBN 9788073875008.
- PERLÍK, František. *Základy farmakologie : klinická a speciální farmakologie*. 1. vyd. Praha: Karolinum, 2005. 190 s. ISBN 8024611392.
- LÜLLMANN, Heinz, Klaus MOHR a Lutz HEIN. *Barevný atlas farmakologie*. Translated by Maxmilián Wenke - Elfrída Mühlbachová. 3. vyd. Praha: Grada, 2007. xi, 372. ISBN 9788024716725.

- HYNIE, Sixtus. *Farmakologie v kostce. 2.*, přeprac. vyd. V Praze: Triton, 2001. 520 s. ISBN 8072541811.
- HYNIE, Sixtus. *Farmakologie pro bakalářské studium. 2.* přeprac. vyd. Praha: Karolinum, 1996. 272 s. ISBN 8071841846.
- HYNIE, Sixtus. *Farmakologie pro bakalářské studium. 2.* přeprac. vyd. Praha: Karolinum, 1996. s. i-x. ISBN 8071841854.
- MACH, Ivan. *Doplňky stravy na našem trhu.* Vyd. 1. Praha: Svoboda Servis, 2006. 118 s. ISBN 8086320464.

Vybrané kapitoly z učebnice:

<http://books.google.cz/books?id=7INQpLuETq4C&printsec=frontcover&dq=farmakologie&> · Vybrané kapitoly z učebnice: [http://books.google.cz/books?ct=result&q=farmakologie&lr=&as\\_brr=3&sa=](http://books.google.cz/books?ct=result&q=farmakologie&lr=&as_brr=3&sa=) · Výběr z učebnice Neuwirth, Jiří. *Klinická propedeutika: učebnice pro střední zdravotnické školy, studijní obor zdravotní sestra a dětská sestra.* Praha: Avicenum, 1989.

### Teaching methods

Students are provided with a pharmacology teacher presentation on the topic stated in curriculum followed by discussion.. There are also presented video-programmes to demonstrate pharmacological experiments related to the topic.

### Assessment methods

During the studying the student has to prove active knowledge of pharmacology acquired to get the credit. 100% attendance is required. Absence can be substituted by a written essay related to the topic. The student will be shortly examined from the topic.

## aBFZF031p Bases of Pharmacology - lecture

### Faculty of Medicine

**Extent and Intensity** 0.5/0/0. 1 credit(s). Type of Completion: k (colloquium).

### Course objectives

At the end of the course students are able to understand main pharmacological mechanisms of drug actions leading to therapeutic, adverse and toxic effects of drugs and eventually their combinations. They be able to recognize main drug classes and pharmacological profiles of representative drugs from groups of drugs selected in the curriculum.

### Syllabus

- **1st LECTURE:** Definition of pharmacology and basic terminology. Drug classification. Mechanisms of drug effects. Basic pharmacokinetics.
- 2nd LECTURE:** Factors responsible for variation in drug response. Adverse drug effects. Drug interactions. Research and development of drugs.
- 3rd LECTURE:** Pharmacology of autonomic nervous system. Receptors of sympathetic and parasympathetic systems and possibilities of pharmacological intervention.
- 4th LECTURE:** Glucocorticoids and immunosuppressants. Pharmacotherapy of allergies - antihistamine drugs.

### Literature

required literature

- MARTÍNKOVÁ, Jiřina. *Farmakologie pro studenty zdravotnických oborů. 2.*, zcela přeprac. a doplň. Praha: Grada, 2014. ISBN 9788024713564.

not specified

- SLÍVA, Jiří a Martin VOTAVA. *Farmakologie*. 1. vyd. Praha: Triton, 2011. 394 s. ISBN 9788073875008.
- Výběr z učebnice Neuwirth, Jiří. *Klinická propedeutika : učebnice pro střední zdravotnické školy, studijní obor zdravotní sestra a dětská sestra*. Praha : Avicenum, 1989.
- PERLÍK, František. *Základy farmakologie : klinická a speciální farmakologie*. 1. vyd. Praha: Karolinum, 2005. 190 s. ISBN 8024611392.
- LÜLLMANN, Heinz, Klaus MOHR a Lutz HEIN. *Barevný atlas farmakologie*. Translated by Maxmilián Wenke - Elfrída Mühlbachová. 3. vyd. Praha: Grada, 2007. xi, 372. ISBN 9788024716725.
- HYNIE, Sixtus. *Farmakologie v kostce*. 2., přeprac. vyd. V Praze: Triton, 2001. 520 s. ISBN 8072541811.
- HYNIE, Sixtus. *Farmakologie pro bakalářské studium*. 2. přeprac. vyd. Praha: Karolinum, 1996. 272 s. ISBN 8071841846.
- HYNIE, Sixtus. *Farmakologie pro bakalářské studium*. 2. přeprac. vyd. Praha: Karolinum, 1996. s. i-x. ISBN 8071841854.
- MACH, Ivan. *Doplňky stravy na našem trhu*. Vyd. 1. Praha: Svoboda Servis, 2006. 118 s. ISBN 8086320464.

Vybrané kapitoly z učebnice:

[http://books.google.cz/books?ct=result&q=farmakologie&lr=&as\\_brr=3&sa=](http://books.google.cz/books?ct=result&q=farmakologie&lr=&as_brr=3&sa=) · Vybrané kapitoly z učebnice: <http://books.google.cz/books?id=7INQpLuETq4C&printsec=frontcover&dq=farmakologie&>

### Teaching methods

The curriculum enables attendance at lectures read by teachers of pharmacology. Students are provided with the pharmacology teacher presentation of the topic according to the curriculum. Oral presentation of the teacher contains pictures and schemes to demonstrate the pharmacological principles and help the understanding of the related topic.

### Assessment methods

During the studying the students have to prove active knowledge of pharmacology acquired. The students have to pass colloquium on topics studied during the semester: final written multiple-choice test. In the test students are asked to answers to multiple-choice questions. Only 1 correct answer is possible for each question. The test contains 20 questions evaluated with 20 points. To pass the test student needs to get at least 60% out of the maximum score.

## YEAR 2 / SEMESTER 3

### aBFFT0442c Physiotherapy II - practice

#### Faculty of Medicine

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

#### Course objectives

At the end of this course the student has the knowledge application high-frequency therapy, electrodiagnostics in physical therapy, electrostimulation and applications electrogymnastics, impulsoterapie.

#### Syllabus

1. Practical training electrodiagnostics - AQ
2. Practical training electrodiagnostics - I / t curve
3. Impulzoterapie

4. Elktrostimulation
5. Electrogymnastics
6. High-frequency electrotherapy
7. Diagnostics with combination therapy

#### **Literature**

- 30. PODĚBRADSKÝ, J. - VAŘEKA, I. Fyzikální terapie II. 1. vyd. Praha : Grada, 1998. 171 s. ISBN 80-7169-661-7
- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFFT0442p Physiotherapy II - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

At the end of this course the student has the knowledge of theory of action and the application high frequency electrotherapy, electrodiagnostics in physical therapy, electrostimulation and applications electrogymnastics, impulsoterapie. Theoretically controls the basic information from acupuncture, acupressure and use of plants in physical therapy.

### **Syllabus**

1. Electrodiagnosis - AQ, I / t curve
2. Impulsoterapie
3. Electrostimulation, electrogymnastics.
4. High frequency electrotherapy
5. Special types of physical therapy
6. Acupuncture, Acupressure
7. Use of plants as part of physical therapy

### **Literature**

- PODĚBRADSKÝ, Jiří a Ivan VAŘEKA. *Fyzikální terapie*. Vyd. 1. Praha: Grada, 1998. 264 s. ISBN 8071696617.
- VAŘEKA, Ivan. *Základy fyzikální terapie*. 1. vyd. Olomouc: Vydavatelství University Palackého, 1995. 83 s. ISBN 8070674911.

### **Teaching methods**

lecture

### **Assessment methods**

oral exam

## **aBFKF041c Clinical Physiology - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

The Clinical Physiology course is designed to enable students to patients physiological functions in health and disease and to assess the effective diagnosis. This program also educates the students to design appropriate exercise therapy in a range of human diseases.

#### **Syllabus**

- Cardiovascular system - blood pressure and heart rate monitoring
- Respiratory system - spirometry testing
- Ergometry testing
- Spiroergometry testing
- Energy expenditure assessment
- Exercise intensity for patients physical fitness

#### **Literature**

- PLACHETA, Z. a kol. Zátěžové vyšetření a pohybová léčba ve vnitřním lékařství. Brno : MU, 2001. 179 s. ISBN 80-210-2614-6
- PLACHETA, Zdeněk, Jarmila SIEGELOVÁ a Miloš ŠTEJFA. *Zátěžová diagnostika v ambulanci a klinické praxi (Exercise testing in patients in clinic and out patients)*. první. Praha: Grada Publishing, 1999. 276 pp. ISBN 80-7169-217-9.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFKF041p Clinical Physiology - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The Clinical Physiology course is designed to enable students to patients physiological functions in health and disease and to assess the effective diagnosis. This program also educates the students to design appropriate exercise therapy in a range of human diseases.

#### **Syllabus**

- Introduction to Clinical Physiology and its role in physiotherapy and exercise rehabilitation
- Exercise testing in clinical medicine (characteristics, indications, criteria)
- Methods of functional diagnostics in laboratory and external conditions
- Clinical Physiology in diseases and health disorders
- Cardiovascular diseases (introduction, principles and special methods of exercise testing)
- Coronary artery disease, chronic heart failure, cardiomyopathy
- Acute inflammatory diseases of the heart, inherited and acquired heart defects, functional disorders
- Hypertension, atherosclerosis, chronic ischemic disease of lower limbs
- Respiratory diseases, (introduction, principles and special methods of exercise testing)
- Chronic obstructive bronchopulmonary disease, interstitial lung diseases
- Gastrointestinal diseases (metabolic and endocrine)
- Diabetes mellitus, obesity, metabolic syndrome
- Renal diseases and oncologic diseases
- Diseases and disorders of nervous and locomotory system

- Immunity and physical activity
- Repetitorium and information related to exam

#### Literature

- [PLACHETA, Zdeněk, Jarmila SIEGLOVÁ](#) and Miloš ŠTEJFA. *Zátěžová diagnostika v ambulanci a klinické praxi (Exercise testing in patients in clinic and out patients)*. první. Praha: Grada Publishing, 1999. 276 pp. ISBN 80-7169-217-9. [info](#)
- PLACHETA, Z. a kol. *Zátěžové vyšetření a pohybová léčba ve vnitřním lékařství*. Brno : MU, 2001. 179 s. ISBN 80-210-2614-6

#### Teaching methods

lecture

#### Assessment methods

oral exam from theory

## **aBFLT0453c Exercise Therapy Programme in Surgery, Traumatology and Orthopedics - practice**

### Faculty of Medicine

**Extent and Intensity** 0/4/0. 4 credit(s). Type of Completion: z (credit).

### Course objectives

The main objective of the course is clinical rehabilitation. Exercise therapy in surgery, traumatology and orthopedy deals with the importance of physiotherapy in acute state, before and after surgical therapy. The practical teaching is in the about mentioned departments.

### Syllabus

- 1) Exercise therapy program techniques used in surgery, orthopedics and traumatology
- 2) Exercise therapy program after thoracal and abdominal surgery
- 3) Exercise therapy program in rheumatic diseases
- 4) Exercise therapy program after limbs amputations
- 5) Exercise therapy program in traumatology, in shoulder girdle trauma, Sudeck syndrome
- 6) Exercise therapy program after elbow, forearm and hand trauma
- 7) Exercise therapy program after knee joint, shin and foot trauma
- 8) Exercise therapy program after hip joint, pelvis and vertebral column trauma
- 9) Exercise therapy program in congenital defects (pes equinovarus, dysplasia coxae)
- 10) Exercise therapy program in locomotor system inflammations, painful shoulder syndrome
- 11) Exercise therapy program in acquired static defects (scoliosis, plain foot)
- 12) Exercise therapy program in patients with metabolic and tumorous handicap of locomotor system
- 13) Microtrauma, enthesopathia and its rehabilitation treatment
- 14) Rehabilitation problems of arthrosis (alloplastic surgery)
- 15) Exercise therapy program in vertebral algic syndrome

### Literature

- ROCK, C.M - KRNEGER, S.P. *Agisticko-excentrické kontrakční postupy k ovlivnění funkčních poruch pohybového systému*. Brno : CERM, 2000. ISBN 3-905407-01-9

### Teaching methods

exercise

### **Assessment methods**

theoretical and practical exam

## **aBFLT0453p Exercise Therapy Programme in Surgery, Traumatology and Orthopedics - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

**Course objectives** The main objective of the course is clinical rehabilitation. Exercise therapy in surgery, traumatology and orthopedy deals with the importance of physiotherapy in acute state, before

and after surgical therapy. The practical teaching is in the about mentioned departments.

### **Syllabus**

- 1) Exercise therapy program techniques used in surgery, orthopedics and traumatology
- 2) Exercise therapy program after thoracal and abdominal surgery
- 3) Exercise therapy program in rheumatic diseases
- 4) Exercise therapy program after limbs amputations
- 5) Exercise therapy program in traumatology, in shoulder girdle trauma, Sudeck syndrome
- 6) Exercise therapy program after elbow, forearm and hand trauma
- 7) Exercise therapy program after knee joint, shin and foot trauma
- 8) Exercise therapy program after hip joint, pelvis and vertebral column trauma
- 9) Exercise therapy program in congenital defects (pes equinovarus, dysplasia coxae)
- 10) Exercise therapy program in locomotor system inflammations, painful shoulder syndrome
- 11) Exercise therapy program in acquired static defects (scoliosis, plain foot)
- 12) Exercise therapy program in patients with metabolic and tumorous handicap of locomotor system
- 13) Microtrauma, enthesopathia and its rehabilitation treatment
- 14) Rehabilitation problems of arthrosis (alloplastic surgery)
- 15) Exercise therapy program in vertebral algic syndrome

### **Literature**

- ROCK, C.M - KRNEGER, S.P. Agistico-excentrické kontrakční postupy k ovlivnění funkčních poruch pohybového systému. Brno : CERM, 2000. ISBN 3-905407-01-9

### **Teaching methods**

lecture

### **Assessment methods**

oral exam

## **aBFMT0454 Methodology of Physical Education IV - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/2/0. 2 credit(s). Type of Completion: z (credit).

### **Course objectives**

The main aim of this subject - practise, is to familiarize with basic methodology of motor abilities and skills development with the inclusion of testing in water environment. Successful graduate student will be able to prepare, realize and evaluate exercise unit in swimming pools. Students will familiarize



with basic methodic consecutions in motor education of four basic strokes - crawl, breaststroke, backstroke and butterfly and its impact on human locomotor system. They will also gain experience with leading exercise units for healthy, disabled and handicapped individuals. All graduate students will be able to help an exhausted swimmer effectively and to save drowning individuals safely.

### **Syllabus**

Introduction to practical education, conditions for credit obtainment, safety instructions for classes of Methodology of physical education Methodics of physical exercises in water environment for healthy individuals. Methodics of physical exercises - aquaerobic, aquastepaerobic, aquajogging like exercises. Methodics of physical exercises in water environment for disabled and handicapped individuals. Basic methodic consecutions in motor education of free style Basic methodic consecutions in motor education of breaststroke Basic methodic consecutions in motor education of backstroke Basic methodic consecutions in motor education of butterfly Methodic basics of water sports, games and activities. Aid to an exhausted swimmer. Rescue of drowning individuals.

### **Literature**

- APPELT, K., LIBRA, M.: Gymnastické názvosloví. Praha: Karolinum, 1998. 1. vyd. 88 s. (ISBN 80-7184-714-3)
- DOVALIL, J. et al. Výkon a trénink ve sportu. Praha: Olympia, 2005, 2. vyd., 336 stran. (ISBN 80-7033-928-4)
- APPELT, K. et al: Názvosloví pro cvičitele. Praha: Olympia, 1989. 247 s. (ISBN 80-7033-011-2)
- HURYCHOVÁ, A., VILÍMOVÁ, V. Didaktika tělesné výchovy. Brno: MU, 1997. 71 s. (ISBN 80-210-1525-X)
- Motyčka, J. et al. TEORIE PLAVECKÝCH SPORTŮ, Pdf MU, Brno, 2001
- RYCHTECKÝ, A., FIALOVÁ, L. Didaktika školní tělesné výchovy. Praha: Karolinum, 2002. 171 s.
- VILÍMOVÁ, V.: Didaktika tělesné výchovy. Brno: Paido, 2002. 103 s. (ISBN 80-7315-033-6)
- NOVÁČEK, V., MUŽÍK, V., KOPŘIVOVÁ, J.: Vybrané kapitoly z teorie a didaktiky tělesné výchovy. Brno: Masarykova Univerzita, 2001 (ISBN 80-210-2642-1)

### **Teaching methods**

exercise

### **Assessment methods**

theoretical and practical exam

## **aBFNE0422c Neurology and Neurophysiology II - practice**

### **Faculty of Medicine**

**Extent and Intensity** 0/1/0. 1 credit(s). Type of Completion: z (credit).

### **Course objectives**

At the end of the course students should be able to: understand and explain the principles of the anatomical and functional organization of the nervous system, basics of the clinical neurological examination, neurological topical and syndromological diagnosis. work with information on the structure of the neurological examination, to understand the indication, contraindication and complications of the paraclinical examinations; make reasoned decisions about main groups of neurological disorders: in the childhood and adults (stroke, epilepsy, movement disorders, vertebrogenic, neuromuscular disorders, multiple sclerosis, neurodegenerative disorders, neurotraumas, neuroinfections): theoretical background, current diagnostic procedures and therapy, typical case reports. To interpret clinal and paraclinical correlations.

## Syllabus

1. Definition of neurology and neurophysiology, the content.
2. History taking in neurology. The importance of the family history, objective history.
3. Reflexology. The principles and the significance of the reflexologic examination.
4. Cranial nerves I-VI. Anatomy, physiology, and pathophysiology.
5. Cranial nerves VII-XII. Anatomy, physiology, and pathophysiology
6. Pyramidal syndrome, types of palsies. Pyramidal pathways, anatomy and physiology. Pyramidal signs.
7. Stroke, muscle disorders. Motor pathway, central and peripheral motoneuron, the disorders of the transmission.
8. Sensitive system. Spinal cord syndromes. The anatomy and physiology of the sensitive pathways. Pathophysiology of the sensory disorders. Transversal and cordonal spinal cord syndromes.
9. The cerebellum. Anatomy, function and clinical pathophysiology of the cerebellum. Cerebellar symptoms and syndromes.
10. Extrapramidal system. Anatomy, physiology and clinical pathophysiology of the extrapramidal structures. Extrapramidal syndromes and symptoms. 11. Examination of the spine. Anatomy and physiology of the spine structures. Principles of the manipulation therapy.
12. Compressive syndromes. Spinal compressive syndromes, the etiology.
13. Unconsciousness. The rating scale. Brainstem syndromes.
14. Meningeal syndrome. The syndrome of the intracranial hypertension. anatomy and function of the meninges.
15. Paraclinical examinations in neurology- Xray, CT, DSA, MRI, PET, SPECT.
16. Paraclinical examinations in neurology- neurophysiology (EMG, EP, EEG and other specialized techniques).

## Literature

- ŠTOURAČ, Pavel, Josef BEDNAŘÍK, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Marek MECHL, Jiří PRÁŠEK, Ivan REKTOR, Irena REKTOROVÁ a Radomír ŠLAPAL. *Učebnice obecné neurologie (Textbook of General Neurology)*. 2., přepracované. Brno: Masarykova universita v Brně, 2003. 197 pp. ISBN 80-210-3309-6.
- BEDNAŘÍK, Josef, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Robert KUBA, Michal PELLAR, Ivan REKTOR, Irena REKTOROVÁ, Radomír ŠLAPAL, Pavel ŠTOURAČ, Stanislav VOHÁŇKA a Miroslav MORAŇ. *Učebnice speciální neurologie (Textbook of Neurology)*. 2. přepracované vydání. Brno: Masarykova universita, 1999. 285 pp. ISBN 80-210-2125-X.
- NEVŠÍMALOVÁ, Soňa, Evžen RŮŽIČKA a Jiří TICHÝ. *Neurologie*. 1. vyd. Praha: Galén, 2002. xiv, 368. ISBN 8072621602.
- Nevšimalová, S. Růžička E., Tichý J.: *Neurologie*. Galén, Praha 2005

## Teaching methods

internship

## Assessment methods

final credit. Oral exam.

## aBFNE0422p Neurology and Neurophysiology II - lecture

Faculty of Medicine

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

At the end of the course students should be able to: understand and explain the principles of the anatomical and functional organization of the nervous system, basics of the clinical neurological examination, neurological topical and syndromological diagnosis. work with information on the structure of the neurological examination, to understand the indication, contraindication and complications of the paraclinical examinations; make reasoned decisions about main groups of neurological disorders: in the childhood and adults (stroke, epilepsy, movement disorders, vertebrogenic, neuromuscular disorders, multiple sclerosis, neurodegenerative disorders, neurotraumas, neuroinfections): theoretical background, current diagnostic procedures and therapy, typical case reports. To interpret clinical and paraclinical correlations.

### **Syllabus**

1. Definition of neurology and neurophysiology, the content.
2. History taking in neurology. The importance of the family history, objective history.
3. Reflexology. The principles and the significance of the reflexologic examination.
4. Cranial nerves I-VI. Anatomy, physiology, and pathophysiology.
5. Cranial nerves VII-XII. Anatomy, physiology, and pathophysiology.
6. Pyramidal syndrome, types of palsies. Pyramidal pathways, anatomy and physiology. Pyramidal signs.
7. Stroke, muscle disorders. Motor pathway, central and peripheral motoneuron, the disorders of the transmission.
8. Sensitive system. Spinal cord syndromes. The anatomy and physiology of the sensitive pathways. Pathophysiology of the sensory disorders. Transversal and cordonal spinal cord syndromes.
9. The cerebellum. Anatomy, function and clinical pathophysiology of the cerebellum. Cerebellar symptoms and syndromes.
10. Extraparapyramidal system. Anatomy, physiology and clinical pathophysiology of the extrapyramidal structures. Extraparapyramidal syndromes and symptoms.
11. Examination of the spine. Anatomy and physiology of the spine structures. Principles of the manipulation therapy.
12. Compressive syndromes. Spinal compressive syndromes, the etiology.
13. Unconsciousness. The rating scale. Brainstem syndromes.
14. Meningeal syndrome. The syndrome of the intracranial hypertension. anatomy and function of the meninges.
15. Paraclinical examinations in neurology- Xray, CT, DSA, MRI, PET, SPECT.
16. Paraclinical examinations in neurology- neurophysiology (EMG, EP, EEG and other specialized techniques).

### **Literature**

- ŠTOURAČ, Pavel, Josef BEDNAŘÍK, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Marek MECHL, Jiří PRÁŠEK, Ivan REKTOR, Irena REKTOROVÁ a Radomír ŠLAPAL. *Učebnice obecné neurologie (Textbook of General Neurology)*. 2., přepracované. Brno: Masarykova universita v Brně, 2003. 197 pp. ISBN 80-210-3309-6.
- BEDNAŘÍK, Josef, Milan BRÁZDIL, Zdeněk KADAŇKA, Petr KAŇOVSKÝ, Robert KUBA, Michal PELLAR, Ivan REKTOR, Irena REKTOROVÁ, Radomír ŠLAPAL, Pavel ŠTOURAČ, Stanislav VOHÁŇKA a Miroslav MORAŇ. *Učebnice speciální neurologie (Textbook of Neurology)*. 2. přepracované vydání. Brno: Masarykova universita, 1999. 285 pp. ISBN 80-210-2125-X.

- NEVŠÍMALOVÁ, Soňa, Evžen RŮŽIČKA a Jiří TICHÝ. *Neurologie*. 1. vyd. Praha: Galén, 2002. xiv, 368. ISBN 8072621602.
- Nevšimalová, S. Růžička E., Tichý J.: *Neurologie*. Galén, Praha 2005

### Teaching methods

lectures

### Assessment methods

final credit. Oral exam.

## aBFOR041 Orthopaedics

### Faculty of Medicine

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### Course objectives

Learning outcomes of the course Orthopaedics, LF 5342R004 Physiotherapy. At the end of the course the student should be able to define all basic types of diseases in orthopaedics, should describe main symptoms of the conditions, analyze steps leading to establishing of the the diagnosis and should be able to suggest appropriate management of the condition.

### Syllabus

Programme of the course: Orthopaedics

The second school year of bachelor medicine for physiotherapy BFOR041.

Type of the course: compulsory

The course is given in the form of lectures with PC presentations. It involves all main topics in orthopaedics.

Topics:

- Degenerative diseases (osteoarthritis, pathological anatomy, clinical symptoms and findings, radiological examination). Conservative and operative treatment.
- Malalignment of extremities (coxa valga, coxa vara, anteverta, genua vara, valga). Static deformities of foot (flat foot, talipes calcaneus, equinovarus, excavatus). Deformity of upper extremity (cubitus varus, valgus, Madelung deformity, etc).
- Artificial joints. Hip arthroplasty (materials, bone cement, types, procedures, physiotherapy after the operation, complications). Knee arthroplasty. Arthroplasty in other joints.
- Musculoskeletal tumors. Methods of examination, biopsy. Staging and grading. Benign and malignant tumors. Operative treatment, chemotherapy, radiotherapy. Treatment of bone metastase.
- Bone and joint infections. Acute osteomyelitis (symptoms, examination, treatment). Chronic osteomyelitis. Acute arthritis (symptoms, examination, treatment). Chronic arthritis. TB osteomyelitis and arthritis, actinomycosis).
- Deformities of the spine. Scoliosis (types, Cobb measurement, methods of examination), conservative and operative treatment. Kyphosis (types, treatment). Lordosis (types, treatment). Spondylolysis and spondylolisthesis (symptoms, types, management).
- Low back pain (types, sciatica, spinal stenosis, failed back surgery syndrom etc.). Ankylosing spondylitis. Pain in cervical spine.
- Congenital diseases (types, symptoms, management). Developmental dislocation of the hip joint

(types, symptoms, management, consequences). Club foot deformity, torticollis muscularis etc. - Static deformities in the childhood. Epiphyseal disorders. Avascular necrosis (Perthes disease, tibia vara Blount, Kóhler disease etc.). Slipped upper femoral epiphysis.

- Arthroscopy (diagnostic, operative). Arthroscopy of the knee point (meniscal tear, chondral lesions, ligament injury, reconstruction of ligaments tec.) Arthroscopy of the shoulder.(indications, subacromial decompression, management of shoulder instability, management of rotator cuff lesions). Arthroscopy of other joints.
- Entesopathies (tennis elbow, ulnar epicondylitis, de Quervain disease, trigger fingers, painful shoulder (types, impingement syndrom, frozen shoulder etc.). Overuse syndrom.
- Osteopathies. Osteoporosis, (types, postmenopausal, senile, secondary osteoporosis)., Symptoms, methods of examination, densitometry, management). Osteomalacia (symptoms, management). Other metabolic bone diseases.
- Amputation and disarticulation. Procedures in lower and upper extremities. Application of the prosthesis (materials, parts of prosthesis, hydraulic joints etc.). Ortheses of the trunc and of the upper and lower extremities.
- Rehabilitation in orthopaedics (physiotherapy, ergotherapy, physical therapy, magnetotherapy etc.)

#### **Literature**

- Rozkydal, Z., Chaloupka, R.: Vyšetřovací metody v ortopedii. ISBN 80-210-2655-3
- Janíček, P.: Ortopedie,ISBN 978-80-210-4429-6

#### **Teaching methods**

Teaching methods: lecture with PC presentations.

#### **Assessment methods**

Oral examination at the end of the course

## **aBFTR041p Traumatology**

### **Faculty of Medicine**

**Extent and Intensity** 1/0/0. 2 credit(s). Type of Completion: zk (examination).

### **Course objectives**

The main objective of the course is traumatology. Traumatology deals with complex treatment of patients with multiple injury of tissue of the human body. The specialized surgical team can treat the heavy destructions of central nervous system, head, neck, trunk, abdomen and extremities and support the cardiopulmonary system functions and treat the traumatological shock.

### **Syllabus**

- Traumatology general
- Nervous system injury
- Injury to the thoracic cavity
- Injury to the abdominal cavity
- Neck and spine injuries
- The upper limb injuries
- Lower limb injuries
- Urological tract injury
- Injury to the spine, pelvis
- Injury to the muscle, tendons, ligaments
- Skeletal injuries

- Medicine disasters, war injuries
- Traumatology care in the Czech Republic

#### **Literature**

- JURÁŇ, Vilém, Martin SMRČKA a Vladimír SMRČKA. *Učební texty z traumatologie - pro posluchače Lékařské fakulty MU*. 2000.
- MAZÁNEK, Jiří. *Traumatologie orofaciální oblasti*. 1. vyd. Praha: Grada Publishing, 1999. 122 pp. ISBN 80-7169-774-5.
- KOVANDA, Milan. *Traumatologie*. 1. vyd. Brno: Masarykova univerzita, 1997. 48 s. ISBN 8021014962.

#### **Teaching methods**

lecture

#### **Assessment methods**

oral exam from theory

## **aBFVL0422 Internal Medicine, Rheumatology II - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

### **Course objectives**

Internal medicine is the caedinal medical discipline. Its main feature is integrating and coordinating function. It enables wider survey about the basis diagnostic methods, clinical symptoms and course of illness. After finishing this subject students will have the basis knowledge about clinical course of internal disorders

### **Syllabus**

- Clinical examination of the respiratory diseases
- Astma
- Infection of the respiratory systems
- Tumorous of the bronchus and lung
- Tuberculosis
- Clinical examination of the endokrine Diseases
- Diseases of the hypothalamus and hypopituitary gland
- Diseases of the thyroid and parathyroid glands
- Diseases of the adrenal glands
- Clinical examination of the patients with diabetes
- Diabetes mellitus type 1
- Diabetes mellitus type 2
- Acute comlication of diabetes
- Long-term complications of diabetes
- Inflammatory joint disease
- Rheumatoid arthritis
- Systemic connective tissue disease
- Systemic lupus erythematodes
- Seronegative spondylarthritis
- Osteoarthrosis

- Primary and secondary gout
- Polymyositis and dermatomyositis
- Osteoporosis, osteomalacia
- Stress testing
- Exercise ECG tolerance test
- Stress echocardiography
- Rehabilitation physical and psychological

### Literature

required literature

- Navrátil L. a kol: Vnitřní lékařství pro nelékařské zdravotnické obory, Grada Publ. 2008
- not specified
- Blaha M. a kolektiv. Vnitřní lékařství II. díl. Vybrané kapitoly z diagnostiky, léčby a speciální ošetrovatelské péče. Díl I., II. IDVPZ Brno, 1999
  - ZELENKOVÁ, Jana. Příručka interní propedeutiky. 1.vydání. : Triton, 2002. 173 s. ISBN 80-7254-227-3.
  - BLAHA, Mojmír. Vnitřní lékařství 1. díl (Internal medicine I.). In *učebnice*. Brno 1997: LF MU Brno, 1997. p. 259. ISBN 80-7013-256-6.

### Teaching methods

lecture

### Assessment methods

Credit, oral examination.

## **aBFZD0431c Basics Diagnostics and Therapy of Locomotor System I - practice**

### Faculty of Medicine

**Extent and Intensity** 0/4/0. 4 credit(s). Type of Completion: z (credit).

### Course objectives

The main objective of the course is diagnosis and treatment of functional disorders. Fundamentals of diagnosis and treatment of functional disorders, described to Lewit and Rychlíková, lectures and practical exercises. Functional pathology deals with the problems of overworking locomotive system. It explains the concept of segmental motor innervation system, the control of motoneurons and muscle activity, their pathology as a result of pathological changes in functional segment.

### Syllabus

1. Basics of pharmacotherapy of functional impairment of locomotor apparatus; soft tissue techniques
2. Functional anatomy of axial skeleton; peripheral joints mobilization
3. Enthesopathy: anatomy, physiology, enthesopathy in upper limb area; optimal soft tissue and mobilization techniques intervention
4. Other enthesopathies, adhesive capsulitis of shoulder joint, optimal soft tissue and mobilization techniques intervention; mobilization of clavicle and scapula
5. Lower limbs area impairment, stereotype of gait; radicular and pseudoradicular syndromes; etiological coherence, rational intervention; soft tissue and mobilization techniques in lower limb area
6. Functional anatomy of pelvis, manifestation of functional impairment in pelvic area, palpation orientation, spine sign, overtaking phenomenon

7. SI joints, anatomy, physiology, pathology, problems of differential diagnostics, SI joint examination and mobilization, autotherapy
8. Functional anatomy of lumbar spine, congenital evolutionary defects - importance, evaluation; manifestation of functional impairments - palpation, vision, examination and segment mobilization - RF, Ro, AF
9. Basics of X-ray, CT and NMR in pelvic and lumbar, traction techniques, autotherapy; lumbar and SI mobilizations
10. Functional anatomy of thorax and ribs; trunk area examination - vision control, active movement, palpation, functional impairment manifestation in area of trunk spine and ribs; Gaymans rule; trunk traction; seminar thesis assignment
11. Basics of differential diagnostics in area of trunk spine Introduction to basic viscerovertebral relations; examination and mobilization of trunk spine segments - retroflexion, anteflexion and lateroflexion
12. Basics of differential diagnostic in area of thorax and ribs - termination, congenital evolutionary defects - examination and mobilization in trunk area - rotation, autotherapy - Kaltenborn
13. Respiratory stereotype, anatomical predisposition, physiology, pathology, relations, examination and mobilization of ribs - overtaking phenomenon, Kubis, scapula, Greenman, autotherapy
14. Functional anatomy of cervical spine and cervicothoracal transition, active, passive and resistance movements examination, passive rotation examination in four positions, painful spots palpation, cervical spine traction, seminar thesis submission

#### **Literature**

- KITTEL, A. Myofunkční terapie. Praha : Grada, 1999. 111 s. ISBN 80-7169-619-6
- HOFTA, T. Autoterapeutický systém (mobilizační, relaxační a protahovací techniky). Třeboň : vydáno vlastním nákladem, 1996. 79 s.

#### **Teaching methods**

exercise

#### **Assessment methods**

theoretical and practical exam

## **aBFZD0431p Basics Diagnostics and Therapy of Locomotor System I - lecture**

### **Faculty of Medicine**

**Extent and Intensity** 2/0/0. 3 credit(s). Type of Completion: zk (examination).

#### **Course objectives**

The main objective of the course is diagnosis and treatment of functional disorders. Fundamentals of diagnosis and treatment of functional disorders, described to Lewit and Rychlíková, lectures and practical exercises. Functional pathology deals with the problems of overworking locomotive system. It explains the concept of segmental motor innervation system, the control of motoneurons and muscle activity, their pathology as a result of pathological changes in functional segment.

#### **Syllabus**

1. Introduction: Anamnesis with emphasis on functional impairment of locomotor system; basics of anthropometry, goniometry using SFTR method, postural and non-postural muscles, kinetic stereotypes, upper and lower cross syndrome, kinesiology analysis
2. Functional pathology, explanation of the term segment, functional segment-alterations, barrier palpation techniques, cutis and subcutis palpation, cutis and subcutis relaxation



3. Nociception - term explanation, effect; Melzack-Wall: gate control theory; possibilities of nociception decreasing; fascias and muscles palpations; fasciale relaxation; cutis and subcutis relaxation
4. Myofascial painful syndrome: introduction and term explanation. Trigger point - active and latent; myogelosis, muscular hypertonus - reasons; muscle palpation, functional pathology seeking, post-isometric relaxation technique; TP treating techniques; therapy in head and neck area
5. Myofascial pain syndrome: termination; reported pain - area of head, neck, trunk, therapy in trunk area, head and neck area
6. Reported pain: upper limb area; soft tissues techniques in area of shoulder girdle and upper limb, area of head, neck and trunk
7. Reported pain: pelvic and lower limb area; therapy in pelvic and low limb area; shoulder girdle and upper limb area
8. Basic differential diagnostic problem; complex soft tissues techniques
9. Theoretical basics of peripheral joints functional examination: introduction - joint play, importance, examination; functional joint block; mobilization of hand joints &
10. Functional examination of peripheral joints - termination of wrist and elbow mobilization
11. Basics of differential diagnostic consideration - elbow and shoulder; shoulder mobilization; wrist and elbow mobilization
12. Basics of differential diagnostic consideration - hip joint; hip joint mobilization; elbow and shoulder mobilization
13. Basic differential diagnostic problems - knee joint; seminar thesis assignment; knee joint, patella and fibular head mobilization; hip joint mobilization
14. Basic differential diagnostic problems - talar joint; talar and foot mobilization; general mobilization techniques

#### **Literature**

- WENDSCHE, P. a kol. Poranění páteře a míchy. Brno : Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1997. 83 s.
- HOFTA, T. Autoterapeutický systém (mobilizační, relaxační a protahovací techniky). Třeboň : vydáno vlastním nákladem, 1996. 79 s.
- SMRČKA, V. - DYLEVSKÝ, I. Flexory ruky. Brno : Institut pro další vzdělávání pracovníků ve zdravotnictví v Brně, 1999. 162 s. ISBN 80-7013-280-9
- KITTEL, A. Myofunkční terapie. Praha : Grada, 1999. 111 s. ISBN 80-7169-619-6
- MÁČEK, Miloš a Jiřina MÁČKOVÁ. *Fyziologie tělesných cvičení*. Brno: Masarykova univerzita v Brně, 2002. 112 s. ISBN 8021016043.
- *Manuální medicína : průvodce diagnostikou a léčbou vertebrogenních poruch*. Edited by Eva Rychlíková. 2. přeprac. vyd. Praha: MAXDORF-JESSENIUS, 1997. 426 s., ob. ISBN 80-85800-46-2.

#### **Teaching methods**

lecture

#### **Assessment methods**

oral exam