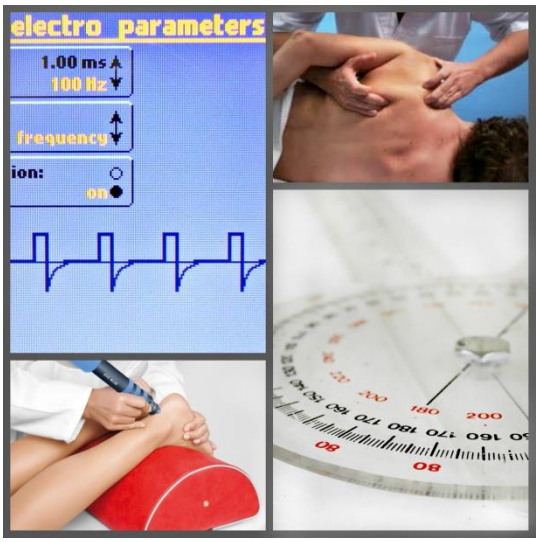
Technological Educational Institute of Athens (TEI-A)
Faculty of Health & Caring Professions

Department of Physiotherapy



CURRICULUM DESIGN
Course Discription

Athens, September 2013

Technological Educational Institute of Athens (**TEI-A**)

Faculty of Health and Caring Professions

Physiotherapy Department

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Course Discription

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Sponsored by TEI of Athens and
ΚΑ.ΠΑ Solution

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Course Description

	1st Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Anatomy I	GC	M	3	2	5	N2-1010	6
2.	First Aid	GC	M	2	2	4	N2-1020	4
3.	Physiology	GC	M	3	2	5	N2-1030	6
4.	Computing in Health Sciences	AELH	M	3	-	3	N2-1040	4
5.	Kinesiology I	SC	M	3	2	5	N2-1050	6
6.	Biophysics	SC	M	3	-	3	N2-1060	4
	Total			17	8	25		30

	2nd Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Anatomy II	GC	M	3	2	5	N2-2010	6
2.	Pathophysiology	GC	M	3	-	3	N2-2020	4
3.	Orthopaedics	GC	M	4	-	4	N2-2030	5
4.	Neurophysiology	GC	M	3	-	3	N2-2040	4
5.	Physical Agents in Physiotherapy	SC	M	3	2	5	N2-2050	5
6.	Kinesiology II	SC	M	3	2	5	N2-2060	6
	Total			19	6	25		30

	3rd Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Massage Techniques	SC	M	3	2	5	N2-3010	5
2.	Methods and Techniques of Neuromuscular Re-education	S	M	3	2	5	N2-3020	5
3.	Neurology	GC	M	3	-	3	N2-3030	5
4.	Kinesiotherapy	S	M	3	2	5	N2-3040	5
5.	Electrotherapy	S	M	3	2	5	N2-3050	5
6.	Pathology	GC	M	3	-	3	N2-3060	5
	Total			18	8	26		30

	4th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Physiotherapy in Adult Neurological Disorders and Diseases	S	M	3	2	5	N2-4010	6
2.	Clinical Exercise Physiology	SC	M	3	-	3	N2-4020	4
3.	Biomechanics – Ergonomics	SC	M	3	2	5	N2-4030	5
4.	Respiratory Physiotherapy	S	M	3	2	5	N2-4040	5
5.	Assessment in Physiotherapy – Clinical Reasoning	S	M	3	-	3	N2-4050	5
6.	Physiotherapy in Musculoskeletal Injuries	S	M	3	2	5	N2-4060	5
	Total			18	8	26		30

	5th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Research Methods in Physiotherapy	SC	M	2	2	4	N2-5010	5
2.	Physiotherapy in Musculoskeletal Pathology and Diseases	S	M	3	2	5	N2-5020	6
3.	Physiotherapy in Cardiovascular Diseases	S	M	3	2	5	N2-5030	6
4.	Clinical Placement: Physiotherapy in Cardio-Respiratory Diseases	S	M	3	8	11	N2-5040	9
5a	Biostatistics	SC	E	2	-	2	N2-5A10	4
5b	Pharmacology	SC					N2-5B10	
	Total			13	14	27		30

	6th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Physiotherapy in Specific Population Groups	S	M	3	2	5	N2-6010	6
2.	English Medical Terminology	AELH	M	3	-	3	N2-6020	5
3.	Physiotherapy in Neurological Pediatric Disorders and Diseases	S	M	3	2	5	N2-6030	6
4.	Clinical Placement: Physiotherapy in Musculoskeletal Injuries and Disorders	S	M	3	8	11	N2-6040	9
5a	Ethics in Physiotherapy	SC	E	2	-	2	N2-6A10	4
5b	Health Psychology	AELH					N2-6B10	
	Total			14	12	26		30

	7th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Adapted Physical Activity	SC	M	3	2	5	N2-7010	5
2.	Physiotherapy in Sports	S	M	3	2	5	N2-7020	6
3.	Mobilisation and Manipulation Techniques	S	M	2	2	4	N2-7030	6
4.	Clinical Placement: in Neurological Disorders and Diseases	S	M	3	8	11	N2-7040	9
5a	Surgery	GC	E	2		2	N2-7A10	4
5b	Diagnostic Imaging	SC					N2-7B10	
	Total			13	14	27		30

Note:

From the six elective courses offered in the 5th, 6th and 7th semesters, the students must complete four.

	8th Semester						Code	ECTS
1.	Dissertation						500	20
2.	Practical Clinical Placement						250	10
	Total						750	30

Abbreviations

CC = Course Category [**AELH**=Administration, Economics, Legislation and Humanities modules, **GC**=General Core Courses, **SC**=Special Core Courses, **S**=Specialty Courses]
E = Elective Courses, **M** = Mandatory Courses
Lec = Lecture hours per week
Pract = Practical hours per week

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TEI of ATHENS – Physiotherapy Department

General Characteristics and Descriptive Elements of the Curriculum

1. TOTAL SUM OF LECTURES: 42 (of which 40 are mandatory)

Specifically, 36 Mandatory Courses + 6 Elective Courses (of which at least 4 must be selected) + Dissertation and Practical Clinical Placement.

2. CATEGORIES of LECTURES

A. **AELH= 3** (Administration, Economics, Legislation and Humanities)
B. **GC= 10** (General Core Courses - Mandatory)
C. **SC = 13** (Special Core Courses - Mandatory)
D. **S = 16** (Specialty Courses - Mandatory)
E. **Dissertation**

The above courses include 6 Elective courses (AELH:2 + S:4), of which at least 4 must be selected.

Sum of Mandatory Courses = 40 + Dissertation
Sum of Offered Courses = 42 + Dissertation

3. RATIO OF COURSE CATEGORIES

AELH + C= **13** (30.9%)
S + SC= **29** (69.1%)

4. TOTAL CURRICULUM HOURS: 112 T + 70 P = 182

5. OTHER DATA

i. Total teaching hours: **182**
ii. Average teaching hours (over 7 semesters): **26**
iii. Theory hours: **112**
iv. Practical hours: **70**
v. Ratio of theory hours to total: **61.5%**
vi. Ratio of practical hours to total: **38.5%**
vii. Studyload: **6090** + Dissertation and Practical Clinical Placement= **6840**
viii. Ratio of studyload hours (Dissertation and Practical Clinical Placement excluded)/total teaching hours: 6090 ÷ 182 = **33.5**
ix. **Total credit units (ECTS): 240**

6. Lectures of the CURRICULUM

A. AELH Courses (3)

1. Computing in Health Science
2. English Medical Terminology
3. Health Psychology

B. General Core Courses, GC (10)

1. Anatomy I
2. First Aid
3. Physiology
4. Anatomy II
5. Pathophysiology
6. Orthopaedics
7. Neurophysiology
8. Neurology
9. Pathology
10. Surgery

C. Special Core Courses, SC (13)

1. Kinesiology I
2. Biophysics
3. Physical Agents in Physiotherapy
4. Kinesiology II
5. Massage Techniques
6. Clinical Exercise Physiology
7. Biomechanics - Ergonomics
8. Research Methods in Physiotherapy
9. Biostatistics
10. Pharmacology
11. Ethics in Physiotherapy
12. Adapted Physical Activity
13. Diagnostic Imaging

D. Specialty Courses, S (16)

1. Methods and Techniques of Neuromuscular Re-education
2. Kinesiotherapy
3. Electrotherapy
4. Physiotherapy in Adult Neurological Disorders and Diseases
5. Respiratory Physiotherapy
6. Assessment in Physiotherapy – Clinical Reasoning
7. Physiotherapy in Musculoskeletal Injuries
8. Physiotherapy in Musculoskeletal Pathology and Diseases

9. Physiotherapy in Cardiovascular Diseases
10. Clinical Placement: Physiotherapy in Cardiorespiratory Diseases
11. Physiotherapy in Specific Population Groups
12. Physiotherapy in Neurological Paediatric Disorders and Diseases
13. Clinical Placement: Physiotherapy in Musculoskeletal Injuries and Disorders
14. Physiotherapy in Sports
15. Mobilisation and Manipulation Techniques
16. Clinical Placement: Physiotherapy in Neurological Disorders and Diseases

E. Elective Courses (6) – from which 4 are selected

a) Elective Courses – General Core Modules

1. Surgery
2. Biostatistics

b) Elective Courses – Special Core Courses

1. Diagnostic Imaging
2. Pharmacology
3. Ethics in Physiotherapy

c) Elective Courses - AELH

1. Health Psychology

7. THREADS OF REQUIRED - ASSOCIATED COURSES

1. **Course thread "Physiotherapy in Cardiorespiratory Diseases"**
   - **1.1.** Pathophysiology
   - **1.2.** Respiratory Physiotherapy
   - **1.3.** Clinical Placement: Physiotherapy in Cardiorespiratory Diseases

2. **Course thread "Physiotherapy in Musculoskeletal Injuries and Diseases"**
   - **2.1** Kinesiology II
   - **2.2** Physiotherapy in Musculoskeletal Injuries and Disorders
   - **2.3** Clinical Placement: Physiotherapy in Musculoskeletal Injuries and Disorders

3. **Course thread "Physiotherapy in Neurological Disorders"**
   - **3.1** Neurology
   - **3.2** Physiotherapy in Adult Disorders and Diseases
   - **3.3** Clinical Placement: Physiotherapy in Neurological Disorders and Diseases

1st Semester

	1st Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Anatomy I	GC	M	3	2	5	N2-1010	6
2.	First Aid	GC	M	2	2	4	N2-1020	4
3.	Physiology	GC	M	3	2	5	N2-1030	6
4.	Computing in Health Sciences	AELH	M	3	-	3	N2-1040	4
5.	Kinesiology I	SC	M	3	2	5	N2-1050	6
6.	Biophysics	SC	M	3	-	3	N2-1060	4
	Total			17	8	25		30

Course Description

Name	Anatomy I
Code	N2-1010
Category	General Core Course, Mandatory
Required	
Type	Theoretical & Practical
Semester	1st
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is to study the topography, morphology and gross texture of the tissues, organs and systems of the human organism, as well as the gross description of their mechanisms of function and the way these interact. The goal of the course is to acquire knowledge of the anatomical structure of the human body and familiarity with the anatomical components that make up the human body. The laboratory part complements the lectures and helps students to recognise the topography of the anatomical regions and the organs of the human body. For the Physiotherapy Department, the aim is a detailed description of the musculoskeletal, respiratory and circulatory systems of the human body. More specifically, for the musculoskeletal system the main goal is to demonstrate the special anatomical elements of each bone and the configuration of the joints, and to identify the points of origin and insertion of the muscles of the human body, as well as the topography and energy of each muscle. For the respiratory and circulatory systems, apart from describing the main organs and regions that they comprise, an understanding of their function and their contribution to the normal functioning of the human body is also required.

Course Outline

Theoretical – Teaching Units

- Cell – Basic tissues. Epithelial – Connective – Muscle – Neural.
- Osteology – Detailed description of the bones of the skull.
- Detailed description of the bones of the spinal column and the chest
- Detailed description of the bones of the shoulder girdle, the upper arm, forearm and hand.
- Detailed description of the bones of the pelvis, the thigh, the leg and the foot.
- Joints – Ligaments. Detailed description of the joints and ligaments, the joints of the cranium, the spinal column, the chest, the upper and lower extremities.
- Detailed description of the head and neck muscles (attachments – innervation – action).
- Detailed description of the muscles of the chest, the abdomen and the back (attachments, innervation, action).
- Detailed description of the muscles of the shoulder, the arm, the forearm and the hand (attachments, innervation, action).

- Detailed description of the muscles of the pelvis, the thigh, the leg and the foot (attachments, innervation, action).
- Concise description of the anatomy of the circulatory system (heart, large blood vessels and branches, lymphatic system).
- Concise description of the anatomy of the respiratory system.
- Student assessment.

Practical – Teaching Units

The practical part of the course includes a presentation of the musculoskeletal system in a human skeleton and in anatomy models and the presentation of the basic anatomical regions of the human body and the respective systems. The laboratory part focuses on the presentation of the musculoskeletal system and on the gross description of the circulatory and respiratory systems.

- Introduction – Presentation of the anatomy models in the laboratory (skeleton, muscle trunk, trunk with attachable organs, ear, eye, mandible, skin, brain). Conduction of the students on a tour of the laboratory premises and analysis of the performance of the practical exercises.
- Presentation of the cranium bones. Demonstration of the cranial fossas and the bones that form them, of the dome of the cranium and the sutures. Presentation of the basic features of each of the cranial sutures.
- Presentation of the bones of the thoracic cavity and the spinal column (C1-C7, T1-T12, S1-S5, sacral bone, coccyx). Presentation of the common characteristics of the vertebrae and of the special ones of each group. Presentation of the 12 pairs of costae, (true and false), presentation of the sternum and its features.
- Presentation of the bones of the shoulder girdle, the upper arm, the forearm and the hand. Presentation of the basic features of the bones in the above regions, of the way they articulate with each other, and of the points of attachment of the muscles. Elements of applied topographic anatomy.
- Presentation of the joints and categorisation into synarthrosis and diarthrosis. Presentation of the types of synarthrosis (syndesmosis, synchondrosis, synosteosis) and diarthrosis (plane, pivot, hinge, condyloid, spheroid, saddle).
- Presentation in the skeleton of the movements of the different types of joints and of the main ligamentous components that reinforce each joint.
- Presentation of the muscles of the face and neck. Presentation of the muscle attachments in the skeleton and the anatomical model.
- Presentation of the muscles of the pelvis, the thigh, the leg and the foot. Presentation of the muscle attachments and the muscle actions of the above regions in the model, the skeleton and, if possible, in the human body.
- Presentation of the anatomical model of the heart and the large blood vessels. Presentation of the heart cavities, valves, layers. Presentation of the coronal vessels, main brain vessels, large neck vessels, main thoracic vessels, abdominal vessels and vessels of the upper and lower extremity.
- Presentation of the organs of the respiratory system (pharynx, larynx, trachea, bronchi, lungs). Presentation of the main anatomical features of the right and left lung and of the pleura. Placement of lungs in the thoracic cavity.

- Student assessment. Orally or in writing, at the discretion of the lecturer.

Teaching Methods

Theoretical

- Lectures and presentations.

Practical

- Students practise on anatomical models to familiarise themselves with the topography and the function of the systems of the human body.
- Students practise locating anatomical structures that are apparent in the surface anatomy of the human body (applied anatomy).
- Students practise the action/motion of the body muscles.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of the students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Recognise and describe the anatomical parts of the human body.
- Place the parts of the body in the anatomical model.
- Be familiar with the human body and the musculoskeletal system, recognise the muscle groups, the muscle attachments, the enervation and the main muscle actions.

Suggested Reading

1. Καμμάς Α. Μαθήματα Ανατομικής. Αθήνα: Εκδόσεις ΒΗΤΑ, 2010.
2. Πισίδης Α. Ανατομική - Βασικές Γνώσεις. Αθήνα: Λύχνος, 2001.
3. Drake RL. Gray's Anatomy. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2007.
4. Kahle W, Leonhart H, Platzer W. Colour Atlas and Textbook of Human Anatomy. Stuttgart: Georg. Theme, 1986.
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6. Lumley SJ. Ανατομία της επιφανείας του σώματος. Η ανατομική βάση της κλινικής εξέτασης. Αθήνα: Ιατρικές Εκδόσεις Παρισιάνου,2004.
7. Netter HF. Atlas of Human Anatomy. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2004.
8. Netter HF. Hansen TJ, Benninger B, et al. Atlas of Human Anatomy. MO: Saunders, 2010.
9. Palastanga N, Soames W. Palastanga D. Anatomy and Human Movement Pocketbook. London: Churchill Livingstone, 2008.
10. Putz R. Sobotta R. Atlas of Human Anatomy. Munich: Urban & Fisher, 2008.
11. Rohen JW. Έγχρωμος άτλας ανατομικής του ανθρώπου. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης, 2006.

12. Schuenke M, Schulte E, Schumacher U, et al. Head and Neuroanatomy (THIEME Atlas of Anatomy), NY: Thieme medical publishers, 2010.
13. Schuenke M, Schulte E, Schumacher U, et al. General Anatomy and the Musculoskeletal System (THIEME Atlas of Anatomy). NY: Thieme medical publishers, 2005.

Course Description

Name	First Aid
Code	N2-1020
Category	General Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	1st
Teaching hours/week	4 hours (T:2, P:2)
ECTS	4

Aims of the Course

First Aid is without doubt a useful subject, not only for students, but also for the general public, since emergency incidents in the streets, at work or at home that require assistance have recently been on the increase. The aim of this course is to teach the student in a scientific yet simple way how to use available means to provide care to patients or injured people in sudden life-threatening situations. The course aims to contribute to the preservation of human life—the best reward for attending the course.

Course Outline

Theoretical – Teaching Units

- Introduction, aims of first aid, first steps, assessment of the patient, examination and removal of clothes.
- Injury due to mechanical causes, abrasion, contusion, trauma, fracture, dislocation, sprain, cranium fracture, facial fracture, spinal column fracture, extremities fracture, road accident injury, beating, biting.
- Haemorrhage. Types of haemorrhage, clinical presentation, first aid. Haemorrhage from various organs, abnormal haemorrhage (rhinorrhagia, otorrhagia, gastrorrhagia, haemoptysis, varicose/haemorrhoids). Haemostasis, first aid.
- Foreign bodies. Foreign body in the skin (spiculae, hooks), the eye, the nose, the ear, swallowing a foreign body.
- Injury due to natural causes. Heat (burn, heatstroke), cold (frostbite, perniosis), sun, sunstroke, electricity (electrocution, lightning strike), irradiation, drowning, choking, crash syndrome.
- Burns (types, classification, clinical presentation, first aid).
- Abnormal signs that necessitate first aid. Pulse, pain (headache, toothache, earache, abdominal pain, fever, diarrhoea, vomiting, fainting, loss of consciousness, shock, coma, stroke, epilepsy, spasms, allergic reactions, bronchial asthma exacerbation, heart attack, angina).
- Introduction to artificial breathing and cardiopulmonary resuscitation (CPR). Basic life support (BLS) for adults. Position for resuscitation.
- Basic life support for children and infants.

- Use of automated external defibrillator in conjunction with basic life support in adults, children and infants (AED & BLS).
- Bandages, types and varieties. Triangular bandages, head bandages, bandages for the upper extremity, the chest, the hand and foot, the mandible, the knee and elbow. Cylindrical bandages: wrist and upper extremity. Figure-eight bandaging of the elbow, the upper extremity, the fingers and the foot. Bandaging the head and the eye. Reticular bandages. Splints.
- Carrying a patient. Stretchers, deploying a stretcher, placing a patient on the stretcher, other types of stretchers. Carrying the patient or injured person, carrying on a stretcher, with the hands, on the shoulders, transfer to vehicle.
- Poisoning and antidotes, signs and symptoms of poisoning, first aid after poisoning, removing and neutralising the poison.
- Injections. Oxygen and its use. Rationale of indicative risk signs, protection, and rescue. Chemicals and food additives. Contents of a First Aid kit.

Practical – Teaching Units

The laboratory part of the course aims at giving the students practice in the above, on an adult and a child model (bandages, injections, basic life support, use of automated external defibrillator).

- First steps, assessing the patients, examination and removal of clothes.
- Injury due to mechanical causes, abrasion, contusion, trauma, fractures, dislocations, sprains, cranium fractures, facial fractures, spinal column fractures, extremity fractures, road accident injuries, beating, biting. Application of techniques.
- Haemostasis. Application of techniques for countering haemorrhage.
- Foreign bodies. Foreign body in the skin (spiculae – hooks), the eye, the nose, the ear, swallowing a foreign body. Application of techniques.
- Intervention principles for injuries due to natural causes. Heat (burn, heatstroke), cold (perniosis, frostbite), sun, sunstroke, electricity (electrocution, lightning strike), irradiation, drowning, choking.
- Application of first aid for abnormal signs that necessitate immediate care: Pulse, pain (headache, toothache, earache, abdominal pain), fever, diarrhoea, vomiting, fainting, shock, loss of consciousness, coma, stroke, epilepsy, spasms, heart attack, angina, abnormal haemorrhage (rhinorrhagia, otorrhagia, gastrorrhagia, haemoptysis, varicose, haemorrhoids).
- Introduction to artificial breathing and cardiopulmonary resuscitation (CPR). Practice in basic life support (BLS) for adults and placing the patient in the recovery position.
- Practice in basic life support for children and infants.
- Practice in correct and safe use of automated external defibrillator in conjunction with basic life support (AED & BLS).
- Practice in the application of bandages, types of bandages. Triangular bandages: bandaging the head, the upper extremity, the chest, the hand, the foot, the mandible, the knee and the elbow. Cylindrical bandages: bandaging the wrist and the upper extremity. Figure-eight bandaging of the elbow, the upper extremity, the fingers and the foot. Bandaging the head and the eye. Reticular bandages. Splints.

- Practice in the use of stretchers, in positioning the victim on the stretcher, other types of stretchers. Carrying the patient or the injured person, transfer in a stretcher, carrying in the arms, on shoulder or by vehicle.
- First aid in poisoning, signs and symptoms of poisoning, removal and neutralisation of the poison, special treatment and antidotes.
- Injections. Oxygen and its use. Practice in giving injections and in the application of the oxygen mask.

Teaching Methods

Theoretical

- Lectures and presentations.

Practical

- The students practise the clinical problems of assessing and treating first aid situations
- The students practise with models (little Anne) to learn basic life support.
- The students practise the early, correct and safe application of the automated external defibrillator (AED) with models and training.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of the students in practical exercises.
- Final oral examination with exercises using the model.

Learning Outcomes

After completing the course the students should be able to:

- Provide first aid in specific situations (e.g. drowning, choking) if necessary.
- Provide first aid to a collapsed victim (BLS/AED).
- Treat a patient in an organised hospital unit or outpatient clinic.
- Know how to use simple objects/instruments to provide first aid.

Suggested Reading

1. Γερμενής Τ. Μαθήματα Πρώτων Βοηθειών δια επαγγέλματα Υγείας. Αθήνα:Εκδόσεις Βήτα, 1994.
2. Μπαλτόπουλος Γ. Πρώτες βοήθειες. Αθήνα: Ιατρικές Εκδόσεις Π.Χ Πασχαλίδης,2001.
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5. American Red Cross. Textbook of first aid fast. American National Red Cross, 2003.
6. Jones & Bartlett Learning. Emergency Care and transportation of the sick and injured. NY: American Academy of Orthopaedic Surgery, 2010.
7. Schua S. Εγχειρίδιο επειγόντων περιστατικών. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2006.

Course Description

Name	Physiology
Code	N2-1030
Category	General Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	1st
Teaching hours/week	5 hours (3:2, P:2)
ECTS	6

Aims of the Course

The aim of the lesson is for the students to understand the physiological functions and the homeostatic mechanisms of the human body system by system, the general rules that underlie their multifaceted and complex functional interdependence, the physiologic parameters of their function, and the possible physiological deviations at the cell, organ and system level.

Course Outline

Theoretical – Teaching Units

- Fundamental concepts of human physiology. Principles of organisation and function of the human organism in tissues and systems. Regulation of physical functions and control systems. Inner environment and homeostasis. Compartmentalisation of the fluids of the body, acidobasic balance, osmosis regulation.
- Cell: Structure and function of the normal cell, structure of the cell membrane, organelles, explanation of the function of the transmembrane and intracellular receptors, of the nucleus and of the genetic material, and achievements in the investigation of the genetic code.
- Blood: General principles of the blood, cells, plasma, physical and chemical properties of plasma, measures such as haematocrit, haemopoiesis (foetal and post-foetal), ways to study the bone marrow and the lymph nodes, ways to study a complete blood count, haematocrit & haemoglobin and their importance, red blood cells (structure, function), haemoglobin (molecular structure, properties of normal haemoglobin, abnormal haemoglobins), white blood cells (types, properties of white blood cells per cellular group and leukocellular type, variations and its importance), platelets (structure, properties, function), immunity (antibody mediated, structure and function of antibodies, cellular immunity, types and reference to their disorders), blood coagulation and relative disorders, tissue compatibility antigens, ABO types, blood types and how to check them, reference to related issues during transfusion.
- Immune system: Fundamental analysis of the structures and functions of the immune system and reference to related disorders.
- Respiratory system: Comparison of respiratory functions in lungs and blood, airways (anatomical and physiological components), alveolar capillary membrane (microanatomy and function). Regulation of respiratory function, types of breathing.

Pulmonary adaptation to special conditions – hypoxia, hypercapnia, hypocapnia. The mechanics and workload of breathing, spirometry data and deviations relative to age and main diseases, tests of the respiratory system, respiratory centre.

- Cardiovascular system: Elements of anatomy, large and small circulation, structure of the myocardium, conduction system of the heart, structure and function of the myocardium, molecular basis of myocardial contraction, rest and action potential of the myocardial muscle, mechanical response, length-tension relationship, pacemakers, myocardial contractility, mechanical workload of the heart, heart sufficiency and reserve, cardiac cycle, systolic volume, heart rate, supply, heart sounds/murmurs, small and large circulation and blood flow, coronary flow, vascular pressure, aortic pressure, arterial pressure, pulmonary circulation, bioelectric heart phenomena (ECG). Neuroregulation of the circulation – vasomotor centres.
- Lymph system – Lymph: structure, composition, circulation, lymph vessels and nodes.
- Digestive system: Structure of the gastrointestinal tract. Salivary glands. Mastication and swallowing. The stomach and its function. Function of the small and large intestine. Microbial intestinal flora. Gastrointestinal hormones. Vomiting. Pancreas, liver – gall bladder. Digestion and secretions. Absorption. Diet – metabolism. Regulation of food intake. Body composition. Energy consumption.
- Thermoregulation: Homeothermy. Mechanisms of heat production and removal. Central regulation of temperature. Fever, Hypothermia, Hyperthermia.
- Nervous system: The neuron, types of neurons. Synaptic transmission, neuronal circuits. Sensory receptors. Membrane potentials. Morphological and functional organisation of the nervous system. Central-peripheral nervous system. Autonomic nervous system. Sleep – arousal. Cerebral cortex – memory. Electroencephalography. Reflexes. Balance. Posture and movement. Pyramidal – extrapyramidal system. Basal ganglia – cerebellum. Sensations and sensory organs. Somatic sensations. Pain. Special senses (sight, hearing, taste, smell).
- Muscular system: Types of muscle fibres. Neuromuscular junction. Muscle contraction. Tetanic contraction. Muscle fatigue. Muscle tone. Muscle work. Types of muscle disorder, central and peripheral palsy.
- Endocrine system – hormones: Hormones. Chemical nature of hormones. Action pathway of hormones. Mechanism of retrograde reciprocal regulation. Endocrine glands. Hypothalamus, pituitary gland. Current views concerning the cooperation between the nervous and endocrine system. Pineal gland. Thyroid gland, parathyroids. Adrenal glands. Endocrine functions of the pancreas. Diabetes mellitus. Endocrine pancreatic tumours. Endocrine function of the gastrointestinal tract and brain-intestine axis. Endocrine tumours of the gastrointestinal system. Male and female genital system, reproductive function. Genital hormones. Spermatogenesis. Female genital system. Copulation. Fertilisation. Gestation. Reference to the hormonal function of gestation. Latest developments in reproductive function and techniques of assisted human reproduction.
- Kidneys – urinary system: Kidney anatomy, histology. Glomerular filtration. Reabsorption – excretion. Urine concentration and dilution. Formation of urine.

Functions of the urinary tract. Urination. Balance of fluids and electrolytes. Control of pH. Endocrine function of the kidneys. Basic – acidic balance.

Practical – Teaching Units

- Simple microscope – cell and tissues.
- Blood: blood types
- Haematocrit ESR - H TKE – Haemoglobin electrophoresis
- Muscle contraction in striate muscle and electromyography
- Tendon reflexes
- Electrical heart phenomena
- Electrocardiography
- Measuring arterial pressure. Microcirculation
- Spirometry - oximetry
- Measuring basic metabolism. Analysis of composition of body mass
- Vision exercises and colour vision
- Measuring bone density with ultrasound
- Student assessment

Teaching Methods

Theoretical

- Lectures and presentations.

Practical

- The students practise through applied practical exercises.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of the students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Know and describe the normal functions and the mechanisms of reciprocal regulation of the human organism at the cell, tissue, organ and system level, and define the possible deviations.

Suggested Reading

1. Πλέσσας Σ. Φυσιολογία του ανθρώπου. Αθήνα: Φάρμακον Τύπος, 2010.
2. Χανιώτης Φ. Φυσιολογία του Ανθρώπου. Αθήνα: Εκδόσεις Λίτσας, 2009.
3. Boron W, Boulpaep E. Ιατρική Φυσιολογία. Αθήνα: Ιατρικές εκδόσεις Π.Χ. Πασχαλίδης, 2006.

4. Guyton AC, Hall JE. Ιατρική Φυσιολογία. 11η Έκδοση. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2008.
5. Hall JE. Ανασκόπηση Ιατρικής Φυσιολογίας. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2010.
6. McGeown JG. Συνοπτική Φυσιολογία του Ανθρώπου. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2008.
7. Mulroney SE . Βασικές Αρχές Φυσιολογίας. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2010.
8. Netter F. Άτλας Φυσιολογίας του Ανθρώπου. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδης, 2004.
9. Silbernagi S, Florian N. Εικονογραφημένο Εγχειρίδιο Παθοφυσιολογίας. Θεσσαλονίκη: Εκδόσεις Σιώκης, 2002.

Course Description

Name	Computing in Health Sciences
Code	N2-1020
Category	AELH, Mandatory
Required	--
Type	Theoretical
Semester	1st
Teaching hours/week	3 hours (T:3)
ECTS	4

Aims of the Course

The aim of the course is to familiarise the students with Information and Communications Technology (ICT), its application in the field of health, and particularly in the field of Physiotherapy. Within this framework, basic concepts are explored regarding hardware, software and relational databases. The basic concepts of networking and internet are presented, as well as internet-based reference databases, which are widely used for access to scientific medical knowledge. Emphasis is placed on "cloud" technologies by detaching the concepts of applications and data from hardware. The concepts of electronic and personal health files are analysed, and the privacy and security of the data is emphasised. Computerised health systems are presented, together with the standards of encoding and exchanging medical information and the interoperability between these systems. Emerging ICTs that are expected to have great influence on medical applications and applications in physiotherapy are introduced, such as the Internet of Things – IoT, embedded sensor systems, etc.

Course Outline

Theoretical – Teaching Units

- Hardware, software, CPU, input/output devices
- Information and Communications Technology (ICT) in Physiotherapy
- Operating systems, applications and programs
- Relational databases, organisation of medical data
- Basic concepts of networking and internet
- Searching in scientific and specialised medical reference databases
- Cloud, data and applications, distributed systems
- Electronic and personal health file, standards of data organisation, privacy and safety of information
- Computerised health systems, standards for the encoding of information
- Standards for the exchange of medical information and the interoperability of systems and applications
- Emerging ICTs and their application in the field of physiotherapy

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading of scientific articles, lectures, useful links, information, announcements, etc.

Student Assessment

Theoretical

- Final written examination with the option of assignments.

Learning Outcomes

After completing the course the students should be able to:

- Analyse the basic concepts of ICTs and their applications, and of the internet, and to recognise their benefits for the physiotherapist as a health professional.
- Use the internet database sources that provide specialised and scientific medical information.
- Understand the structure and the potential offered by the cloud.
- Recognise the benefits of electronic medical files and the issues of privacy and safety of data.
- Understand concepts related to the standards of encoding and exchanging medical information (HL-7, ICD-10, SNOMED, DICOM, etc.).
- Recognise emerging ICTs in the field of physiotherapy.

Suggested Reading

1. Καρανικόλας Ν. Πληροφορική και Επαγγέλματα Υγείας. Αθήνα: Εκδόσεις Νέων Τεχνολογιών, 2010.
2. Κουμπούρος Ι. Τεχνολογίες Πληροφοριών και Επικοινωνίας & Κοινωνία. Αθήνα: Εκδόσεις Νέων Τεχνολογιών, 2012.
3. Βλαχόπουλος Γ, Κλεπετσάνης Π. Εφαρμογές Πληροφορικής στις Επιστήμες Υγείας. Πάτρα: Εκδόσεις Αλγόριθμος, 2012.
4. Akay M, Marsh A. Information Technologies in Medicine. NY: Wiley-IEEE Press, 2013.
5. Braunstein M. Health Informatics in the Cloud NY: Springer, 2012.
6. Donnelly WJ. Patient-centreed medical care requires a patient-centreed medical record. NY: Academic Medicine, Lippincott Williams & Wilkins, 2006.
7. Venot A, Burgun A, Quantin C (eds). Medical Informatics, e-Health, Fundamentals and Applications. NY: Springer, 2014.
8. Hoyt RE, Bailey N, Yoshihashi A (eds). Health Informatics: Practical Guide For Healthcare And Information Technology Professionals. 5th ed., Raleigh: Lulu, 2012.
9. Erl T, Puttini R, Mahmood Z. Cloud Computing: Concepts, Technology & Architecture. Westford: The Prentice Hall Service Technology Series, 2013.
10. Fong B, Fong A, Li C.Telemedicine Technologies: Information Technologies in Medicine and Telehealth. NY: John Wiley & Sons Ltd, 2010.
11. Tripathi M, Delano D, Lund B, Rudolph L. Engaging patients for health information exchange. Bethesda: Health Affairs, 2009.

Course Description

Name	Kinesiology I
Code	N2-1050
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	1st
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The course aims to describe the basic principles and the types of movement and the methodology of the analysis of the human movement. The structure of the muscle fibres, muscle contraction and the factors that influence muscle physiology are analysed. In addition, the structure and the function of the joints of the upper half of the body are analysed. More specifically, the range of motion, the kinematics, the kinetics and the arthrokinematics of the upper extremity are described. The movements of the upper extremity during various activities are also analysed. Finally, the functional power and the musculoskeletal ability are assessed through manual techniques.

Course Outline

Theoretical – Teaching Units

- Introduction to kinesiology. Production and development of motion, types, planes and axes of motion. Methods for the analysis of motion.
- Structure and materials of the joints. Types and function of the joints, kinetic chains.
- Structure of the skeletal muscle, types of muscle fibre, motor unit, joint and tendon receptors, basic principles of muscle contraction and relaxation.
- Interaction of mechanical and physiological factors during muscle function.
- Structure of bones, description of the joints and muscles of the shoulder girdle.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the joints of the shoulder girdle.
- Structure of bones, description of the joints and the muscles of the elbow region.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the joints of the elbow region.
- Structure of bones, description of the joints and the muscles of the wrist and hand.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the joints of the wrist and hand.
- Analysis of complex normal movements.
- Analysis of complex abnormal movements.
- Application of kinesiology principles of the upper extremity for specialised therapeutic goals, such as: Rehabilitation of motion and scapulohumeral rhythm in the glenohumeral, acromioclavicular, sternoclavicular, scapulothoracic joint.

Practical – Teaching Units

- Examples of types of human motion in everyday activities and in sports. Planes and axes of movements.
- Methods for motion analysis. Naming of the movements of the joints of the human body. Examples of closed and open kinetic chains.
- Isotonic and isometric contraction. Concentric and eccentric contraction. Examples of contraction during human posture and motion.
- Muscle contractions at various speeds. Active and passive insufficiency of the muscle contraction.
- Palpation of anatomical landmarks, such as bone prominences, joint areas, ligaments, tendons and muscles of the shoulder girdle.
- Analysis of movements and muscle tests for the shoulder girdle.
- Palpation of anatomical landmarks, such as bone prominences, joint areas, ligaments, tendons and muscles of the elbow region.
- Analysis of movements and muscle tests for the elbow region.
- Palpation of anatomical landmarks, such as bone prominences, joint areas, ligaments, tendons and muscles of the wrist and hand.
- Analysis of movements and muscle tests for the wrist and hand.
- Analysis of functional activities, such as handgrips, push-ups, and the use of the hand during rising from sitting.
- Examples of the analysis of complex movements of the upper extremity during sports activities, such as swimming and tennis, and during the playing of musical instruments.
- Examples of the analysis of complex movements of the upper extremity during activities such as walking with crutches, or during the use of a wheelchair.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading of lectures and the circulation of scientific articles.

Practical

- The students practise in groups on motion analysis, palpation and the assessment of muscle strength.

Student Assessment

Theoretical

- Final written examination.

Practical

- Intermediate assessments in practical units.

Learning Outcomes

After completing the course the students should be able to:

- Differentiate between the various types of human motions, the planes and the axes of motion.
- Describe the structure of the muscle, the muscle contraction and the relationship between the mechanical and physiological factors that affect motion.
- Describe the structure, the movements and the forces that affect the shoulder girdle.
- Explain the structure and the function of the elbow joints.
- Understand the complexity of the architecture and the functional activities of the wrist and hand.
- Analyse the various motor patterns and to describe the agonist, antagonist, synergist and fixator muscles.
- Recognise abnormal movements and suggest ways of improvement.

Suggested Reading

1. Hislop HJ, Montgomery J. Έλεγχος της Μυϊκής Λειτουργικής Ικανότητας. Αθήνα: Ιατρικές Εκδόσεις Παρισιάνου, 2000.
2. Kapandji, IA.: Η Λειτουργική Ανατομική των Αρθρώσεων, Τόμοι 1,2,3. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2001.
3. Kendall Peterson F, Kendall McCreary E, Geise Provance P, McIntyre Rodgers Mary and Romani WA. Musscles: Testing and Function with Posture and Pain. Fifth Edition. Philadelphia PA: Lippincott Williams and Wilkins, 2005.
4. Levangie P and Norkin C. Joint Structure and Function, Fifth Edition. A Comprehensive Analysis. Philadelphia PA: F.A. Davis Company, 2011.
5. Neumann DA. Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation. Second Edition. MO: Mosby Co, 2010.
6. Oatis CA. Κινησιολογία. Η Μηχανική και η Παθομηχανική της Ανθρώπινης Κίνησης. Τόμος 1-3. Δεύτερη Έκδοση. Αθήνα: Εκδόσεις Γκότσης, 2013.
7. Smith L, Weiss E and Lehmkuhl L. Brunnstrom's Κλινική Κινησιολογία Β΄ Έκδοση. Αθήνα: Ιατρικές Εκδόσεις Παρισιάνου, 2005.
8. Soderberg GL. Kinesiology: Application to Pathological Motion, Second Edition. Baltimore MD: Williams and Wilkins, 1997.

Course Description

Name	Biophysics
Code	N2-1060
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical
Semester	1st
Teaching hours/week	3 hours (T:3)
ECTS	4

Aims of the Course

This course aims a) to provide basic knowledge of physics with focused interest in biological systems, which knowledge is essential for the understanding and interpretation of basic biological and physiological mechanisms of the human body, b) to provide specialised knowledge of physics, upon which current therapeutic and diagnostic methods are based with application in Medicine and Physiotherapy and c) to familiarise the student with current medical technology and rational way of thinking, which allows for the better evaluation of magnitudes and quantities through simple calculations who derive from measures, examples of applications and exercises in calculations.

Course Outline

Theoretical – Teaching Units

- Introduction to the course (presentation of aims, content, way of teaching and assessment and of bibliography).
- Work and power in the human body.
- Biomechanics: Muscles and forces in the human body. Examples of applications. Exercises.
- Physics of the human skeleton. Structure, composition and strength of bones. Measurement of bone minerals of the human body.
- Fluid mechanics. Pressure and the human body. Application in the cardiovascular system and haemodynamics. Exercises.
- Heat. Basic laws and applications. State of matter. Heat propagation. Radiation of dark body. Thermal radiation. Thermography. Application of heat and cold. Exercises.
- Oscillations and waves. Sound and ultrasound. Diagnostic and therapeutic applications. Exercises.
- Electromagnetic radiation. Light sources. Basic principles of Laser. Laser systems. Properties of radiation.
- Interaction of lights and body. Applications of Lasers in Physiotherapy. Safety of laser systems use. Protection from Laser radiation.
- Electrical and magnetic properties. Biodynamics. Stimulation of nerves and muscles.

- Electrical signals from the human body. Electrical diathermy. Examples of applications.
- Presentations of selected issues and student assignments.
- Visit to a Physics laboratory. Execution and demonstration of selected experiments. Assessment of the course and the students.

Teaching Methods

Theoretical

- Lectures and presentations
- Use of e-class for the uploading and circulation of scientific articles, lectures, instructions, useful links, questionnaires, information about the attendance of relative courses, etc.
- Guest speakers approved by the Physiotherapy Department.

Student Assessment

Theoretical

- Final written examination with the option of assignments.

Learning Outcomes

After completing the course the students should be able to:

- Exhibit basic theoretical knowledge of biophysics regarding the application of the subject in Medical Physics issues.
- Understand the functional mechanisms of current technologies, methods and applications in general that are used (or are about to be introduced) in physiotherapeutic research and clinical practice).

Suggested Reading

1. Γεωργίου Ε. Ιατρική Φυσική. Αθήνα: Εκδόσεις ΠΧ Πασχαλίδης, 2008.
2. Προυκάκης Χ. Ιατρική Φυσική, Τόμοι Α',Β' και Γ'. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2004.
3. Σιανούδης Ι. Βιοφυσική: Θέματα Ιατρικής Φυσικής. Αθήνα: Εκδόσεις Λύχνος, 2008.
4. Τζαφλίδου Μ. Ιατρική Φυσική, Βιοηλεκτρισμός, Οπτική, Θερμότητα-Ψύχος. Αθήνα: Εκδόσεις Gutenberg, 2010.
5. Ψαράκου Κ, et al. Ιατρική Φυσική, Τόμος 2ος. Θεσσαλονίκη: Εκδόσεις University Press, 2010.
6. Cameron JR, Skofronick JD, Grant RM. Φυσική του Ανθρωπίνου Σώματος. Αθήνα: Επιστημονικές Εκδόσεις ΓΚ Παρισιάνου ΑΕ, 2002.
7. Davidovits D. Η Φυσική στη Βιολογία και την Ιατρική. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου ΑΕ, 2013.
8. Herman I. Φυσική ιατρική του ανθρωπίνου σώματος. Αθήνα: Εκδόσεις ΠΧ Πασχαλίδης, 2009.
9. Young HD, Freedman RA. Πανεπιστημιακή Φυσική, Τόμοι Α', Β', Γ'. Αθήνα: Εκδόσεις Παπαζήση, 2010.

2nd Semester

	2nd Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Anatomy II	GC	M	3	2	5	N2-2010	6
2.	Pathophysiology	GC	M	3	-	3	N2-2020	4
3.	Orthopaedics	GC	M	4	-	4	N2-2030	5
4.	Neurophysiology	GC	M	3	-	3	N2-2040	4
5.	Physical Agents in Physiotherapy	SC	M	3	2	5	N2-2050	5
6.	Kinesiology II	SC	M	3	2	5	N2-2060	6
	Total			19	6	25		30

Course Description

Name	Anatomy II
Code	N2-2010
Category	General Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	2nd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is the study of the topography, the morphology and the gross texture of the tissues, the organs and the systems of the human body, as well as the study of the basic principles that underlie their function. The goal is the acquisition of knowledge about the anatomical structure of the human body and the familirisation with the anatomical parts that constitute it. The practical part complements the theory and helps the students to recognise the topography of the anatomical regions and the organs of the human body. In particular for the Physiotherapy Department, the aim is the in-depth description of the central and peripheral nervous system, and of the autonomous as well. Then follows the gross description of the rest of the systems and organs of the human body, with the focus being in the peptic system and the organs that constitute it, the urinary system, the genital system (male and female) and the sensory organs (eye, ear, nose) regarding their structure and function. Finally, the nervous system is studies in relation to the motor and sensory pathways and their target organs (motor and sensory enervation of the whole musculoskeletal system).

Course Outline

Theoretical – Teaching Units

- Central nervous system, hemispheres. Cerebral lobes, sulci, gyri. Cerebral centres.
- Hemisphere connections, nuclei-basal ganglia, brainstem.
- Cerebellum, medulla oblongata, cerebral ventricles and spinal cord.
- Maters of the brain and the spinal cord. Cerebral blood vessels – Hexagon of Willis. Venous sinuses.
- Cerebrospinal fluid (CSF). Production and circulation of the CSF.
- Peripheral nervous system. Cerebrospinal ganglia, cranial nerves and spinal nerves. Main neural pathways (motor/sensory), neuronal synapses and mapping of the brain.
- Detailed description of the 12 pairs of cranial nerves.
- Peripheral nervous system. Spinal nerves. Plexuses (Cervical, Brachial). Formation of the cervical and brachial plexus and motor and sensory rami with notation of the enervated areas and muscle groups.

- Peripheral nervous system. Plexuses (Lumbar, Sacral, Coccygeal, Pudendal). Formation of lumbrosacral plexus and sensory and motor rami with notation of the enervated areas and muscle groups.
- Autonomous nervous system (Sympathetic – Parasympathetic). Neural pathways for vision, olfaction and hearing.
- Peptic system. Gross description of the organs that constitute the peptic tube. Peptic glands. Brief description of the liver-pancreas. Biliary system. Spleen. Salivary glands (parotid-sublingual-submandibular).
- Urinary system. Brief description of the parts of the urinary system (kidneys, ureters, bladder, urethra (male-female)).
- Male genital system. Brief description of the male outer and inner genital organs. Female genital system. Brief description of the female outer and inner organs. Breast.
- Basic description of the main endocrine glands.
- Anatomy components of the sensory organs. Eye with focus in the ocular muscles of the eye and the occulomotor nerves. Ear – skin.

Practical – Teaching Units

The practical part of the course for the Physiotherapy Department focuses in the presentation of the musculoskeletal and the neuromuscular system, with a gross description and presentation of the other systems. The practical part includes presentation of the neuromuscular system in models and presentation of the main anatomic regions of the human body with the respective systems, with the exception of the respiratory and the circulatory system which are presented in Anatomy I.

- Presentation of the parts of the nervous system. Presentation of the parts of the central nervous system (cerebral hemispheres, brainstem, cerebellum and spinal cord).
- Presentation of the main anatomic components of the parts of the CNS.
- Presentation of the parts of the peripheral nervous system. Presentation of the path of the cranial nerves (cranial foramens)
- Presentation of the main nerves of the various plexuses (cervical, brachial) in the muscle trunk.
- Presentation of the main nerves of the various plexuses (lumbar, sacral) in the muscle trunk.
- Introduction to the study of internal organs. Separation in the model with the assembled organs of the 9 anatomical regions of the abdomen. Placement of the abdominal organs in the respective anatomical regions.
- Presentation of the organs of the peptic system and of the large peptic glands (liver-pancreas). Placement in the model. Presentation of the main anatomical components of each organ, of the biliary system and of the anatomical parts of the pancreas.
- Presentation of the organs of the urinary system and of the genital system (male-female). Presentation of the anatomical relationship and of the main anatomical components of the above organs.
- Presentations of the sensory organs. Presentation of the parts and of the main anatomical components of the hearing organ (outer-middle-inner ear).

- Presentation of the parts and of the main anatomical components of the eye (bulb-occulomotor muscles- lacrimal apparatus-eyelids). Presentation of an anatomical model of the skin and its organelles (hair, sweat and sebaceous glands).
- Presentations of the main glands of the endocrine system (thyroid – parathyroid glands, adrenal glands).
- Revision class for the neuromuscular system. Combination of nerves and muscles. Presentation of selected categories of muscles and nerves based on the judgment of the lecturer or on the selection by the students.
- Revision class for the neuromuscular system. Combination of nerves and muscles. Presentation of selected categories of muscles and nerves based on the judgment of the lecturer or on the selection by the students
- Repetition class for the peptic, the urinary and the genital system. Functions of the above systems and interaction with the autonomous nervous system.
- Assessment of students. Orally or in writing depending on the lecturer.

Teaching Methods

Theoretical

- Lectures and presentations.

Practical

- The students practise on anatomical models and familiarise with the topoghraphy and the function of the systems of the human body.
- The students practise on recognising anatomical structures which are apparent in the surface topography of the human body (applied anatomy).
- The students practise on the action/movement of the muscles of the human body.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of the students in practical exercises.
- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Recognise and describe the anatomical parts of the human body.
- To place the various body parts in the human anatomical model.
- Be familiar with the human body and in particular with the neuromuscular system.
- Recognise the path of the peripheral nerves and associate their branches with the target organs.

Suggested Reading

1. Καμμάς Α. Μαθήματα Ανατομικής. Αθήνα: Εκδόσεις ΒΗΤΑ, 2010.
2. Drake LR. Gray's Anatomy. Αθήνα: Ιατρικές Εκδόσεις ΠΧ Πασχαλίδης, 2007.
3. Faiz O, Moffat D. Anatomy at a Glance. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2006.
4. Johnson E. Νευροανατομία. Αθήνα: Ιατρικές εκδόσεις Κωνσταντάρας, 2012.
5. Kahle W, Leonhart H, Platzer W. Colour Atlas and Textbook of Human Anatomy. Stuttgart: Georg. Theme, 2008.
6. Kiss F, Szentagothai J. Άτλας Ανατομικής του Ανθρώπινου Σώματος. Αθήνα: Εκδόσεις. Ματράγκα, 1977.
7. Netter HF. Atlas of Human Anatomy. Αθήνα: Ιατρικές Εκδόσεις ΠΧ Πασχαλίδης,2004.
8. Putz R. Sobotta R. Atlas of Human Anatomy. Munich: Urban & Fisher, 2008.
9. Rohen WJ. Έγχρωμος άτλας ανατομικής του ανθρώπου. Αθήνα: Ιατρικές Εκδόσεις ΠΧ Πασχαλίδης, 2011.
10. Schunke M, Schulte E, Shumacher U. Βασική Περιγραφική Ανατομική. Γενική Ανατομική & Μυοσκελετικό Σύστημα. Αθήνα: Ιατρικές Εκδόσεις ΠΧ Πασχαλίδης,2007.

Course Description

Name	Pathophysiology
Code	N2-2020
Category	General Core Course, Mandatory
Required	--
Type	Theoretical
Semester	2nd
Teaching hours/week	3 hours (T:3)
ECTS	4

Aims of the Course

The aim of the course is for the students to comprehend the concept of the pathophysiological mechanisms that lead to the presentation of diseases by studying the causes, the background and the expected symptoms in order to contribute in a meaningful way to the provision of health care.

Course Outline

Theoretical – Teaching Units

- General principles: Revision of normal cellular biology and presentations of the usual abnormal lesions of cells and tissues (e.g. involuted lesions, proliferation disorders, atrophy, types of atrophy, necrosis and death, types of necrosis, degeneration and types of degeneration). Specific pathological conditions of the tissues, such as depositions of organic or inorganic substances, calcification, silicosis, lithiasis, pigmented depositions, haemosiderosis, haemochromatosis, jaundice, types of jaundice. Restoration of histopathological lesions, tissue regeneration. Main characteristics of hyperplasia, hypertrophy and metaplasia of the tissues.
- Genetic disease – pathophysiology of selective genetic disorders (e.g. osteogenesis imperfecta, phenylketonuria, fragile X, Down syndrome, etc.) and impact of the genome project on the science of pathophysiology.

Pathophysiological mechanisms per system:

- Disorders of immune mechanisms. Selective pathophysiology for diseases of the immune system (e.g. hay fever, primary inmmunosuppresive diseases, enzyme deficiency diseases, AIDS, etc.)
- Haematological diseases: (genetic, molecular, biochemical and physiological aspects of haematological function and principles of pathophysiology of haematological disorders). Selective pathophysiology of haematological diseases (disorders of the erythrocytes, leukocytes and platelets, e.g. sideropenic and megaloblastic anaemia, thalassaemias, sickle cell anaemia, leukopenia, agranulocytaemia, thrombocytopenia and aplastic conditions, hypercoagulation disorders.
- Infectious diseases - inflammation: Causes of inflammation, types of inflammatory reaction, histopathology of inflammation, significance and consequences of

inflammation. Pathophysiology of selective infectious diseases (e.g. infectious meningitis, endocarditis, pneumonia, diarrhoea, shock, sepsis, etc.).

- Inflammatory rheumatological diseases (acute and chronic): Selective pathophysiology of systemic erythematosus lupus, angiitis, Sjögren's syndrome, gout, etc.).
- Neoplasias: molecular, biochemical and pathophysiological basis of neoplasia. Classification of selective diseases (colorectal cancer, breast cancer, haematological cancers, systemic neoplasias, cancers of the reproductive system in males and females)
- Diseases of the nervous system: Histology, physiology and pathophysiology of the diseases of the upper and lower motor neuron, of the cerebellum, somatosensory diseases, disorders of vision and hearing. Selective pathophysiology of Parkinson's disease, epilepsies, myasthenia gravis, Alzheimer type dementias, etc.
- Dermatological diseases: Anatomy, histology and physiology of the skin and of the main pathophysiological lesions of such diseases. Selective pathophysiology of psoriasis, skin lichen, erythema multiforme, contact dermatitis, allergic dermatitis, erythema nodosum, pemphigus, angiitis, acne, sarcoidosis and dermatomyositis.
- Pulmonary diseases: Selective pathophysiology of chronic bronchitis and of the pulmonary parenchyma (COPD), asthma, fibrosis, pulmonary and cardiac oedema, embolism).
- Cardiovascular diseases: Selective pathophysiological mechanisms of the production and establishment of arrhythmias, of left, right and total heart failure, aortic stenosis, aortic regurgitation, stenosis and regurgitation of the mitral and tricuspid valves, and of congenital heart diseases. Coronary artery disease, pericardial disease, and pathophysiological mechanisms of vascular disease – atherosclerosis in particular, mechanisms of idiopathic and secondary hypertension, and mechanisms of shock. Pathophysiological hormonal factors in cardiac disease.
- Diseases of the adrenal medulla: Pathophysiology of peripheral catecholamine secretion, pheochromocytomas. Diseases of the adrenal cortex: Histology, cellular biology, biochemistry and hormonal production and secretion of the adrenal cortex. Selective pathophysiology of Cushing syndrome, Addison's disease, incidentalomas, primary and secondary hyperaldosteronism and hypoaldosteronism.
- Renal disease: Histology and cellular biology of the kidneys and of the regulation of renal function and of changes during renal diseases. Selective pathophysiology of acute and chronic glomerulonephritis, acute and chronic renal failure, nephrotic syndrome, lithiasis, renal cancer.
- Diseases of the gastrointestinal system and of the liver: General histology, physiology and pathophysiology of the oesophagus, the stomach, the common bile duct, the small and large intestine. Histology, cellular biology, circulation and dysfunction of the hepatocyte, portal hypertension. Selective pathophysiology of oesophageal achalasia, stomach and duodenal ulcer, gastroparesis, diseases of the gall bladder, diseases and inflammations of the small intestine, irritable bowel syndrome, diverticulitis. Selective pathophysiology of hepatic diseases, such as acute or chronic hepatitis, cirrhosis and its systemic complications, hepatic cancer.

- Exocrine pancreas: Pathophysiological mechanisms of acute and chronic pancreatitis, pancreatic insufficiency and pancreatic cancer. Endocrine pancreas: Histology and cellular biology of endocrine pancreas. Hormonal regulation and hormonal disorders in underlying diseases of the endocrine component. Hormonal regulation and hormonal disorders in underlying diseases of the endocrine component. Pathophysiology of diabetes mellitus and other pathological entities, such as insulinoma, glucagonoma, somatostatinoma.
- Diseases of the parathyroid glands and of calcium homeostasis: Histology and cellular biology of parathyroid glands, regulation of the hormonal secretion and disorders. Pathophysiology of primary and secondary parahyperthyroidism, familial hypocalciuric hypercalcaemia, malignant hypercalcaemia, myelomatous thyroid cancer, osteomalacia. Pathophysiology of the onset and establishment of osteoporosis.
- Diseases of the hypothalamus and the pituitary gland: Histology and cellular biology, hormonal actions and clinical manifestations with underlying disorders of the hypothalamus and the pituitary gland. Explanation of the particularities of pituitary embryology for the better understanding of the genetic and congenital element of the diseases. Selective pathophysiology of the types of the pituitary adenomas, hypopituitarism, obesity, diabetes insipidus, syndrome of inappropriate antidiuretic hormone secretion (SIADH).
- Diseases of the thyroid gland: Histology, cellular biology, normal and pathological secretion of the thyroid. Selective pathophysiology of hyperthyroidism, types of hyperthyroidism (Graves disease), hypothyroidism, thyroiditis (Hashimoto), bronchocele, nodules and neoplasms.
- Diseases of the male and female reproductory system: Histology, cellular biology and hormonal secretions of the two systems. Selective pathophysiology of disorders of the ovaries and of the menstrual cycle, uterus diseases, pregnancy and lactation. Male and female hypofertility, prostate hyperplasia, etc.

Teaching Methods

Theoretical

- Lectures and presentations
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Student Assessment

Theoretical

- Final written examination with the option of written assignments.

Learning Outcomes

After completing the course the students should be able to:

- Recognise the pathophysiological mechanisms that underlie various diseases, regarding their onset, systemic manifestations, and their course.

- Present and contribute to the solution of diagnostic and therapeutic problems with the cooperation of the medical personnel.
- Contribute in a meaningful way to the prevention, treatment and therapy of diseases.

Suggested Reading

1. Χανιώτης Φ, Χανιώτης Δ. Νοσολογία – Παθολογία. Αθήνα: Εκδόσεις Λίτσας, 2002.
2. Epstein O, Perkin GD, de Bono DP, Cookson G. Κλινική Εξέταση. Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2004.
3. Fauci A, et al. Harrison's Principles of Internal Medicine. 18th edition. N.Y.: The McGraw-Hill Companies Inc., 2011.
4. Hope RA, et al. Oxford Handbook Κλινικής Ιατρικής. Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2011.
5. Kumar P, Clark M. Παθολογία (2 τόμοι). Αθήνα: Ιατρικές Εκδόσεις Λίτσας, Αθήνα 2007.
6. McPhee S, Canong W. Pathophysiology of disease: An introduction to Clinical Medicine. 6th edition. N.Y.: The McGraw-Hill Companies Inc, 2009.
7. McPhee S, Papadakis M. Current Medical Diagnosis & Treatment 2009. 48th International edition. N.Y.: The McGraw-Hill Companies Inc, 2008.
8. Runge MS, Greganti MA. F. Netter Παθολογία. 1η Έκδοση. Εκδόσεις ΠΧ Πασχαλίδης,2011.
9. Zalourof M. Έγχρωμος Άτλας - Τα Κλινικά Σημεία στην Παθολογία. Εκδόσεις ΠΧ Πασχαλίδης, 2005.

Course Description

Name	Orthopaedics
Code	N2-2030
Category	General Core Course, Mandatory
Required	--
Type	Theoretical
Semester	2nd
Teaching hours/week	hours (T:4)
ECTS	5

Aims of the Course

The aim of the course is for the students to understand the basic concepts of pathology and trauma of the musculoskeletal system and of the organs and systems that affect its function, to acquire skills related to the evaluation of the orthopaedic patient and the associated therapeutic intervention, in order to contribute to the best possible outcome of the conservative or operative orthopaedic treatment, and also to the prevention of the most frequent diseases of the musculoskeletal system.

Course Outline

Theoretical – Teaching Units

- **Introduction – Musculoskeletal system.** Anatomy – Pathology – Kinesiology. History of orthopaedics, terminology, orthopaedic practice, subspecialties, materials for orthopaedics. Approach to the orthopaedic patient: a) diagnosis, b) prognosis, c) treatment.
- **Genetic and congenital diseases.** Down syndrome, neurofibromatosis, Klinefelter syndrome, Ehlers–Danlos syndrome, impact of foetal environment, osteogenesis imperfecta, achondroplasia, multiple exostoses, radioulnar synostosis, congenital aplasias, congenital elevation of the scapula, congenital differentiation of the shape of the fingers, Klippel–Feil syndrome, congenital torticollis. Brief description of the definition, the prevalence, the clinical manifestation, the diagnosis and differential diagnosis, and the protocols for prevention and treatment.
- **Genetic and congenital diseases.** Congenital hip dislocation. Congenital equinovarus, flatfoot, congenital disorders of the spine – kyphosis, lordosis, scoliosis. Brief description of the definition, the prevalence, the clinical manifestation, the diagnosis and the differential diagnosis and of the protocols for prevention and treatment.
- **Metabolic diseases.** Bone, bone metabolism, components of the regulation of the bone metabolism. Bone metabolism and growth. Diseases that lead to the failure of the structure of the bone tissue: osteoporosis, osteomalachia, Paget disease. Clinical manifestation, diagnosis, treatment.

- **Inflammation in orthopaedics.** Definition, ways of dispersal, classification, factors, clinical manifestation, diagnosis. Osteomyelitis (description of the various types and classification with emphasis on the clinical manifestation, diagnosis, therapeutic goals and treatment). Tuberculosis.
- **Inflammatory diseases**. Rheumatoid arthritis, systemic lupus erythematosus, ankylosing spondylitis, gout. Description of the clinical manifestation, the diagnosis, the specialised laboratory and imaging diagnostic methods, protocols of intervention.
- **Osteonecrosis**. Definition, traumatic/non-traumatic osteonecrosis, pathology, stages, therapeutic intervention. Osteonecrosis in the child/teenager (Legg–Calvé–Perthes osteochondritis, fissuring osteochondritis, osteochondritis of the tibial tuberosity, osteochondritis of the heel, Scheuermann disease). Osteochondritis in the adult (osteonecrosis of the lunate/Kienbock disease, osteonecrosis of the femoral head, dysbaric osteonecrosis, secondary osteonecrosis).
- **Osteoarthritis**. Definition, causative and risk factors, pathology, frequency and usual manifestations, clinical picture, diagnostic methods, treatment. Description of clinical picture, imaging methods and treatment of the most frequent types that present in clinical practice.
- **Neuromuscular diseases**. Introduction and gross description of the nervous system. Patient history, clinical examination and evaluation, laboratory and imaging techniques, principles of therapeutic treatment. Poliomyelitis. Cerebral palsy (causative factors, classification, diagnosis based on the age of the patient during examination, therapeutic goals, conservative treatment, operative treatment per region, physiotherapy and occupational therapy protocols).
- **Neuromuscular diseases.** Spastic palsy in the adult. Friedreich ataxia. Spinal cord lesions (clinical picture relative to the level of the lesion, aetiology). Spina bifida (clinical picture, classification, treatment). Reference to motor neuron diseases.
- **Peripheral neuropathies.** Mononeuropathies, multiple neuropathies, polyneuropathies. Seddon & Sunderland classification of neural lesions, clinical picture, clinical tests, assessment of patient, therapeutic goals. Detailed description of peripheral neuropathies per region. Lesions of plexuses and peripheral nerves (cervical, brachial, lumbar plexus and of the main final rami, with emphasis on the clinical picture and the assessment, as well as the treatment).
- **Peripheral neuropathies.** Syndromes of nerve entrapment. Syndrome of thoracic outlet, entrapment of suprascapular nerve, syndromes of entrapment of the ulnar nerve (cubital tunnel, Guyon's canal), entrapment of the radial nerve (dorsal interosseous nerve, paresis), syndromes of entrapment of the median nerve (carpal tunnel syndrome, syndrome of pronator teres, entrapment of anterior interosseous nerve), tarsal tunnel syndrome, femoral paraesthesia.
- **Pain**. Perception of pain, acute, chronic, complex.
- **Compartment syndromes.** Definition, clinical picture, treatment. Syndrome of anterior leg compartment, Volkmann syndrome.
- **Fractures (#).** Definition. Classifications. Mechanism, process and timetable of porosis. Diagnosis, clinical picture, imaging methods. General guidelines for treatment. A) Reduction: closed reduction (with manipulation, skin or skeletal traction), open reduction (indications). B) Immobilisation, preservation of reduction:

traction, braces, casts, callipers, functional braces, external fixation, internal fixation (indications, advantages, disadvantages, complications). C) Exercise, functional rehabilitation.

- **Fractures (#).** Open fractures. Classification. Treatment. Complications of fractures: Immediate, further, gereralised. Fatigue fractures: Definition, usual locations, diagnosis, treatment. Fractures in the child: Particularities of the growing skeleton, description of the structure of the epiphysis. Salter–Harris classification, treatment principles.
- **Painful syndromes of the spine.** Discopathy. Gross description of the anatomy of the intervertebral disc and of the pathology of the disc and the spine ligaments. **Low back pain/sciatica.** Definitions, terminology, frequency of manifestation, clinical picture, assessment of patient, clinical tests, imaging methods, conservative or operative treatment, rehabilitation protocols. **Spondylolisthesis**. Definition, pathology, classification/stages, treatment. **Prolapse in the cervical spine**. Clinical picture, imaging methods, diagnosis, treatment. **Ossification of the posterior longitudinal ligament** and **spinal stenosis**.
- **Spinal injuries.** Classification, mechanisms, neurological assessment, clinical picture, treatment principles relative to manifestation or not of neural lesion and location of injury. Injuries of the spine per region, with emphasis on clinical/laboratory tests, assessment and treatment. **Cervical spine injuries**. Atlantooccipital dislocation, #C1, #C2, # of mid – lower cervical spine, whiplash injury. Injuries of the thoracic spine. Compression, burst, sphenoid fractures, fractures/dislocations, "safety belt" fractures.
- **Painful syndromes of the upper extremity**. Per region: Gross anatomical description, clinical picture, diagnostic methods, therapeutic treatment and rehabilitation of disorders of the upper extremity. **Shoulder girdle**: Anatomy of the shoulder joint. Impingement syndrome. Acute calcifying myositis. Tendinitis of the shoulder rotator cuff. Tear of the rotator cuff. Injuries of the glenoid labrum (SLAP & Bankart), biceps brachii tendinitis. Shoulder instability. Frozen shoulder. **Elbow**: Bursitis. Epicondylitis (tennis & golfer's elbow). Tendinitis of the distal insertion of the biceps brachii. **Wrist**: De Quervain tenosynovitis. Trigger finger (stenosing tenosynovitis), flexor/extensor tendinitis (overuse). Wrist nodules. DuPuytren syndrome (shortening of the palmar aponeurosis).
- **Injuries of the upper extremity**. Fractures. Muscle and tendon injuries. Clinical picture, diagnosis, classification, treatment-rehabilitation. **Shoulder girdle**: # clavicle, # scapula, #/dislocation of shoulder, # arm. **Elbow**: # distal end of arm in children and adults, # radius, # olecranon. **Forearm**: fractures of the forearm bones (one or both). # Monteggia. # Galeazzi.
- **Injuries of the upper extremity. Forearm and wrist.** Fractures of the distal end of the forearm (# Coles, # Smith, # Barton). **Wrist and hand.** Wrist sprain, # of a wrist bone (# navicular, # capitate, # hamate). Injury of the triangular fibrocartilage complex. Instability of the wrist (VISI/DISI). Fractures of the metacarpal bones (# of neck, shaft, base). Fractures of the thumb (Rolando's, Bennet's). Fractures of the phalanges (types, treatment, fracture of the distal phalange). Injuries of joints (fractures/dislocation of carpometacarpal joints, metacarpophalangeal joints and phalangophalangeal joints, injuries of collateral ligaments).

- **Injuries of the upper extremity.** Injuries of flexors/extensors. Amputations and reattachments.
- **Painful syndromes of the lower extremity**. Per region: Gross anatomical description, rehabilitation of the injuries of the lower extremity. **Hip**. Bursitis. Tronchanteritis. **Knee**. Baker cyst. Bursitis. Syndrome of patellofemoral overloading, chondromalacia patellae. Plica syndrome of the knee. **Ankle and foot**. Achilles tendinitis. Plantar aponeurositis. Peroneal tendinitis. Metatarsalgia. Hallux valgus. Hallux rigidus. Mallet toes. Crossover small toe.
- **Injuries of the lower extremity**. Fractures. Muscle and tendon injuries. Clinical picture, diagnosis, classification, treatment – rehabilitation. **Pelvis**. Isolated fractures with the pelvic ring intact, # with tear of the pelvic #, # of acetabulum. **Hip joint**. Hip dislocation (anterior/posterior). Femoral neck fractures. Transtrochanteric and subtrochanteric fractures. Femoral shaft fractures. Knee. Supracondylar femoral fractures. Femoral condyles fractures. Epiphysiolisthesis of femoral condyles.
- **Injuries of the lower extremity**. **Knee**. Patellar fractures. Tear of extensor mechanism. Detachment of tibial tuberosity. Dislocation of the patella. Injuries of collateral patellar ligaments. Quadriceps tears. Menisci tears. Injuries of the anterior and/or posterior cruciate ligament. Injuries of the lateral ligaments of the knee. Fractures of the proximal end of the tibia (# plateau). Tibial shaft fractures. Peroneal fractures. **Ankle and foot**. Ankle sprains. Injuries of the lateral ligaments of the ankle. Injuries of the distal tibioperoneal joint. Fractures of the distal end of the tibia. Fracture of one malleolus, bimalleolus, trimalleolus. Fractures of the tarsal bones (fracture of the talus, the heel, the navicular). Fractures of the metatarsal bones. Fractures of the phalanges. Achilles tendon tear.
- **Neoplasms in orthopaedics**. Clinical picture, history, imaging methods, laboratory tests, principles of treatment. **Benign tumours**. Nonossifying fibroma. Osteoid osteoma. Osteoblastoma. Chondroma (enchondroma/ecchondroma). Osteochondroma. Aneurysmal cyst. Simple solitary cyst. Gigantocytic tumour. **Malignant neoplasms**. Classification based on tissue. Stages of neoplasms. Osteosarcoma. Fibrosarcoma. Chondrosarcoma. Ewing's sarcoma.
- Presentation of case studies with musculoskeletal disorders, simulation of diagnosis, clinical examination of patient, diagnostic and treatment tools.

Teaching Methods

Theoretical

- Lectures and presentations.
- Simulation of diagnosis.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Recognise the main signs and symptoms of a musculoskeletal disease and the other possible systems that may be involved in the said disease.
- Be aware of the main signs and symptoms of a musculoskeletal injury and recognise it in various imaging methods.
- Utilise the proper clinical examination and assessment techniques.
- Participate in a differential diagnosis.
- Be aware of the therapeutic options for every disease/injury of the musculoskeletal system.
- Be aware of the main therapeutic protocols that are applied to musculoskeletal disorders for prevention and treatment (conservative or operative).
- Participate in the rehabilitation of the patient in a hospital unit.

Suggested Reading

1. Καμμάς Α. Εισαγωγή στην Ορθοπεδική. Αθήνα: Εκδόσεις Α. Καμμάς, 1999.
2. Συμεωνίδης Π. Ορθοπεδική. Κακώσεις και Παθήσεις του Μυοσκελετικού Συστήματος. Θεσσαλονίκη: University Studio Press, 1999.
3. Χαρτοφυλακίδης Γ. Θέματα Ορθοπεδικής και Τραυματολογίας. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε, 1990.
4. Appley AG. Solomon L. Σύγχρονη Ορθοπεδική και Τραυματολογία. Αθήνα: Εκδόσεις Πασχαλίδη, 2007.
5. Brotzman S. Wilk E. Kevin. Ορθοπαιδική Αποκατάσταση στην Κλινική Πράξη. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2007.
6. Evans CR. Instant Access to Orthopedic Physical Assessment. MO:Mosby, 2009.
7. Fu HF. Master techniques in orthopaedic Surgery: Sports Medicine. NY: Lippincott Williams & Wilkins, 2010.
8. Huvos A. Bone tumors. Diagnosis, Treatment, Prognosis. Saunders, 1990.
9. Leversedge JF, Boyer IM, Goldfarb AC. A Pocketbook Manual of Hand and Upper Extremity Anatomy: Primus Manus. NY: Lippincott Williams & Wilkins, 2010.
10. Magee JD. Orthopedic Physical Assessment. Saunders, 2007.
11. McRae R. Clinical Orthopaedic Examination. Αθήνα: Κωνσταντάρας Ιατρικές Εκδόσεις, 2010.
12. Norkin C, White DJ. Measurement of Joint Motion: A Guide to Goniometry. Davis Company, 2009.
13. Russell Stephen. Κλινική εκτίμηση της βλάβης των περιφερικών νεύρων. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.
14. Thompson CJ. Netter's Concise Orthopaedic Anatomy. Saunders, 2009.
15. Weinstein SL, Buckwalter JA. Turek's Orthopaedics. Principles and their application. JB. Lippincott, 2005.
16. Wiss D. Master Techniques in Orthopaedic Surgery: Fractures, NY: Lippincott Williams & Wilkins, 2012.

Course Description

Name	Neurophysiology
Code	N2-2040
Category	General Core Course, Mandatory
Required	
Type	Theoretical
Semester	2nd
Teaching hours/week	3 hours (T:3)
ECTS	4

Aims of the Course

The aim of the course is for the student to understand the main neurophysiological mechanisms and the neurophysiological basis of motor control and sensation. Another basic goal is the understanding of the arousal and inhibition mechanisms, the information transmission mechanisms and the neurotransmitter function mechanisms.

Course Outline

Theoretical – Teaching Units

- Role of the nervous system. Functional and anatomical classification. Neuron. Neurology.
- Functional anatomy of the spinal cord. Roots, plexuses, peripheral nerves.
- Functional anatomy of the brain: Midbrain, cranial nerves, cerebellum.
- Functional anatomy of the brain: Diencephalon, basal ganglia, telencephalon.
- Functional anatomy of the brain: Blood supply, maters, cerebral ventricles, cerebrospinal fluid.
- Motion: Muscle tone, tendon reflexes, pyramidal tract, extrapyramidal tract.
- Sensory pathways: Posterior fasciculus, spinothalamic tracts.
- Vision pathway.
- Study of clinical syndromes: Central and peripheral palsy, sensory syndromes, combined lesions.
- Rest potential – action potential – impulse.
- Synaptic transmission – neurotransmitters. Neuromuscular junction. Muscle contraction.
- Neurophysiological methods for the investigation of the nervous system: Electromyography, Electroencephalography. Evoked potentials.

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Understand the neurophysiological problems of patients with central or peripheral lesions.
- Apply their knowledge to key points of the clinical assessment and perform clinical reasoning for patients of all ages.
- Understand the main diagnostic neurophysiological laboratory tests that will enable them to plan a more targeted and evidence-based therapy.
- Understand the main principles and record the special needs of the patients, such as balance disorders, cognitive and sensory disorders.

Suggested Reading

1. Barker A, Barasi S. Neal M. Neuroscience at a glance. 4th edition. U.K.: Blackwell Science Ltd, 2012.
2. Carpender R. Neurophysiology. 3rd edition. London: Arnold, 2003.
3. Coffman T, Crowley S. Kidney in Hypertension. Hypertension. 2008;51:811-816.
4. Daube RJ, Rubin ID. Clinical Neurophysiology (Contemporary Neurology). Oxford: Oxford University Press, 2009.
5. Gilman S, Newan SW, Manter JT. Manter and Gatz's Essentials of Clinical Neuroanatomy and Neurophysiology. 10th edition. USA: F.A. Davies Company,2002.
6. Guyton A. Φυσιολογία του Ανθρώπου. Αθήνα: Ιατρικές Εκδόσεις Λίτσας, 2004.
7. Kandel E, Schawartz J, Jessel T, Siegelbaum St, Hudspeth. Principles of Neural Science. U.S.A: Mc Graw-Hill Companies, 2013.
8. Netter HF, Graig AG, Terkins J. Atlas of Neuroanatomy and Neurophysiology. Selections from Netter collection of medical illustrations. USA: Icon Custom Communications, 2002.
9. Preston CD, Shapiro EB. Electromyography and Neuromuscular Disorders: Clinical Electrophysiological Correlations. USA.: Elsevier -Sauders, 2012.
10. Squire LR, Bloom FE, Spitzer NC, DuLac S, Ghosh A, Berg D. Fundamental Neuroscience. 3rd edition. Amsterdam: Elsevier, 2008.

Course Description

Name	Physical Agents in Physiotherapy
Code	N2-2050
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical and Practical
Semester	2nd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is for the students to understand the effect of physical agents on the human organism and to acquire skills concerning the therapeutic schema of their application in various disorders and syndromes.

Course Outline

Theoretical – Teaching Units

- Thermotherapy. Physiological tissue responses to a rise in temperature. General indications – contraindications for thermotherapy.
  Superficial thermotherapy. Radiant heat, luminous/non-luminous generator of infrared radiation. Hot packs.
  Superficial thermotherapy. Paraffin bath. Whirlpool. Mineral baths.
- Microwave diathermy. Effect on tissues, physiological responses. Indications, contraindications.
- Ultrasound. Biophysics of ultrasound. Effect of ultrasound on tissues. Application of shockwave therapy.
  Analysis of application parameters of ultrasound. Application techniques. Phonophoresis. Indications and contraindications for ultrasound.
- Cryotherapy. Physiological responses to the reduction of temperature. Agents and devices of cryotherapy. Indications and contraindications.
- Thermotherapy versus cryotherapy. Comparison of the physiological effects on tissues. Indications for the application of thermotherapy or cryotherapy at various stages of diseases and syndromes. Combination of the two therapeutic methods.
- Magnetic fields. Therapeutic properties. Physiological effects on tissues. Indications-contraindications. Description of devices, instructions for application.
- Laser. Radiation parameters. Physical characteristics, operation modes of the devices. Analysis of parameters and of physiological effects on tissues. Indications and contraindications.
- Categorisation of physical agents (superficial and deep thermotherapy, ulstrasound, magnetic fields, laser) depending on their action: analgesia, spasmolytic, anti-oedematic, reduction of joint stiffness, anti-inflammatory. Comparison of their effectiveness. Criteria for selection and combination.

- Therapeutic schemas. Primary and secondary action of physical agents. Sequence of application. Therapeutic protocols in acute, subacute and chronic pathological conditions.

Practical – Teaching Units

- Application of superficial thermotherapy. Presentations of agents and devices. Analysis of their function.
- Application of infrared. Analysis of the particularities of application depending on the site of application. Indications and contraindications. Regulation and service.
- Application of whirlpool/paraffin bath. Operation modes of devices. Techniques of application to body parts. Correct use of devices and handling of disposables.
- Microwave diathermy. Application to body parts. Regulation of device parameters.
- Ultrasound. Application of ultrasound to body parts. Regulation of device parameters. Indications and contraindications for use.
- Special techniques of ultrasound application. Phonophoresis. Correct regulation and service of devices. Ways of evaluating correct function and resonance.
- Cryotherapy. Techniques of application. Presentation of devices for the reduction of the temperature of the human body.
- Magnetic fields. Techniques of application. Regulation of device parameters.
- Laser. Application of scanning laser to body parts. Regulation of device parameters. Safety measures for the patient and the physiotherapist.
- Laser. Application with a probe to specific body parts. Regulation of parameters. Safety measures for the patient and the physiotherapist.
- Therapeutic schemas and application protocols of physical agents in acute and chronic diseases of the musculoskeletal system.
- Therapeutic schemas and application protocols of physical agents in acute and chronic injuries of the musculoskeletal system.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practise on laboratory and clinical problems for the planning and application of electrical stimulation protocols.

Student Assessment

Theoretical

- Final written examination with the option for assignments.

Practical

- Intermediate assessments of the students in practical teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Understand the effects, the indications and contraindications of the application of physical agents.
- Communicate to the patient the purpose of the application of any physical agent, the benefits, the expected therapeutic result, the potential dangers, and to obtain the patient's written informed consent.
- Select, after assessment and with the patient's cooperation, the proper therapeutic schemas and application protocols for physical agents.
- Adapt the therapeutic protocol to the condition and to the particularities of each patient, considering issues related to the patient's ethnicity, religion and beliefs.
- Cooperate with other health care professionals when necessary (multidisciplinary meetings).

Suggested Reading

1. Γιόκαρης Π. Θεραπευτικά Σχήματα - Κλινική Ηλεκτροθεραπεία. Αθήνα: Εκδόσεις Γράμμα Α.Ε., 2007.
2. Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση. Τόμος 1ος. Αθήνα: Ιατρικές Εκδόσεις Ζήτα, 1995.
3. Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία - Θεωρία και Πράξη Μεθόδων Ηλεκτροθεραπείας . Θεσσαλονίκη: Εκδόσεις Πετρούλα , 1994.
4. Mackler L, Robinson A. Clinical Electrophysiology: Electrotherapy and Electrophysiologic Testing. Third Edition. Baltimore, MD: Wolters Kluwer - Lippincott Williams & Wilkins, 2008.
5. Nelson RM, Currier DP, Hayes KW. Clinical Electrotherapy. Third Edition. USA: Apleton & Lange, 1999.
6. Robertson V, Ward A, Low J, et al. Electrotherapy Explained. Principles and Practice. 4th Edition. Edinburgh: Butterworth¬ Heinemann, 2006.
7. Robertson V, Ward A, Low J, et al. Ηλεκτροθεραπεία - Βασικές Αρχές και Πρακτική Εφαρμογή. 4η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
8. Watson T. Ηλεκτροθεραπεία – Τεκμηριωμένη Πρακτική. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2011.
9. William P. Therapeutics Modalities in Rehabilitation. 4th Edition. Columbus, OH: McGraw-Hill Global Education Holdings, 2011.

Course Description

Name	Kinesiology II
Code	N2-2060
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	2nd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is the analysis of the structure and the function of the joints of the upper and lower half of the human body. The range of motion, the kinematics, the kinetics and the arthrokinematics of the spine, the pelvic girdle and the lower extremity are examined. In addition, the movements of the lower extremity, the spine and the pelvic girdle during various everyday activities are analysed. Finally, the functional strength and the musculoskeletal ability are assessed with manual techniques.

Course Outline

Theoretical – Teaching Units

- Introduction to Kinesiology II. Structure, kinematics and pathokinematics of the spine.
- Structure and function of the neck Structure and function of the thorax. Mechanical analysis of breathing.
- Structure, function and pathomechanics of the lumbar spine.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the pelvic girdle.
- Structure of bones, description of the joint and muscles of the hip.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the hip.
- Structure of bones, description of the joint and muscles of the knee.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the knee.
- Structure of bones, description of the joints and muscles of the ankle and foot.
- Arthrokinematics, kinematics, kinetics and pathomechanics of the ankle and foot.
- Mechanics of the normal and abnormal standing posture.
- Analysis of the human gait. Application of kinesiology principles of the lower extremity and the trunk for special therapeutic purposes such as: Rehabilitation of motion in the spine and the lower extremity for the correction of posture and for the regaining of normal gait.

Practical – Teaching Units

- Palpation of anatomical landmarks such as bone prominences, joint spaces, ligaments, tendons and muscles of the spine. Examination of the structure of the curves and of the movements of the spine.
- Palpation, motion analysis and muscle testing for the neck. Palpation, motion analysis and muscle testing for the thorax. Mechanical analysis of breathing.

- Palpation, motion analysis and muscle testing for the lumbar spine.
- Palpation of anatomical landmarks such as bone prominences, joint spaces, ligaments, tendons and muscles of the pelvic girdle.
- Motion analysis and muscle testing for the pelvic girdle.
- Palpation of anatomical landmarks such as bone prominences, joint spaces, ligaments, tendons and muscles of the hip.
- Motion analysis and muscle testing for the hip.
- Palpation of anatomical landmarks such as bone prominences, joint spaces, ligaments, tendons and muscles of the knee. Motion analysis and muscle testing for the knee.
- Palpation of anatomical landmarks such as bone prominences, joint spaces, ligaments, tendons and muscles of the foot.
- Motion analysis and muscle testing for the foot.
- Analysis and correction of the posture.
- Analysis and correction of the human gait.
- Analysis of complex movements.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading of lectures and the circulation of scientific articles.

Practical

- The students practice, in appropriate attire and in groups, palpation, the assessment of muscle power, and the analysis of posture, motion and gait.

Student Assessment

Theoretical

- Final written examination.

Practical

- Intermediate assessments of the students in practical teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Describe the structure and the joint kinematics of the spine and the pelvic girdle.
- Describe the structure, the movements and the forces acting on the hip joint.
- Explain the structure and the function of the knee joint.
- Understand the complexity of the architecture and the functional activity of the ankle and foot.
- Analyse the various motor patterns and describe the agonists, antagonists, synergists and fixator muscles.
- Describe the normal posture and gait, recognise abnormal movements and suggest ways of improvement.

Suggested Reading

1. Hislop HJ, Montgomery J. Έλεγχος της Μυϊκής Λειτουργικής Ικανότητας. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2000.
2. Kapandji IA. Η Λειτουργική Ανατομική των Αρθρώσεων, Τόμοι 1,2,3. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2001.
3. Kendall PF, McCreary E, Geise P, et al. Muscles: Testing and Function with Posture and Pain. 5th Edition. Philadelphia PA: Lippincott Williams & Wilkins, 2005.
4. Levangie P, Norkin C. Joint Structure and Function: A Comprehensive Analysis. 5th Edition. Philadelphia PA: F.A. Davis Company, 2011.
5. Neumann DA. Kinesiology of the Musculoskeletal System: Foundations for Physical Rehabilitation. 2nd Edition. St. Louis, MO: Mosby Co, 2010.
6. Oatis C. Κινησιολογία. Η Μηχανική και η Παθομηχανική της Ανθρώπινης Κίνησης. Τόμοι 1,2,3. 2η Έκδοση. Αθήνα: Εκδόσεις Gotsis, 2013.
7. Smith L, Weiss E, Lehmkuhl LD. Brunnstrom's Κλινική Κινησιολογία. 5η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
8. Soderberg GL. Kinesiology: Application to Pathological Motion. 2nd Edition. Baltimore: Lippincott Williams & Wilkins, 1997.

3rd Semester

	3rd Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Massage Techniques	SC	M	3	2	5	N2-3010	5
2.	Methods and Techniques of Neuromuscular Re-education	S	M	3	2	5	N2-3020	5
3.	Neurology	GC	M	3	-	3	N2-3030	5
4.	Kinesiotherapy	S	M	3	2	5	N2-3040	5
5.	Electrotherapy	S	M	3	2	5	N2-3050	5
6.	Pathology	GC	M	3	-	3	N2-3060	5
	Total			18	8	26		30

Course Description

Name	Massage Techniques
Code	N2-3010
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	3rd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is to educate students in the assessment and treatment of problems with the application of massage techniques. The students are taught the role and the contribution of the massage techniques to the improvement of dysfunctions of the skin, the fasciae, the musculotendinous unit, the peripheral circulatory and the lymphatic system. The teaching units focus on: a) an understanding of the physiological and biological effects of the various techniques, b) understanding of the basic application principles of the various techniques according to the international research evidence base, c) recognition of the indications and contraindications according to the disease and the therapeutic goals, d) practice in the development of selection criteria for the application of the proper techniques in diseases such as painful syndromes –local or generalised– circulatory problems in the upper or lower extremity, respiratory problems and psychogenic conditions. The students practise on special therapeutic schemas relative to the isolated or combined application of massage with physical agents and therapeutic exercise according to the planning of therapeutic protocols recorded in the international arthrography.

Course Outline

Theoretical – Teaching Units

- Introduction to massage techniques: a) History of massage techniques, b) Basic application principles of classic massage techniques, c) Introduction to the therapeutic goals of massage.
- Description and analysis of the skin in relation to massage. Anatomical and functional skin components.
- Skin and nervous tissue. The concept of pain and its inhibition in relation to transcutaneous techniques. Evidence-based practice.
- Description and understanding of basic functions of the musculotendinous unit. a) Massage and musculotendinous system, b) Muscles, fasciae, muscle spasm, spasticity, trigger points, tender points, c) Indications and contraindications, d) Therapeutic results. Evidence-based practice.
- Description and understanding of the basic functions of the circulatory system: a) Massage and the circulatory system, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.

- Techniques of classical massage: a) Technical points of application, palpation, b) Light stroke, deep stroke, kneading, c) Pressure, vibration, percussion.
- Special massage techniques: a) Deep transverse friction, b) Scar tissue massage, c) Functional massage, d) Indications and contraindications, e) Therapeutic results. Evidence-based practice.
- Connective tissue massage: a) Connective tissue massage techniques, b) Indications and contraindications, c) Therapeutic results, d) Evidence-based practice.
- Lymph massage: a) Techniques of lymph massage, b) Indications and contraindications, c) Therapeutic results. Evidence-based-practice.
- Reflex points massage. Correlation with acupuncture points. a) Techniques for the stimulation of reflex points, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage in sports. a) Effect of massage on sport activities, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage and psychogenic factors. a) Psychological effect of massage, b) Indications and contraindications, c) Therapeutic results. Evidence-based practice.
- Massage and a) Indicative applications in problems of the spine and extremities, b) Selection criteria of a massage technique, c) Therapeutic schemas. Evidence-based practice.

Practical – Teaching Units

- Palpation. a) Palpation of the skin, muscles and tendons, b) Evaluation of findings.
- Application of classic massage techniques after simulation of assessment and advising the patient in order to obtain informed consent regarding the type of therapy. a) Light strokes, pressure, deep stroke, kneading, b) Application to upper and lower extremities and to the trunk.
- Application of classic massage techniques to the upper and lower extremity. Vibration, percussion, chopping, hacking, tapping, slapping.
- Application of classic massage techniques to the trunk. Vibration, percussion, chopping, hacking, tapping, slapping.
- Deep massage. a) Application of deep massage to the trunk and extremities, b) Application of massage techniques for the mobilisation of scar tissue.
- Functional massage. a) Application to the lower extremities. b) Application to the trunk.
- Connective tissue massage. a) Evaluation of connective tissue problems, b) Application to special problems.
- Lymph massage. a) Evaluation of lymphatic system problems, b) Application to special problems such as primary lymphoedema, post-surgery lymphoedema, post-traumatic lymphoedema.
- Reflex points massage. a) Application of special techniques to trunk reflex points, b) Application of special techniques to reflex points of the upper and lower extremities.
- Massage to the abdomen. a) Assessment, b) Application to pathological, presurgery and post-surgery cases.
- Application of massage techniques in sports. Pregame, postgame and training period. Applications for special problems.

- Application of combination of therapeutic schemas of classical massage and reflexology techniques to trigger points and tender points.
- Application of combination of therapeutic schemas of classical massage and reflexology techniques to acupuncture points.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- Recognition and haptic perception of the clinical problems per region and functional structure.
- Self-experience of the massage techniques, understanding of the patient psychology for the acceptance of the therapy and respecting his/her wishes.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Intermediate assessments in teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Comprehend the beneficial effect of massage on the various systems.
- Develop basic skills for the assessment and the selection criteria of the various techniques and to apply with competence and safety the assessment tests and the massage techniques.
- Develop the necessary critical thinking for the application of therapeutic massage in combination with other physiotherapy modalities and methods.
- Plan individualised interventions as well as a composite therapeutic programme with soft-tissue techniques.
- Develop basic skills for the identification of indications and contraindications during the physiotherapeutic assessment and during the planning of the therapeutic schemas, according to international ethical and scientific guidelines.

Suggested Reading

1. Κουράκου Μ, Καρκασίνα Χ, Σεφεριάδης Μ, Σφετσιώρης Δ, Πέττα Γ. Επίδραση της μάλαξης του προσώπου σε ψυχοφυσιολογικές παραμέτρους. 23ο Συνέδριο Φυσικοθεραπείας της Ελληνικής Επιστημονικής Εταιρείας Φυσικοθεραπείας. Αθήνα: 4-6 Δεκεμβρίου 2009. Θέματα Φυσικοθεραπείας. 2009; 5(8):54.

2. Μπάκας Ε. Κινητοποίηση Μαλακών Ιστών-Μάλαξη. Τόμος 3ος. Στο Μπάκας Ε. Φυσική Ιατρική & Αποκατάσταση. Θεσσαλονίκη: Εκδόσεις Σιώκης, 1999.
3. Σακελλάρη Β. Τεχνικές Μάλαξης. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
4. Σφετσιώρης Δ. Θεραπευτική Μάλαξη. Αθήνα: Εκδόσεις D.K.S., 2003.
5. Boris A, et al. Pathogenesis of soft tissue and bone repair. Chapter 1, pp: 3-19. In Cantu R., Steffe J. Rehabilitation for the postsurgical orthopedic patient. 2nd edition. USA: Mosby, Elsevier Inc, 2007.
6. Cantu RJ and Grodin AJ. Myofascial manipulation. Therapy and clinical application. 3rd edition. Gaithersburg: Aspen Publication, 2011.
7. Cassar MP. Handbook of Massage Therapy. USA: Butterworth-Heinemann, 1999.
8. Cornel E. How to become a better therapist. American Massage Therapy Association. 2001; 40:2.
9. Cyriax J. Cyriax's illustrated manual of orthopaedic medicine. 3rd Edition. Oxford: Butterworth, 1996.
10. Dicke E, Schliack H and Wolf A. A manual of reflexive therapy of the connective tissue. Scarsdale, NY: Sidney's Simon Publishers, 1978.
11. Giovanni De Domenico. Principles and Practice of Soft Tissue Manipulation. 5th Edition. Missouri: Saunders Elsevier, 2007.
12. Harris R. et al. Manual Lymphatic Drainage Research. Journal of Bodywork and Movement Therapies. 2003; 7:4.
13. Hernandez-Reif M, et al. Premenstrual syndrome symptoms are relieved by massage therapy. Journal of Psychosomatic Obstetrics & Gynecology. 2000; 21:9-15.
14. Hopwood V, et al. Acupuncture & Related Techniques in Physical Therapy. New York: Churchill Livingstone, 1997.
15. Hudson MC. Massage. London: Dorling Kindersley. Lim, 1999.
16. Tappan EM. Healing massage technique: a study of eastern and western methods. Reston, VA: Reston Publishing Co, 1978.

Course Description

Name	Methods and Techniques of Neuromuscular Re-education
Code	N2-3020
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	3rd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is for the students to comprehend the main motor control theories, how these theories were created and developed, the therapeutic approaches and the various physiotherapeutic approach techniques through neuromuscular control and neuromuscular reeducation, with the main goal being the assessment of the patient and the evidence-based selection of the most appropriate method for the patient's treatment and rehabilitation.

Course Outline

Theoretical – Teaching Units

- Theories and physiology of motor control. Classic models of motor control. Hierarchical model – Reflex model – Systems model. Limitations of motor control.
- Motor learning. Theories of motor learning. Regaining function.
- Normal and abnormal posture control. Motor functions. Normal and abnormal motion.
- Motor patterns. Sensory and perceptional disorders.
- Proprioceptive Neuromuscular Facilitation (PNF). Rationale and method principles. Patterns of the head, the upper and lower extremity and of the trunk.
- PNF techniques. Procedures. Activities on mattress.
- Bobath method. Rationale and method principles.
- Brunnstrom method: Rationale and method principles.
- Carr and Shepherd method: Rationale and method principles.
- Peto method: Conductive education. Rationale and method principles.
- Perfetti method: Cognitive rehabilitation. Rationale and method principles.
- Vojta method: Rationale and method principles.
- Sensory integration method: Jean Ayres method: Rationale and method principles.
- Assessment of evidence-based selection criteria for the most appropriate method.
- Similarities and differences of the main methods.

Practical – Teaching Units

- Classification and organisation of activities according to the theories of motor control. Differentiation of the various activities according to the level of difficulty. Clinical examples. Application.
- Learning ways to transfer activities. Clinical examples.

- Application of the reflex, the hierarchical and the systems theory for the assessment and the development of postural control. Clinical examples.
- Classification and assessment of motor patterns. Clinical testing of motor, sensory and perceptual deficits.
- Proprioceptive Neuromuscular Facilitation (PNF). Practical application of the method patterns.
- PNF. Practical application of the method techniques and procedures.
- Bobath method: Therapeutic techniques at various stages. Assessment protocols.
- Brunnstrom methods: Therapeutic techniques at various stages. Exercise using main synergies.
- Carr and Shepherd method: Assessment protocols. Application.
- Peto method: Patient assessment and modes of application.
- Perfetti method: Patient assessment and modes of application.
- Vojta method: States and modes of application.
- Selection of the most appropriate method with reference to clinical cases.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practice using each therapeutic approach and planning a rehabilitation programme after assessing the patient.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of the students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Discuss the theoretical basis of neurodevelopmental approaches and describe the characteristics of each motor stage.
- Select the most appropriate technique for each patient after a detailed assessment.
- Adapt the therapeutic protocol to the diseases and the particularities of each patient, taking into account issues related to the patient's ethnicity, religion and beliefs.
- Cooperate with other health care professionals when necessary (multidisciplinary meetings).

Suggested Reading

1. Ayres J. Sensory Integration and the child, 25th Anniversary Edition. U.S.A.: Western Physiological Services, 2005.
2. Bobath B. Ενήλικας Ημιπληγικός (Αξιολόγηση και Θεραπεία). Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
3. Brown M, Mikula-Toth A. Adult Conductive Education. A Practical Guide. U.K.: Nelson Thornes, 1997.
4. Carr J, Shepherd R. Νευρολογική Αποκατάσταση: Βελτιστοποίηση των Κινητικών Επιδόσεων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2004.
5. Cook A, Woollacott M. Κινητικός Έλεγχος. Αθήνα: Εκδόσεις Π.Χ.Πασχαλίδης, 2012.
6. Perfetti C, Briganti S, Noccioli V, Conconello R. L' exercice thèrapeutique cognifit pour la rèeducation du patient hèmiplègique. Paris: Masson, 2001.
7. Sawner K, La Vigne J. Κινησιοθεραπεία στην Ημιπληγία από την Brunstrom (Νευροφυσιολογική Προσέγγιση). Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 1998.
8. Vojta V, Peters A. Das Vojta-Prinzip. Muskelspiele in Reflexfortbewegung und Motorischer Ontogenese. Berlin: Springer Berlin, 2007.
9. Adler SS, Beckers D, Buck M. Η Μέθοδος P.N.F. Θεσσαλονίκη: Εκδόσεις ΣΙΩΚΗΣ, 1997.

Course Description

Name	Neurology
Code	N2-3030
Category	General Core Course, Mandatory
Required	--
Type	Theoretical
Semester	3rd
Teaching hours/week	3 hours (T:3)
ECTS	5

Aims of the Course

The aim of the course is for the students to understand the clinical picture of disorders of the nervous system and their effects on the nervous and muscular system and on the skeleton, and to acquire skills for the assessment and treatment of said disorders, in order to manage and contribute to the treatment of patients with neurological and neuromuscular problems. Another aim is for the students to understand and apply measurements which are useful for the assessment of patients with motor disorders. Finally, an important aim is for the students to develop and try innovative interventions based on research into neural control over complex movements.

Course Outline

Theoretical – Teaching Units

- Revision of basic anatomy: Spinal cord, peripheral nervous system.
- Revision of basic anatomyBrainstem, cranial nerves, cerebellum, midbrain, telencephalon and basal ganglia.
- Revision of basic anatomy: Motion.
- Revision of basic anatomy: Visual pathway.
- Objective neurological examination.
- Signs of neurological diseases.
- Multiple sclerosis and various demyelinating diseases.
- Vascular diseases of the brain: Ischaemic stroke. Haemorhagic stroke.
- Degenerative diseases: characteristics, classification. Amyotrophic lateral sclerosis, Huntington's disease, Friedreich's Ataxia, Charcot–Marie–Tooth disease, Alzheimer's disease.
- Parkinson's disease.
- Cerebral palsy.
- Diseases of the peripheral nervous system: mononeuritis (median, ulnar, radial, peroneal). Radiculopathy, polyneuropathy, polyneuroradiculopathy.
- Myopathies. Diseases of the neuromuscular junction.
- Brain tumours. Brain injuries. Epilepsy. Infectious diseases (meningitis, encephalitis).
- Laboratory tests.

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Recognise the majority of neurological diseases.
- Assess the neurological patient and be aware of the treatment in relation to the disease and medication.
- Prevent possible dysfunctions in the musculoskeletal system.

Suggested Reading

1. Λογοθέτη Ι, Μυλωνά Ι. Νευρολογία. Θεσσαλονίκη: University Studio Press, 2004.
2. Παπαγεωργίου Ε. Νευρολογία. Τόμος 1 & 2. Αθήνα: Ιδιωτική Έκδοση, 2010.
3. Adams and Victor's. Αρχές Νευρολογίας. Τόμος 1 & 2. Αθήνα: Εκδόσεις Π.Χ. Πασχαλίδη, 2003.
4. Adams and Victor's. Αρχές Νευρολογίας. Τόμος 3. Αθήνα: Εκδόσεις Π.Χ. Πασχαλίδη, 2004.
5. Duus P. Νευρολογική Τοπογραφική Διαγνωστική. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε, 1992.
6. Greenberg D, Aminoff M, Simon R. Κλινική Νευρολογία. 6η έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε, 2007.
7. Lewis PR, Pedley AT. Merritt's Neurology. U.S.A.: Lippincott Williams and Wilkins, 2010.
8. Patten J. Neurological Differential Diagnosis. 2nd Edition. New York: Springer Verlag, 2005.
9. Rolak LA. Neurology Secrets. U.S.A.: Mosby-Elsevier, 2010.
10. Alain G. Institute de la Main. Branchial Plexus Injuries. Paris France: Martin Dunitz, 2001.
11. http://neuromuscular.wustl.edu/
12. http://reference.medscape.com/neurology

Course Description

Name	Kinesiotherapy
Code	N2-3040
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	3rd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is the detailed analysis of the factors that influence motion and underlie the planning of kinesiotherapy and exercise programmes. The basic kinesiotherapy principles and the types of motion are taught, together with the relationship between gravity, resting muscle length, speed and motion. The principles of planning programmes of passive, assisted and active exercise are developed with the aim of conserving or increasing the mobility and the range of motion, as well as improving the strength, power, endurance and elasticity of the muscle system. In particular, issues such as the concept of proprioception, kinaesthesia, and the role of neuromuscular coordination in skill acquisition are explored. The aim is for the students to acquire skills for the organisation and application of preventive and therapeutic programmes through motion, with emphasis on relaxation, stretching and resistance exercises for the preservation or improvement of the function of the muscular system.

Course Outline

Theoretical – Teaching Units

- Factors that influence motion. Analysis of the role of strength, muscle tone, elasticity and endurance. Influence of neuromuscular coordination on the execution of motion.
- Analysis of the mode of the assessment of motion based on the SOAP model. Subjective – assessment – assessment and planning of programme.
- Planning to improve motion. Goals for desirable functional outcomes. Checking of factors that affect function. Applications for the therapeutic plan.
- Analysis of the goals of therapeutic exercise. Prevention of dysfunction and improvement or conservation of strength, mobility, balance and functional skills.
- Analysis of factors that affect muscle strength. The effect of muscle unit firing on muscle output and of muscle contraction on the muscle tension capability.
- Ways to increase muscle strength: a) muscle hypertrophy, analysis of causative factors, b) hyperplasia, c) muscle unit recruitment.
- Effect of motion on the human body. Discrimination between active and passive motion. Analysis of the effect of active and passive motion. Types and characteristics of motion: a) isometric, b) isotonic, c) isokinetic.

- Analysis of the range of motion. Discrimination between active, passive and assisted range of motion. Modes of assessing the range of motion. Goniometry.
- Resistance exercises. Description of resistance exercises, modes of application and analysis of outcomes, contraindications. Type and characteristics of resistance exercises: a) isometric, b) isotonic, c) isokinetic.
- Length tension – velocity tension relationship. Effect on the increase of muscle strength, power and endurance.
- Relaxation: definition and relaxation principles. Analysis and method principles for general relaxation.
- Effect of motion on relaxation. Physiotherapeutic modes for relaxation. Autogenic relaxation.
- Stretching. Analysis of the therapeutic technique of stretching, influencing factors. Indications – goals. Effects, outcomes of stretching programmes, applications for the prevention and for physiotherapeutic rehabilitation.

Practical – Teaching Units

- Passive motion. Starting positions – grips. Applications for the joints of the upper and lower extremity.
- Assessment of motion and of range of motion. Analysis of goniometry methods. Measurements. Applications.
- Active motion. Motion in relation to gravity. Open – closed kinetic chain.
- Assisted exercise. Assessment of factors relative to the effect of gravity on the execution of motion.
- Simple active exercise. Applications for the muscle systems of the upper and lower extremity.
- Planning of exercise programmes with the goal of conserving muscle strength.
- Resistance exercises. Technical points of application. Muscle strength programmes. Assessment. Application.
- Planning and application of programmes to conserve and improve muscle endurance.
- Planning of rehabilitation, proprioception and skill acquisition programmes. Applications. Assessment.
- Relaxation, general. Psychogenic approach. Mental and physical methods. Exercise – applications. Assessment.
- Relaxation, local. Pain – exercise. Planning and application of programmes. Assessment.
- Elasticity. Checking the elasticity of contractile and non-contractile structures.
- Planning of exercise programmes for the conservation and improvement of the elasticity of the muscle systems of the trunk, the upper and the lower extremity.
- Exercises – stretching programmes. Self stretching. Planning, application and assessment of stretching programmes with active movements.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- The students practice organising and applying passive and active motion programmes with a predetermined therapeutic goal.
- Self-experience of active exercise programmes. Assessment of outcome of application. Adaptation and replanning of exercise.
- Organising kinesiotherapy programmes and applying taught methods with the goal of prevention.

Student Assessment

Theoretical

- Final written examination.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- Intermediate assessment in applications of practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Comprehend in detail the methodology of organising and planning kinesiotherapy and exercise programmes for the conservation or improvement of muscle function, with the goal of preserving and rehabilitating dysfunctions of the musculoskeletal system.
- Apply the basic principles of planning programmes for the improvement of elasticity, strength and endurance of the muscular system.
- Apply relaxation programmes.
- Plan and apply appropriate kinesiotherapy and exercise programmes with the goal of improving the neuromuscular coordination and developing new skills or preserving already acquired ones.

Suggested Reading

1. Allard P. Strokes I. Blanch JP. Three Dimensional Analysis of Human Movement. U.S.A: Human Kinetics, 1995.
2. Alter M. Science of flexibility. 3nd edition. USA.: Human Kinetics, 2004.
3. Bates A, Hanson N. Aquatic exercise therapy. Philadelphia: W.B. Saunders Company, 1996.
4. Butler D. The sensitive nervous system. 1st Edition. Australia: Noigroup, 2006.
5. Campion MR. Hydrotherapy. Principles and practice. United Kingdom: Butterworth-Heinemann, 1998.
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7. Dvir Z. Isokinetics, muscle testing, interpretation and clinical applications. 2nd Editon. Edinburg: Churchill Livingstone, 2004.
8. Enoka R. Neuromechanical basis of kinesiology. 4th Edition. USA.: Human Kinetics, 2008.

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13. Levine P, Phillips M. Freedom from Pain: Discover Your Body's Power to Overcome Physical Pain. Colorado: Pap/Com, 2012.
14. Maclntosh B. Gardiner P. Mc Comas A. Skeletal Muscle. Form and function. 2nd Edition. USA.: Human Kinetics, 2005.
15. Payne R., Donaghy M. Payne's Handbook of Relaxation Techniques. A practical guide for the health care professional. 4th Edition. New York: Churchill Livingstone, 2010.
16. Perrin D. Isokinetic exercise and assessment. USA.: Human Kinetics, 1996.
17. Pitt-Brooke J, Reid H, Lockwood J, et al. Rehabilitation of movement. Theoretical basis of clinical practice. Philadelphia: W.B. Saunders Company, 1998.
18. Ryf C, Weymann A. Εύρος κίνησης-ουδέτερη-ο-μέθοδος της Α.Ο. μέτρηση και τεκμηρίωση Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2004.
19. Schoen J, Pearl L. Keep Calm and Stretch: 44 Stretching Exercises to Increase Flexibility Relieve Pain, Prevent Injury, and Stay Young! USA: Little Pearl Publishing, 2012.
20. Snyder KT, Goodman C. Differential diagnosis in physical therapy. 4th Edition. Philadelphia: W.B. Saunders Company, 2007.

Course Description

Name	Electrotherapy
Code	N2-3050
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	3rd
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is for the students to understand the effects of therapeutic electrical currents on the human organism, and to acquire skills related to the planning and application of therapeutic schemas in various diseases, injuries and syndromes by selecting the appropriate therapeutic protocols with the right application sequence.

Course Outline

Theoretical – Teaching Units

- Introduction to clinical electrical stimulation: Summary of components of the physics of electrical stimulation. Classification and types of electrical therapeutic currents. Detailed description of the parameters for the planning of clinical electrical stimulation.
- Summary of components of biophysics and the biological effects of electrical stimulation. Physiological effects of electrical stimulation. Thermal, chemical effects and contraindications of electrical stimulation.
- Electrical muscular stimulation of enervated muscles. Neurophysiology of the normal muscle contraction. Indications and outcomes. Description, analysis and justification of the parameters of the electrical stimulation of enervated muscles.
- Electrical muscular stimulation of denervated muscles. Neurophysiology of the muscle contraction post denervation. Indications and outcomes. Description, analysis and justification of the parameters of the electrical stimulation of denervated muscles
- Specific instructions for the application of electrical muscular stimulation of denervated muscles. Methods of application. Examples of application to specific disorders or peripheral nerve injuries.
- Sensory electrical stimulation. Neurophysiology of elecroanalgesia.
- Sensory electrical stimulation. Transcutaneous electrical nerve stimulation (TENS). Indications and outcomes. Description, analysis and justification of the parameters of electrical stimulation with TENS.
- Sensory electrical stimulation. Interferential currents. Indications and outcomes. Description, analysis and justification of the parameters of electrical stimulation with interferential currents.

- Electrical stimulation in disorders of the central nervous system (CNS). Applications of electrical muscular stimulation. Application of TENS. Special applications for the reduction of spasticity, for motor retraining and muscle activation in disorders of the CNS.
- Application of functional electrical stimulation (FES) and retraining of the extremities for gait.
- Electromyography – Techniques of neural conductivity. Retraining of neuromotor system with EMG biofeedback.
- Iontophoresis: Indications and outcomes. Description, analysis and justification of the parameters of electrical stimulation in iontophoresis.
- Application of electrical stimulation for special therapeutic goals: Reduction of postsurgical pain. Prevention and treatment of deep thrombosis. Rehabilitation of cardiac and respiratory failure.

Practical – Teaching Units

- Classification and types of electrical therapeutic currents. Detailed presentation of parameters for the planning of clinical electrical stimulation.
- Presentation of conditions that are associated with undesirable thermochemical effects and contraindications for electrical stimulation (errors in the selection of parameters and in the planning of the application protocol).
- Electrical muscular and sensory electrical stimulation. Techniques of locating and stimulating special therapeutic points. Motor points, trigger points, tender points, electroacupuncture points.
- Electrical muscular stimulation of enervated muscles. Methods, application techniques, application protocols, regulation of parameters.
- Electrical muscular stimulation of denervated muscles. Methods, application techniques, application protocols, regulation of parameters.
- Electrical sensory stimulation – Electroanalgesia. TENS: Methods, application techniques, application protocols, regulation of parameters.
- Electrical sensory stimulation – Electroanalgesia. Interferential currents: Methods, application techniques, application protocols, regulation of parameters.
- Electrical sensory stimulation – Electroanalgesia. Electroacupuncture: Methods, application techniques, application protocols, regulation of parameters
- Clinical application of functional electrical stimulation (FES): Methods, application techniques, application protocols, regulation of parameters.
- Electromyography, Techniques of neural conductivity, EMG-biofeedback. Methods, application techniques, application protocols, regulation of parameters.
- Iontophoresis: Methods, application techniques, application protocols, regulation of parameters.
- Special applications of electrical stimulation. High voltage electrical stimulation. Microcurrents.

Teaching Methods

Theoretical

- Lectures and presentations.

- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practice on practical and clinical problems in relation to planning and applying the protocols of electrical stimulation.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Intermediate assessments of the students in practical teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Understand the effects, indications and contraindications of the use of therapeutic electrical currents.
- Inform the patient about the goal of the application of electrical stimulation, the benefits, the expected therapeutic result, the potential dangers, and obtain the patient's written informed consent.
- Select, after assessment and with the patient's cooperation, the proper therapeutic schemas and application protocols of clinical electrical stimulation and its special applications.
- Adapt the therapeutic protocol to the condition and to the particularities of each patient, considering issues relative to the patient's ethnicity, religion and beliefs.
- Cooperate with other health care professionals when necessary (multidisciplinary meetings).

Suggested Reading

1. Γιόκαρης Π. Θεραπευτικά Σχήματα - Κλινική Ηλεκτροθεραπεία. Αθήνα: Εκδόσεις Γράμμα Α.Ε., 2007.
2. Μπάκας Ε. Φυσική Ιατρική και Αποκατάσταση. Τόμος 1ος. Αθήνα: Ιατρικές Εκδόσεις Ζήτα, 1995.
3. Φραγκοράπτης Ε. Εφαρμοσμένη Ηλεκτροθεραπεία - Θεωρία και Πράξη Μεθόδων Ηλεκτροθεραπείας . Θεσσαλονίκη: Εκδόσεις Πετρούλα , 1994.
4. Mackler L, Robinson A. Clinical Electrophysiology: Electrotherapy and Electrophysiologic Testing. Third Edition. Baltimore, MD: Wolters Kluwer - Lippincott Williams & Wilkins, 2008.
5. Nelson RM, Currier DP, Hayes KW. Clinical Electrotherapy. Third Edition. USA: Apleton & Lange, 1999.
6. Robertson V, Ward A, Low J, et al. Electrotherapy Explained. Principles and Practice. 4th Edition. Edinburgh: Butterworth Heinemann, 2006.

7. Robertson V, Ward A, Low J, et al. Ηλεκτροθεραπεία - Βασικές Αρχές και Πρακτική Εφαρμογή. 4η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
8. Watson T. Ηλεκτροθεραπεία – Τεκμηριωμένη Πρακτική. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2011.
9. William P. Therapeutics Modalities in Rehabilitation. 4th Edition. Columbus, OH: McGraw-Hill Global Education Holdings, 2011.

Course Description

Name	Pathology
Code	N2-3060
Category	Genaral Core Course, Mandatory
Required	--
Type	Theoretical
Semester	3rd
Teaching hours/week	3 hours (T:3)
ECTS	5

Aims of the Course

The aim of the course is for the students to acquire knowledge of the pathology of main diseases, to be aware of their clinical picture and to be able to assess the main symptoms of the diseases.

Course Outline

Theoretical – Teaching Units

- Introductory concepts concerning health – disease – prevention. Methodology for approaching the patient. History – clinical examination – diagnosis. Defense system. Introductory concepts concerning immunity. General causes of disease.
- Infections by bacteria and viruses. Prevention – vaccines. Streptococcal – staphylococcal infections, rheumatic fever. Infectious mononucleosis. Sexually transmitted diseases. AIDS. Viral hepatitis. Measles, rubella, chickenpox. Tetanus. Meningitis. Tuberculosis. Brucellosis. Salmonellosis.
- Blood diseases. General knowledge. Anaemias: Sideropenic anaemia, megaloblastic aneamia, haemolytic anaemias, haemoglobinopathies, aplastic anaemia. Leukocyte diseases. Leukaemia, lymphomas. Immunoglobulin disorders – multiple myeloma. Coagulation disorders.
- Respiratory system disorders. General knowledge – respiratory failure. Chronic obstructive pulmonary disease. Bronchic asthma. Sleep apnoea. ARDS. Lung cancer. Pulmonary embolism. Pneumonia. Pneumothorax, atelectasis, bronchiectasis. Pleuritis.
- Genitourinary system diseases: General knowledge. Checking the renal function. Renal failure (acute – chronic). Glomerulonephritis. Nephrotic syndrome. Urinary infection. Pyelonephritis. Urolithiasis. Renal-cyst, prostate tumours.
- Main diseases of the peptic system: General knowledge. Examination. Diagnostic procedures. Peptic ulcer. Large intestine cancer. Diverticular disease. Irritable bowel syndrome. Idiopathic inflammatory bowel diseases (ulcerative colitis, Crohn's disease). Ileus. Diseases of the liver and bile duct (jaundice, cirrhosis, hepatis, hepatocyte carcinoma, hepatitis). Pancreatic diseases (carcinoma, pancreatitis).
- Circulatory system diseases: General knowledge. Clinical examination. Examination methods. Electrocardiography. Cardiac murmurs. Factors of cardiovascular risk. Arterial

hypertension. Coronary disease. Angina. Heart attack. Heart failure. Acute pulmonary oedema. Shock. Sudden death.

- Cardiac arrhythmias. Heart valve diseases. Infective endocarditis. Congenital cardopathies. Myocardiopathies – pericarditis. Aortic aneurysms.
- Disorders of fluids – electrolytes – acidobasic balance. Heat stroke.
- Endocrine diseases. Diabetes mellitus. Thyroid diseases – parathyroids. Pituitary gland diseases. Adrenal diseases. Cushing syndrome. Addison's disease.
- Diseases of the bones, joints and collagen diseases: General knowledge. Immunology components – autoimmune disease. Definitions – classification. Rheumatoid arthritis, juvenile rheumatoid arthritis. Seronegative arthropathies. Ankylosing spondylitis. Systemic lupus erythematosus. Scleroderma. Inflammatory myopathies (dermatomyositis – polymyositis). Mixed connective tissue disease. Polymyalgia rheumatica. Polyarteritis nodosa. Angiitis. Temporal arteritis. Infectious arthritis. Gout. Degenerative joint disease (osteoarthritis). Osteoporosis. Paget bone disease.
- Skin diseases. Basic skin lesions. Eczema. Psoriasis. Causes and significance of urticaria. Maculae and neoplasms. Malignant melanoma. Skin infections (psora, herpes, mycosis, etc.). Acne. Verruca. Papilloma acuminatum. Gutta rosacea. Dermatitis. Allergic reactions. Pemphigus. Diseases of nails and hair. Pityriasis rubra. Vitiligo. Alopecia.
- Breast, ovarian, cervical cancer. Genital cell neoplasms. Introduction to the treatment of pain.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should:

- Have general knowledge about the diseases of the human body, their clinical picture, and be able to assess the symptoms of the diseases.

Suggested Reading

1. Ράπτης Σ. Εσωτερική Παθολογία. Τόμος 1,2,3 και 4. 2η Έκδοση Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε, 2006.
2. Andreoli. Cecil Βασική Παθολογία. Αθήνα: Ιατρικές Εκδόσεις Λίτσας, 2003.
3. Habermann T. Mayo Clinic Εσωτερική Παθολογία. 1η Έκδοση. Θεσσαλονίκη: Χαβαλές Α - Χατζησυμεών Κ ΟΕ, 2012.

4. Hall JE. Guyton and Hall Textbook of Medical Physiology. 12th edition. Philadelphia PA: Saunders Elsevier, 2010.
5. Kasper DL, et al. Harrison Εσωτερική Παθολογία. Τόμος 1,2,3. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε, 2010.
6. Kumar P, Clark M. Παθολογία. 1η Έκδοση. Αθήνα: Κ. & Ν. Λίτσας, 2007.
7. Robins SL. Εγχειρίδιο Παθολογοανατομικής Βάση της Νόσου. 6η Έκδοση. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου Α.Ε., 2003
8. Runge MS, Greganti MA. F. Netter Παθολογία. 1η Έκδοση. Εκδόσεις Π.Χ Πασχαλίδης, 2011.

4th Semester

	4th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Physiotherapy in Adult Neurological Disorders and Diseases	S	M	3	2	5	N2-4010	6
2.	Clinical Exercise Physiology	SC	M	3	-	3	N2-4020	4
3.	Biomechanics - Ergonomics	SC	M	3	2	5	N2-4030	5
4.	Respiratory Physiotherapy	S	M	3	2	5	N2-4040	5
5.	Assessment in Physiotherapy - Clinical Reasoning	S	M	3	-	3	N2-4050	5
6.	Physiotherapy in Musculoskeletal Injuries	S	M	3	2	5	N2-4060	5
	Total			18	8	26		30

Course Description

Name	Physiotherapy in Adult Neurological Disorders and Diseases
Code	N2-4010
Category	Special Core Course, Mandatory
Required	Neurology
Type	Theoretical & Practical
Semester	4th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is the acquisition of the necessary theoretical and specialised knowledge for the rehabilitation of central nervous system (CNS) diseases in the adult patient, as a basic preparation of the students for the Clinical Placement course for neurological diseases. In this course the theoretical foundation, as well as the application of appropriate rehabilitation methods and techniques for patients with brain lesions and diseases or injuries of the spine is taught. The methods and techniques for problems relating to muscle tone, balance, gait, fatigue, function and quality of life are analysed, as well as the assessment scales for these problems. The criteria for the disability model of the neurological patient are explored. The methodology for the planning of an effective intervention and its evidence base for each disease are analysed.

Course Outline

Theoretical – Teaching Units

- Physiological and pathophysiological mechanisms of the brain and the spinal cord. Introduction to physiotherapy of neurological disorders, functional anatomy of the CNS, description of the brain systems (pyramidal, extrapyramidal, cerebellum) and of the spinal cord.
- Physiotherapeutic assessment (assessment of the neurological patient, principles that underlie the rehabilitation of neurological disorders in the adult patient, detailed analysis of the clinical symptoms of the patient during the acute and chronic stage and their influence on the prognosis of the rehabilitation). Perspective and realistic goals of the rehabilitation, organising the physiotherapy intervention programme, basic principles for the selection of techniques and methods. Disability, function, quality of life.
- Measurement and assessment tools (reference and analysis of measurement and assessment tools for the following parameters: hypertonus, balance, dystonia, ataxia, fatigue, gait, function and quality of life).
- Physiotherapy in stroke (ischaemic, haemorhagic). Approach and assessment of the hemiplegic patient (acute – chronic stage of stroke, focal lesions, clinical symptoms, cognitive impairments, pathological reflexes, balance and gait examination). Detailed analysis of the stages of physiotherapeutic rehabilitation, reeducation techniques,

orthoses for gait, post stroke fatigue, functional activities of the hemiplegic patient with social reintegration as goal, and informing and educating the patient's family members.

- Physiotherapy in Parkinson's Disease (definition, aetiology, anatomic location of lesions, clinical picture and progression of the diseases, Hoehn & Yan stages). Assessment of the patient (dystonia, balance, standing posture). Planning of the physiotherapeutic intervention based on functional independence and the patient's quality of life, fatigue, family and patient.
- Physiotherapy in patients with cerebellar lesion. The role of the cerebellum in motor control and brain functions, assessment, planning of physiotherapeutic intervention, Frenkel exercises.
- Physiotherapy in multiple sclerosis (MS). Aetiology, epidemiology, pathophysiology, involved systems, types of the disease, factors for the manifestation and poor prognosis, Uhthoff's phenomenon. Assessment of the patient, fatigue and management techniques, planning the physiotherapy programme, goals, treatment of impairment with appropriate techniques. Disability model and guidelines. Physical activity and its effect on fatigue and quality of life in MS patients (evidence-based practice) with social and vocational reintegration as aim.
- Physiotherapy in patients with brain injuries, classification of brain injury, mechanisms of brain damage. Space-occupying and surgical lesions, (epidural, subdural haematoma, subarachnoid haemorrhage, hydrocephalus). Brain death (criteria, brainstem reflexes, vegetative state). Conservative and surgical treatment. Physiotherapy assessment. Early diagnosis and treatment of complications from the Intensive Care Unit (ICU) to the chronic stage. Planning of the physiotherapy programme in all stages and treatment techniques for the presenting complications.
- Physiotherapy in patients with brain and spine tumours. Classification of tumours, location and pathophysiological mechanisms, conservative and surgical treatment, planning of the physiotherapy programme. Fatigue and the oncological patient, planning of the physiotherapy programme, realistic goals, function and quality of life.
- Physiotherapy for the diseases and injuries of the spinal cord. Classification of lesions based on the level of injury, pathophysiological mechanisms, tetraplegia, paraplegia, conservative and surgical treatment, planning of the physiotherapy programme, self-care, types of gait in paraplegia, energy cost, therapeutic gait, standing frames, functional gait, callipers (older types, complex, new-generation callipers with electrical stimulation).
- Physiotherapy for diseases of the peripheral nervous system. Polyneuropathy - Guillain–Barré syndrome (causes, clinical picture, assessment of the patient, differences in the rehabilitation of patients with a lesion in the peripheral nervous system, planning of the physiotherapy programme, goals and treatment techniques for motor impairments.

Practical – Teaching Units

- Clinical picture of a patient with pyramidal lesion and training of students to recognise the pathological signs of a pyramidal lesion, examination, tests, assessment of pathological signs, examination of muscle tone (hypertonus). Pathological gait patterns in patients with pyramidal lesion.

- Clinical picture of a patient with extrapyramidal lesion and training of students to recognise the pathological sings of an extrapyramidal lesion, tests, examination and assessment of the pathological signs, examination of muscle tone (dystonia).
- Clinical picture of a patient with a cerebellar lesion and training of students to recognise the pathological signs of a cerebellar lesion, tests, examination and assessment of pathological signs, clinical picture of a mixed brain lesion.
- Planning and application of a physiotherapy programme in a patient with stroke, reeducation of normal motor patterns in the hemiplegic patient from the acute to the chronic stage, reeducation of balance, sensory disorders (superficial and deep), and their significance for the rehabilitation process.
- Reeducation of gait and possible pathological gait patterns, general guidelines for the selection and use of orthotics. Visual feedback (application of EMG biofeedback), functional activities.
- Planning and application of a physiotherapy programme for Parkinson's Disease. Techniques for the reduction of dystonia in a Parkinsonian patient, reeducation of the normal pattern for standing posture in a Parkinsonian patient, reeducation of balance, agility and normal gait pattern.
- Planning and application of a physiotherapy programme for a cerebellar lesion, reeducation of balance, Frenkel exercises, reeducation of gait, orthotics and aids for improving patient self-care.
- Planning and application of a physiotherapy programme in a patient with multiple sclerosis, reeducation of balance and gait, physical activity programmes, hydrokinesiotherapy in MS, aerobic exercise for the treatment of fatigue, relaxation techniques.
- Planning and application of a physiotherapy programme in a patient with brain injury, physiotherapy in the ICU, prevention and treatment techniques of contractures, reeducation of balance and gait, selection of appropriate orthotics, and aids for the patient's functional independence.
- Planning and application of a physiotherapy programme in patients with brain and spine tumours, treatment techniques for motor and cognitive impairments, fatigue treatment techniques, reeducation of balance and gait.
- Planning and application of a physiotherapy programme in patients with diseases and injuries of the spinal cord. Tetraplegia, paraplegia (high-low or spastic-flaccid). Therapeutic and functional gait, selection of the appropriate orthotics and aids for the functional independence of tetraplegics and paraplegics, energy cost of gait and selection of an appropriate wheelchair, techniques and equipment for self-care.
- Planning and application of a physiotherapy programme in patients with polyneuropathy and Guillain–Barré syndrome, physiotherapy in the acute (ICU) and chronic stage, strengthening and hydrotherapy techniques.

Teaching Methods

Theoretical

- Lectures and presentations.

- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Practical

- Assessment of patient with brain and spinal cord disorders using the available equipment, questionnaires, tests.
- The students experience the reeducation techniques and the treatment techniques for balance, gait, fatigue, standing posture and function for each disease, with the support of the available equipment and in some cases with loaned equipment.

Student Assessment

Theoretical

- Final written examination.

Practical

- Intermediate assessment of the students in specific practical units.

Learning Outcomes

After completing the course the students should be able to:

- Assess the neurological patient and interpret the pathological clinical signs of a brain or spinal cord lesion.
- Recognise the pathological patterns of posture, balance and gait.
- Plan an individualised programme/intervention and select the appropriate treatment and reeducation techniques for each parameter.
- Plan a comprehensive physiotherapy rehabilitation programme for patients with chronic disorders of the CNS and the PNS.
- Apply with competence and safety the assessment tests for the neurological patient, as well as the special techniques that are indicated in the field of physiotherapeutic rehabilitation of the CNS and the PNS.
- Recognise the necessity for a reevaluation of the neurological patient at regular intervals, and perceive the smallest change in his/her clinical picture and behaviour.
- Approach the patient in an appropriate way, in order for the patient to be actively engaged.

Suggested Reading

1. Barnes MP, Johnson GR. Σύνδρομο Ανώτερου Κινητικού Νευρώνα και Σπαστικότητα. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.
2. Bromley I. Τετραπληγία και Παραπληγία: Ένας Οδηγός για Φυσικοθεραπευτές. 6η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
3. Davies MP. Steps to follow: The Comprehensive Treatment of Patients with Hemiplegia. 2nd Edition. Germany: Spinger, 2000.

4. Fuller G, Manford M. Νευρολογία. (Έγχρωμο Εικονογραφημένο Εγχειρίδιο). 3η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
5. Gertz SD, Tadmor R. Liebman's Neuroanatomy. Made Easy and Understandable. 7th Edition. Maryland: Pro ed, 2006.
6. Levitt S. Treatment of Cerebral Palsy and Motor Delay. 5th Edition. Great Britain: Wiley - Blackwell, 2010.
7. Norm A, Hanson B. Θεραπευτική Άσκηση στο νερό. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2000.
8. Parry A. Physiotherapy Assessment. United Kingdom: Nelson Thornes Ltd, 1990.

Course Description

Name	Clinical Exercise Physiology
Code	N2-4020
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical
Semester	4th
Teaching hours/week	3 hours (T:3)
ECTS	4

Aims of the Course

Clinical exercise physiology is the study of the sum of the physiological actions and efforts necessary for the execution of a physical or mental task. It investigates the regulatory mechanisms, the biological adaptations and the factors that influence exercise for health improvement, from a resting state to a moving state. The student will be taught the physiological basis of exercise and work and will understand in detail the effect of planned exercise on biological mechanisms (energy, hormonal, neuromuscular and cardiorespiratory), but also on psychological, social and environmental mechanisms. The ultimate aim of the course is the understanding of the immediate and the long-term effects of the clinical application of planned exercise in the framework of prevention and physiotherapeutic rehabilitation of diseases or dysfunctions of the various systems of the human body.

Course Outline

Theoretical – Teaching Units

- Introduction to the course of Clinical Exercise Physiology. History of the theoretical basis of Exercise Physiology. The response to the application of exercise of the physiological systems of the human body in terms of acute and chronic adaptations. Applications of Clinical Exercise Physiology in physiotherapy rehabilitation.
- Basic energy systems and the energy basis of exercise. Measurement of energy cost during exercise. Energy costs at rest and during exercise.
- Aerobic capacity – aerobic endurance. Maximal oxygen uptake. Factors that affect aerobic capacity, age and gender.
- Anaerobic capacity. Lactic acid and exercise. Factors that affect anaerobic capacity.
- Muscle function and adaptations to exercise. Structure and function of skeletal muscles. Skeletal muscles and adaptation to exercise.
- Muscle functions and factors of muscle performance. Muscle performance. Factors that affect muscle performance. Anaerobic capacity.
- Neuromuscular control and exercise. Structure and function of the nervous system. Central and peripheral nervous system. Kinaesthetic control and neural adaptations to exercise.
- Respiratory adaptations to exercise. Respiratory response and exercise. Limitations of the respiratory system and clinical application of exercise.

- Cardiovascular adaptations to exercise. Cardiovascular response and exercise. Limitations of the cardiovascular system and clinical application of exercise.
- Exercise and hormones – immune system. Endocrine function and exercise. Limitations of endocrine function and clinical application of exercise. Immune response and exercise. Limitations of the immune system and clinical application of exercise.
- Exercise and psychological factors. Personality, intelligence, anxiety, motivation. Limitations of the clinical application of exercise in relation to the personality of the individual.
- Body composition. Composition of the human body. Methods for the determination of body composition.
- Diet and exercise. Categories of dietary components. Water and electrolytes. Vitamins and physical performance. Obesity – ideal weight. Systems for the assessment of diet.
- Thermoregulation and exercise. Heat production – body temperature. Thermal disorders and clinical application of exercise.
- Adaptations to exercise and to its abstinence. Determination of exercise and prevention programmes – American College of Sports Medicine (ACSM) guidelines. Consequences of excessive exercise and immobilisation.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Learning Outcomes

After completing the course the students should understand:

- The energy basis of exercise and its immediate and long-term results on the function of the systems of the human body, such as the nervous, the muscular, the respiratory, the circulatory, the endocrine and the immune system.
- The parameters that determine the planning of exercise programmes and their application in physiotherapy rehabilitation.
- The important role of exercise and physical activity in health promotion and improvement of quality of life through the comprehensive planning of multiple therapeutic biologic and psychologic processes.

Suggested Reading

1. Κλεισούρας Β. Εργοφυσιολογία (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2011.

2. Χανιώτης Φ. Εργοφυσιολογία. Αθήνα: Ιατρικές Εκδόσεις Λίτσας 2008.
3. American College of Sports Medicine. ACSM's exercise management for persons with chronic diseases and disabilities. 3rd Edition. Champagne, IL: Human Kinetics, 2009.
4. American College of Sports Medicine. ACSM's guidelines for exercise testing and prescription. Baltimore: Lippincott Williams & Wilkins, 2006.
5. American College of Sports Medicine. ACSM's Introduction to Exercise Science. 1st Edition. USA: Lippincott Williams & Wilkins, 2011.
6. Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. Champagne, IL: Human Kinetics, 4th Edition, 2003.
7. Bloomfield J, Fricker PA, Fitch KD. Science and Medicine in Sports. 2nd Edition. USA: Blackwell Science Pty Ltd, 1996.
8. Bromley PD. Clinical Skills for Exercise Science. Routledge: Taylor & Francis Group, 2010.
9. Ehrman JK, Gordon P, Paul SV, Steven J. Keteyian. Clinical Exercise Physiology. 3rd Edition. IL: Human Kinetics, 2013.
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12. Melvin WH. Nutrition for fitness and sport. 4th Edition. Chicago: William C Brown Pub, 1995.
13. Powers S, Howley E. Exercise Physiology: Theory and Application to Fitness and Performance. 8th Edition. USA: McGraw-Hill Humanities, 2011.
14. Wilmore J, Costill D. Φυσιολογία της Άσκησης και του Αθλητισμού (Τόμοι Ι, ΙΙ, ΙΙΙ). Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2006.

Course Description

Name	Biomechanics - Ergonomics
Code	N2-4030
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	4th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course Biomechanics-Ergonomics is to educate the students in the main principles of biomechanics and ergonomics. The natural laws that underlie the function of the musculoskeletal system from a kinetic and arthrokinematic perspective are taught in relation to principles of balance, gait, bone loading (fractures – porosis), and joint cartilage. The properties of the muscular system are analysed, with emphasis on the interpretation of the types of muscle contraction, of muscle insufficiency and muscle work. The principles of ergonomics are analysed and its application in the work space for various professions and in the everyday life of each individual. The mechanism of weight management and the correct body posture are analysed, with the goal being the prevention of musculoskeletal stress. Methods for the recording and scientific analysis of the activities of the individual are presented in the framework of the application of specific activities. The aim of the course is the appropriate intervention and the learning of skills for the reduction of loading, with the goal being the improvement of function and the minimisation of the probability of the development of musculoskeltal problems primarily, but of problems of the cardiovascular, respiratory and gastrointestine systems secondarily.

Course Outline

Theoretical – Teaching Units

- Introduction to Biomechanics. Principles of kinetics. Kinetic analysis. Planes, axons, motion, degrees of freedom, force, analysis – synthesis of forces, couples, work, power, energy. Newton's laws. Principles of balance. Gravity, centre of gravity, base of support, etc.
- Principles of kinematics. Kinematic analysis. Biokinetic units. Levers. Physiological and mechanical advantage. Torque.
- Collagen tissue – connective tissue: properties and mechanical behaviour. Bone tissue, chondral tissue, neural tissue: properties and mechanical behaviour.
- Muscle tissue. Morphologic, anatomic, functional components. Passive and active motion mechanism. Muscle contraction: Mechanical properties of the muscles.
- Spine. Kinetic and kinematic analysis. Intervertebral disc – loading. Cervical spine – thoracic spine.
- Standing posture – sitting posture. Kinetic and kinematic analysis.

- Hip – knee. Ankle, foot. Kinetic and kinematic analysis.
- Gait – analysis. Deviations from the normal pattern. Gait aids.
- Shoulder girdle. Kinematic analysis, static and dynamic.
- Elbow – wrist – fingers. Kinetic and kinematic analysis. Grips. Tools.
- Ergonomy. Definitions. Musculoskeletal disorders – vocational activity.
- Principles of ergonomic organisation of workspace. Goals of ergonomic intervention in the workspace. Ergonomic applications – prevention.
- Working conditions and environment. Shifting work schedules. Contracts. Professional burnout. Active ageing. Anxiety. Psychological harassment at work. Overuse syndromes. Assessment – physiotherapy intervention.

Practical – Teaching Units

- Application of mechanical principles (base of support, line of gravity, torque, etc.). Standing posture. Observation – Analysis – Assessment. Supine, side, prone lying. Analysis. Assessment.
- Gait – running. Inclined plane. Stairs.
- Hip-knee-ankle. Ground, friction. Shoes.
- Lumbar spine. Sitting position. Observation, Analysis, Assessment. Applications – seats.
- Cervical spine, assessment. Kinetic and kinematic analysis – loads. Use of personal computer (desktop – laptop). Assessment of data, loads. Prevention, applications.
- Vehicles. Drivers. Vehicle operators. Vibration – shocks. Assessment of neural tissue and musculoskeletal structures. Exercises – prevention. Applications.
- Upper extremity. Wrist – hand. Evaluation of the developing loads on the structures of the region. Applications. Exercises – prevention.
- Design of tools and equipment. Everyday objects, design, related stresses and loads.
- Weight management (shape-volume-plane). Manual handling. Lifting equipment.
- Lower extremity. Application of the kinetic and kinematic analysis of movements.
- Ergonomic design and organisation of workspace. Space – equipment – microclimate (ventilation – heat – humidity) depending on activity.
- Modern buildings, ergonomic construction and access. Ergonomic organisation of habitat. Ventilation – light – heating. Musculoskeletal and psychological stress. Prevention.
- Musculoskeletal stress in everyday life. Applications in pregnancy, prevention of musculoskeletal stress – exercises. Everyday life with an infant, care-stress-prevention.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- Practical exercises and applications to course units.
- Observation and recording of vocational activities at work. Analysis and study of activity, study of space and work conditions.

- Ergonomic intervention, suggestions for the optimisation of the individual's performance and minimisation of loads and of stresses in general of the person during a particular activity.

Student Assessment

Theoretical

- Final written examination.

Practical

The students are assessed in:

- The development of ergonomic applications for the practical units.
- Ergonomic interventions in recorded vocational activities, with the goal being the prevention of musculoskeletal stress.

Learning Outcomes

After completing the course the students should be able to:

- Understand the biomechanics of the human body in any position and activity.
- Assess the effect of gravity and loading during weight management.
- Analyse vocational activities by recording and measuring the loads that develop in the musculoskeletal system and the effect of conditions of everyday life on the systems of the human body (respiratory, cardiovascular, nervous).
- Organise ergonomic interventions, with the goal being the maximisation of the individual's performance and the prevention of musculoskeletal disorders.
- Implement ergonomic adaptations and programmes by cooperating with the scientists who are part of the ergonomic group and by using the appropriate recording and assessment tools for each activity.

Suggested Reading

1. Μακρυγιάννη Δ, Κουλιεράκης Γ. Το σύνδρομο ψυχολογικής – ηθικής παρενόχλησης (mobbing) στο χώρο εργασίας. Ψυχολογία. 2010; 17:140-155.
2. Πουλμέντης Π. Βιολογική Μηχανική Εργονομία. Αθήνα: Εκδόσεις Καπόπουλος, 2007.
3. Σφετσιώρης Δ. Κινησιολογία. Εισαγωγή. Άνω Άκρο. Αθήνα: Εκδόσεις D.K.S., 2003.
4. Berry C. A Guide to Ergonomics. Occupational Safety and Health Division. North Carolina: Department of Labor, 2009.
5. Bradley D, Clifton-Smith T. Breath, Stretch and Move. Get Rid of Workplace Stress New Zealand: Random House, 2013.
6. Burton J. WHO Healthy Workplace. Framework and Model: background and supporting literature and practice. Geneva: WHO Headquarters, 2010.
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10. Dvir Z. Clinical Biomechanics. Philadelphia: Churchill Livingstone, 2000.

11. Helander M. A Guide to Human Factors and Ergonomics. 2nd Edition. Florida: CRC Press, 2005.
12. Jakobs K. Ergonomics for Therapists. 3nd Edition. Baltimore: Mosby, 2008.
13. Key G. Industrial Therapy. Baltimore: Mosby, 2008.
14. Kriebel D, Jakobs M, Markkanen P, et al. Lessons Learned. Solutions for workplace safety and health. University of Massachusetts: Lowel, 2011.
15. Loisel P, Anema J. Handbook of work disability: Prevention and management. NY: Springer 2013.
16. Occupational Safety & Health Administration. Ergonomics for the prevention of the musculoskeletal disorders. USA: Department of Labor, 2009. Available at:
17. http://www.osha.gov/ergonomics/guidelines/nursinghome/final_nh_guidelines.pdf
18. Panjabi M, White A. Biomechanics in the Musculoskeletal System. NY: Churchill Livingstone, 2001.
19. Pheasant S. Ergonomics, Work and Health. Maryland: Aspen Publication, 1991.

Course Description

Name	Respiratory Physiotherapy
Code	N2-4040
Category	Specialty Course, Mandatory
Required	Pathophysiology
Type	Theoretical & Practical
Semester	4th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is the acquisition of knowledge about the assessment and management of acute and chronic respiratory diseases in the paediatric and the adult patient, as a basic preparation of the students for the clinical placement course for cardiorespiratory diseases. The theoretical basis and the application of the current techniques and skills of respiratory physiotherapy are taught. Emphasis is given to a) the development of worldwide guidelines for the self-management of chronic respiratory diseases, b) the evidence-based practice of physiotherapy in acute and chronic cases and c) the methodology of planning respiratory physiotherapy interventions.

Course Outline

Theoretical – Teaching Units

- Physiological and pathophysiological mechanisms of respiratory function.
- Introduction – history of respiratory physiotherapy.
- Physiotherapy assessment with SOAP (Subjective evaluation, Objective evaluation, Assessment of findings, Planning of the physiotherapy intervention programme, short- and long-term goals of the intervention. Reevaluation of goals, techniques and outcomes).
- Respiratory physiotherapy in asthma (assessment, worldwide guidelines for the treatment of asthma, reeducation of the respiratory pattern, training of respiratory muscles [strength – endurance], educational sessions for the self-management of asthma, respiratory rehabilitation programmes, evidence-based approach).
- Exercise-induced asthma and exercise in adults and children (asthmatogenic exercise, tests, first aid, exercise adaptation, physical, leisure and sport activities, evidence-based practice).
- Respiratory physiotherapy in chronic obstructive pulmonary diseases (COPD). Assessment, worldwide guidelines for the treatment of COPD, reeducation of the respiratory pattern, training of the respiratory muscles (strength – endurance), educational sessions for the self-management of COPD, oxygen therapy, dietary disorders in COPD, respiratory rehabilitation programmes for COPD, evidence-based practice.

- Airway drainage/clearance techniques (postural drainage – percussions – vibrations, forced expiratory technique – FET, active cycle of breathing techniques – ACBT, autogenic drainage, exercise, evidence-based practice).
- Respiratory physiotherapy in cystic fibrosis (assessment, worldwide guidelines for the treatment of CF, reeducation of the respiratory pattern, airway clearance techniques, respiratory muscles exercise programmes [strength – endurance], educational sessions for the self-management of CF, oxygen therapy, respiratory rehabilitation programmes, evidence-based practice.
- Respiratory physiotherapy in patients with restrictive type diseases (diseases of the pulmonary parenchyma, of the pleura, of the thoracic wall and neuromuscular disorders). Reeducation of the respiratory pattern of breathing, techniques for the restoration of the pulmonary volumes, preset flow-volume exercisers, evidence-based practice.
- Pre- and post-surgical respiratory physiotherapy for operative procedures of the lung tissue- heart-abdomen. Assessment, rehabilitation techniques of the pulmonary volumes, preset flow-volume exercisers, early mobilisation, non-invasive mechanical ventilation (NIMV), evidence-based practice.
- Respiratory physiotherapy in the Intensive Care Unit (ICU). Functional and respiratory assessment, neuromuscular syndromes, oxygen therapy, non-invasive mechanical ventilation (NIMV), alveoli recruitment, physiotherapy in the intubated and non-intubated patient, alveoli hyperexpansion with Ambu bagging, suction of bronchial secretions, exercise of respiratory muscles (strength – resistance), early mobilisation and gait programmes, evidence-based practice).

Practical – Teaching Units

- Teaching diaphragmatic breathing. Handling, instructions, execution, practice, adaptation of diaphragmatic breathing to relaxation positions, to speech and to everyday activities.
- Diaphragm exercises. Measurement of P_{imax}, 1^{st} stage of strengthening with handling by the physiotherapist, strengthening with threshold exerciser, increase of endurance with P-Flex exerciser, strengthening and endurance protocols.
- Thoracic breathing. Measurement of thoracic expansion, expansion of all the thoracic dimensions, in all positions. Exercising hemithoracic regions, use of exercisers of set flow-volume.
- Planning and application of respiratory physiotherapy programme and rehabilitation for asthma. Assessment, education in the use of drug inhalation devices, flowmeter, reeducation of the respiratory pattern, programmes for the increase of the respiratory pause, prevention and treatment of asthma exacerbations (action plan), aerobic exercise programmes.
- Drainage of bronchial secretions (students train in each technique separately).
- Planning and application of respiratory physiotherapy programme for COPD and CF. Assessment, reeducation of breathing, drainage of bronchial secretions, respiratory muscle exercise programmes (strength – endurance), aerobic exercise.
- Planning and application of respiratory physiotherapy and rehabilitation programme for restrictive diseases. Assessment, reeducation of breathing, drainage of bronchial

secretions, rehabilitation techniques of pulmonary volumes with flow/volume exercisers, aerobic exercise.
- Planning and application of respiratory physiotherapy and rehabilitation programme for thoracic and abdominal surgeries. Assessment, reeducation of breathing, drainage of bronchial secretions, rehabilitation techniques of pulmonary volumes with flow/volume exercisers, aerobic exercise.
- Planning and application of respiratory physiotherapy and rehabilitation programme in the ICU. Functional assessment, early mobilisation protocols, suction of bronchial secretions, respiratory muscle exercise programmes (strength – endurance), treatment of dysphagia.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- Assessment of the respiratory patient.
- Application of respiratory physiotherapy techniques.

Student Assessment

Theoretical

- Final written examination.

Practical

- Intermediate assessment of the students in specific teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Understand the necessity/importance of cooperation with the multidisciplinary unit.
- Assess the respiratory patient with a specific methodology and use the findings based on comprehensive clinical reasoning.
- Set short- and long-term individual goals, individualised, appropriate and safe interventions, and plan a comprehensive pulmonary rehabilitation programme after obtaining the patient's informed consent.
- Apply with competence and safety the assessment tests and the respiratory physiotherapy techniques.

Suggested Reading

1. Γραμματοπούλου Ε, Βαβουράκη Ε. Αναπνευστική Φυσικοθεραπεία. Αθήνα: Εκδόσεις ΤΕΙ Αθήνας, 1999.

2. American Association of Cardiovascular and Pulmonary Rehabilitation. Guidelines for Pulmonary Rehabilitation Programs. Champaign,Illinois: Human Kinetics, 2011.
3. Borowitz D, Robinson KA, Rosenfeld M, et al. Cystic fibrosis foundation evidence-based guidelines for management of infants with cystic fibrosis. Journal of Pediatrics. 2009; 155(6Suppl):S73-S93.
4. Frownfelter D, Dean E. Cardiovascular and Pulmonary Physical Therapy. Evidence and Practice. 5th Edition. Missouri: Elsevier, Mosby, 2012.
5. Global initiative for asthma (GINA) Global strategy for asthma management and prevention 2012 (update). http: //www.ginasthma.org.
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9. Grammatopoulou E, Skordilis E, Stavrou N, et al. The effect of physiotherapy-based breathing retraining on asthma control. Journal of Asthma. 2011; 48:593-601.
10. Manzano, RM, Carvalho CR, Saraiva-Romanholo BM, et al. Chest physiotherapy during immediate postoperative period among patients undergoing upper abdominal surgery: randomized clinical trial. Sao Paulo Medical Journal. 2008; 126:269-273.
11. Pryor JA, Prasad SA. Physiotherapy for respiratory and Cardiac Problems. Adults and Pediatrics. 4th Edition. Edinburgh: Churchill Livingstone, Elsevier, 2012.

Course Description

Name	Assessment in Physiotherapy - Clinical Reasoning
Code	N2-4050
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical
Semester	4th
Teaching hours/week	3 hours (T:3)
ECTS	5

Aims of the Course

The aim of the course is for the student to understand how to assess a patient using the appropriate clinical tools and cutting-edge technology and how to record the findings in order to organise an appropriate therapy plan. Another aim is for the student to acquire the skills for the collection and classification of the patient's subjective symptoms in relation to the type of problem, and of the patient's objective findings through the use of valid and reliable assessment methods, and to assess the findings in relation to the type and stage of the problem and in relation to the patient's personality, in order to set the rehabilitation goals.

Course Outline

Theoretical – Teaching Units

- Introduction to assessment through the recording of medical history with the use of the SOAP model (Subjective, Objective, Assessment, Planning).
- General principles for the subjective assessment – Medical History: what it entails, how it is applied, how it is recorded. Detailed analysis of parameters such as family history, history of present disease, patient's medical history, factors for improvement/deterioration etc., perception of pain by the patient (intensity, frequency, duration, daily variation, etc.). Examples of application.
- Biopsychosocial model of disease – theoretical framework, analysis and application principles for physiotherapeutic assessment.
- Subjective findings: Assessment with questionnaires, scales and/or clinically validated indices adapted for Greek patients.
- Assessment of subjective findings with semi-objective methods: clinical and investigational quantitative recording of pain (quantitative sensory testing, algometer, device for the recording of the electrical and thermal pain threshold and tolerance, analysis of PET scan), of endurance, fatigue, anxiety, emotional, psychological and cognitive symptoms of the disease.
- General principles of objective assessment: what it entails, how it is applied at clinical and high-tech level, how it is recorded. Examples of application.
- Objective assessment: At clinical level, detailed recording of parameters such as range of motion, strength, endurance, muscle performance, local sensitivity after palpation,

anthropometric characteristics, degree of arousal, posture, gait, balance, patient's psychological status, motor control, sensory control, neural tissue tension, reflexes, etc. Examples of application.

- Objective assessment with high-tech instrumentation (1). Recording for research purposes of the objective parameters. Electrogoniometers for range of motion, kinetic analysis for the recording of forces and torques with the use of pelmatography, dynamometer for the recording of muscle performance.
- Objective assessment with high-tech instrumentation (2). Electromyogram for the recording of the functional parameters of muscles and nerves, analysis through photographs and video for the recording of the kinematic elements of motion, balance rig for the recording of proprioception, etc.
- Clinical reasoning (assessment of data). Process for therapeutic decision making – clinical reasoning. General principles and development of clinical reasoning that will lead to making correct decisions regarding the causes and pathogenesis of the problem, as well as for the therapeutic options. Bibliographical and research support of therapeutic options. Evidence-based practice.
- Application of clinical reasoning (1). Problems that involve more than one system of the human body. Assessment of the problem and differential diagnosis of the condition, based on findings from the musculoskeletal and nervous system, from the skin, the hair, the nails, the liver, the pancreas, the urinary, genital, endocrine, immune, respiratory, and vascular systems, as well as haematological, metabolic, oncological and rheumatological findings, etc.
- Application of clinical reasoning (2). Examples with the presentation of case studies. Assessment of findings that may constitute reasons for immediate medical referral of the patient (red flags, orange flags, etc.).
- Organisation of the therapeutic programme. Basic principles for the selection of methods, techniques and agents, based on evidence-based practice. Setting short- and long-term goals for a specific problem at a given time. Continuous reevaluation of the goals and the outcomes.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Student Assessment

Theoretical

- Final written examination with the option for individual or team assignments.

Learning Outcomes

After completing the course the students should be able to:

- Assess the patient by systematically recording the subjective and objective findings, and carry out clinical therapeutic reasoning in order to set the therapeutic goals.
- Use methods and high-tech instrumentation in order to assess the subjective and objective findings in everyday clinical practice.

Suggested Reading

1. Γεωργούδης Γ, Τσατσάκος Γ. Μυϊκός Πόνος: Το φαινόμενο των μυοπεριτονιακών σημείων πυροδότησης (myofascial trigger points). Μέρος 2ο: Παθοφυσιολογία, Κλινικά Ευρήματα, Εργαστηριακά Ευρήματα. Θέματα Φυσικοθεραπείας. 2004; Τόμος Γ'(τεύχος 2): 6-19.
2. Τσατσάκος Γ, Γεωργούδης Γ. Μυϊκός Πόνος: Το φαινόμενο των μυοπεριτονιακών σημείων πυροδότησης (myofascial trigger points). Μέρος 1ο: Εισαγωγή, Ορισμοί, Συχνότητα, Κλινική σημασία, Φυσική εξέλιξη, Επιβαρυντικοί παράγοντες. Θέματα Φυσικοθεραπείας. 2003. Τόμος Β'(τεύχος 6): 6-11.
3. Butler D. Mobilization of the nervous system. Sidney: Churchill Livingstone, 1994.
4. Butler S. David. The Sensitive Nervous System. 1st Edition. Australia: Noigroup, 2006.
5. Cyriax J. Orthopaedic Medicine. Part I: Clinical examination and diagnosis. USA: OPTP, 2003.
6. Georgoudis G, Oldham JA, Watson PJ. Reliability and sensitivity measures of the Greek version of the short-form McGill Pain Questionnaire. European Journal of Pain. 2001; 5:109-118.
7. Georgoudis G, Watson PJ, Oldham JA. The development and validation of a Greek version of the short-form McGill Pain Questionnaire. European Journal of Pain. 2000; 4:275-281.
8. Hattam P, Smeatham A. Special Tests in Musculoskeletal Examination: An evidence-based guide for clinicians, (Physiotherapy Pocketbooks). 1st Edition. London: Churchill Livingstone, 2010.
9. Hoppenfeld S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.
10. Hoppenfeld S: Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
11. Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th Edition. Philadelphia. Davis Plus, 2012.
12. Magee D. Orthopaedic physical assessment. 5th Edition. W.B Saunders Company, 2008.
13. Melzack R & Wall P. Textbook of pain. 6th Edition. London: Churchill Livingstone, 2013.
14. Petty J. Nichola. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists, (Physiotherapy Essentials). 4th Edition. Edinburgh: Churchill Livingstone, 2013

Course Description

Name	Physiotherapy in Musculoskeletal Injuries
Code	N2-4060
Category	Specialty Course, Mandatory
Required	Kinesiology II
Type	Theoretical & Practical
Semester	4th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the course is the study and understanding of the physiotherapeutic assessment and treatment of injuries of the musculoskeletal and the peripheral nervous system. In particular, the assessment of the musculoskeletal system is taught in detail, as is the treatment of musculoskeletal injuries in relation to the bones, the muscles, the tendons, the ligamentous and capsular components, as well as the treatment of peripheral nerve injuries. The teaching units are classified according to body regions and there are two main sections: one of physiotherapeutic assessment and one of physiotherapeutic treatment/rehabilitation. Depending on the type of the injury, the choice of treatment (conservative/surgical), and the result of the physiotherapeutic assessment, the planning of the physiotherapy treatment is determined (postoperative physiotherapy or physiotherapy after conservative treatment).

Course Outline

Theoretical – Teaching Units

- Introduction to the basic theoretical background of physiotherapeutic assessment and treatment of musculoskeletal injuries. Concept of inflammation, healing principles of collagen, connective, neural and bone tissue. Adaptive changes of muscle, neural, connective, collagen and bone tissue to the pathology of the injury/fracture. Fracture complications. Principles of normal motor control and recognition of dysfunctional control. Application principles of therapeutic exercise for musculoskeletal injuries.
- Principles of physiotherapeutic assessment and of recording musculoskeletal problems. Medical history, physical examination. Diagnostic tests, clinical reasoning, selection of treatment based on clinical and research evidence. Findings of special clinical significance during the assessment/rehabilitation of the musculoskeletal system.
- Musculoskeletal injuries of the shoulder – shoulder girdle. Physiotherapeutic assessment and treatment of injuries of the region. Testing for the integrity of tendons, ligaments, muscles, fasciae, capsule, bursae, testing for fibrocartilagous lesions, shoulder instability, impingement syndromes. Shoulder – shoulder girdle fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment of the above injuries (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).
- Musculoskeletal injuries of the elbow. Physiotherapeutic assessment and treatment of elbow region injuries. Testing of the integrity of tendons, ligaments, muscles,

capsule/bursae, and for nerve entrapment. Elbow region fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).

- Musculoskeletal injuries of the wrist and hand. Physiotherapeutic assessment and treatment of wrist and hand region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae, and for fibrocartilagous lesions and nerve entrapment. Wrist and hand fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, nerve decompression, etc.).
- Musculoskeletal injuries of the hip region. Physiotherapeutic assessment and treatment of hip region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae (dislocation, subluxation), and for fibrocartilagous lesions and nerve entrapment. Pelvis and hip fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, hemi and total hip arthroplasty, etc.).
- Musculoskeletal injuries of the knee region. Physiotherapeutic assessment and treatment of knee region injuries. Testing of the integrity of menisci, tendons, ligaments (instability), muscles, capsule/bursae, patellofemoral joint, and for fibrocartilagous lesions. Knee fractures. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon suture, syndesmoplasties, internal or external fixation, hemi or total knee arthroplasty, etc.).
- Musculoskeletal injuries of the foot region. Physiotherapeutic assessment and treatment of foot region injuries. Testing of the integrity of tendons, ligaments (instability), muscles, capsule/bursae. Fractures of the distal third of tibia/fibula and of the foot.. Physiotherapeutic rehabilitation after conservative or surgical treatment (tendon, ligament suture, internal or external fixation, arthroplasty, etc.).
- Musculoskeletal injuries of the spine region (cervical, thoracic and lumbar spine). Physiotherapeutic assessment and treatment of spine injuries. Testing of the integrity of tendons, ligaments (instability), muscles. Fractures of the spine. Physiotherapeutic rehabilitation after conservative or surgical treatment (laminectomy, spondylodesis, kyphoplasty, etc.).
- Peripheral nerve injuries (apraxia, axonotmesis, neurotmesis) with regional application for the upper extremity and the face. Assessment of neurological levels in the upper extremity, the thoracic spine, and of the cranial nerves. Physiotherapeutic treatment protocols and evidence-based practice.
- Nerve "entrapment" syndromes in the upper and lower extremity. Physiotherapeutic assessment and treatment depending on the choice of therapy (conservative or surgical).
- Application principles of physiotherapy treatment programmes for peripheral nerve injuries based on the choice of therapy (conservative physiotherapy and postoperative physiotherapy).

Practical – Teaching Units

- Introductory concepts. Assessment of a patient with a musculosketal injury. Medical history taking, recording of data according to international standards. Practical examples of the recording of findings.

- Assessment of the adult and paediatric patient with a musculoskeletal injury. Physical examination. Basic principles of application. Parameters for correct practice. (Position of patient/therapist, particularities depending on somatotype, type of injury and severity, possible emergency symptoms, etc.).
- Complications of fractures. Practical examples with recording of findings.
- Physiotherapeutic assessment and rehabilitation of shoulder musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings for the shoulder/shoulder girdle. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapeutic assessment and rehabilitation of elbow musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the elbow region. Recording of subjective and objective findings for the elbow region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular injury/tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapeutic assessment and rehabilitation of wrist/hand musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the wrist/hand region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapeutic assessment and rehabilitation of pelvis and hip musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the pelvis/hip region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapeutic assessment and rehabilitation of knee musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the knee region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.

- Physiotherapeutic assessment and rehabilitation of foot musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings for the foot. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, tendon or capsular tear, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Physiotherapeutic assessment and rehabilitation of spinal musculoskeletal injuries in the adult and paediatric patient. Demonstration and practical application of clinical tests that are used to check the integrity of the various structures/tissues in the region. Recording of subjective and objective findings in the spinal region. Clinical reasoning, planning and practical application of the appropriate physiotherapy protocol depending on the type of injury (fracture, ligamentous and muscle injury, etc.) and the type of medical treatment (conservative and/or surgical). Practical examples and application by the students.
- Assessment of the neurological levels of the cervical spine and the brachial plexus. Components of the physiotherapy intervention for problems of these levels. Practical application by the students.
- Assessment of the neurological levels of the thoracic spine, the lumbar spine, the sacrococcygeal roots/sciatic nerve. Components of the physiotherapy intervention for problems of these levels. Practical application by the students.
- Physiotherapeutic intervention application protocol for the conservative or surgical treatment of a peripheral nerve injury (example of physiotherapy application for conservative or postoperative treatment). Practical application by the students.
- Application protocol of physiotherapy intervention for brachial plexus injuries after conservative medical treatment or surgery.
- Assessment and rehabilitation for cranial nerve problems. Treatment of facial nerve paresis. Practical application by the students.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Practical

- The students practise on practical and clinical problems of assessment and physiotherapy intervention for musculoskeletal system injuries.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Assess and record musculoskeletal problems due to injuries to the capsule/bursae, ligaments, muscle, tendons, bones and peripheral nerves.
- Plan and apply a basic physiotherapy rehabilitation protocol depending on the type of musculoskeletal or peripheral nerve injury and the type of medical treatment (conservative or surgical).

Suggested Reading

1. Βυθούλκα Ι, Τσακωνίτη ., Διαμαντόπουλος Κ, Γεωργούδης Γ. Επικονδυλίτιδα αγκώνα: στοιχεία παθοφυσιολογίας-εργονομική παρέμβαση. Θέματα Φυσικοθεραπείας. 2005; 3(6):23-41.
2. Γεωργούδης Γ, Κανέλλου Β, Κατσουλάκης Κ. Γνωσιακή αξιολόγηση του μυοσκελετικού πόνου από τον φυσικοθεραπευτή: η Ελληνική έκδοση του Fear-Avoidance Beliefs Questionnaire, Θέματα Φυσικοθεραπείας. 2005; 3(7):5-21.
3. Canale T, Beaty J. Campbell's Operative Orthopaedics. 12th Edition. London: Mosby, 2013.
4. Chortis A, Chorti A, Forrester G, Georogudis G. Therapeutic exercise in the management of anterior disc displacement of the temporomandibular joint. Physical Therapy Reviews. 2006;11: 117-123.
5. Georgoudis G, Felah C, Angourakis M. Functional improvement, satisfaction level and subjective ratings of improvement in patients using custom-made orthotics in the long-term for forefoot pain (metatarsalgia). World Congress on Pain, IASP, PF507. Milan 27-31, August 2012.
6. Hoppenfeld S: Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
7. Hoppenfield S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.
8. Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th edition. Philadelphia: Published by DavisPlus, 2012.
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10. Petty J. Nichola. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists (Physiotherapy Essentials). 4th Edition. Edinburgh: Churchill Livingstone, 2013.
11. Snyder G. Differential diagnosis for physical therapists. 5th Edition. Edinburgh: Saunders Elsevier, 2012.
12. Solomon L, Warwick D and Nayagam S. Apley's System of Orthopaedics and Fractures. 9th edition. Oxford: Taylor & Francis Group, 2013.

5th Semester

	5th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Research Methods in Physiotherapy	SC	M	2	2	4	N2-5010	5
2.	Physiotherapy in Musculoskeletal Pathology and Diseases	S	M	3	2	5	N2-5020	6
3.	Physiotherapy in Cardiovascular Diseases	S	M	3	2	5	N2-5030	6
4.	Clinical Placement: Physiotherapy in Cardio-Respiratory Diseases	S	M	3	8	11	N2-5040	9
5a	Biostatistics	SC	E	2	-	2	N2-5A10	4
5b	Pharmacology	SC					N2-5B10	
	Total			13	14	27		30

Course Description

Name	Research Methods in Physiotherapy
Code	N2-5010
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	5th
Teaching hours/week	4 hours (T:2, P:2)
ECTS	5

Aims of the Course

The aim of the course is to describe the main principles of research methodology and of the scientific search for information and includes the formation of questions for investigation, the examination of research plans, statistical concepts, literature review, and the development of a research protocol and programme. Special emphasis is placed on the types of research methodology necessary for answering clinical research questions related to physiotherapy.

Course Outline

Theoretical – Teaching Units

- Research evidence in favour for the profession of physiotherapist. Basic concepts of research methodology. The role of research, definitions, research methodology, Requirements of research methodology, the research process. The internet in the service of research.
- Introduction to research plan. Types of sampling, types of research, research plans in the field of health. Basic and applied research.
- Selection of planned research title from the field of physiotherapy. Introduction and mode of writing a research plan. Literature review for the selected project topic. Ways of structuring the "Material and Methods" section for the selected project topic.
- Null and alternative hypotheses. Examples and applications from the field of health, and especially from physiotherapy.
- Measurement. Definitions, measurement scales. Examples and applications from physiotherapy. Parameters and statistical data.
- Reliability. Typical error. Validity, types of validity, internal and external validity, threats to internal and external validity. Sensitivity and specificity.
- Descriptive research. Definitions, types and critique of descriptive design.
- Correlational research. Definitions, limitations and uses of correlations, statistical processes.
- Singe-case research plan. Clinical applications, types, analysis and interpretation.
- Group research plans – two data categories. Statistical analysis with parametrical methods.

- Group research plans – two data categories. Statistical analysis with non-parametrical methods.
- Group research plans – multiple data categories. Statistical analysis with parametrical and non-parametrical design. Preparation of slides for the presentation of project.

Practical – Teaching Units

- Examples of proof of the scientific nature of the physiotherapist's profession. Search process on the internet. Basic platforms such as the internationally recognised PubMed. Examples of search process from the field of physiotherapy using the PubMed platform.
- Examples of types of sampling, types and research plans in the field of health. Examples of basic and applied research in the field of physiotherapy.
- Selection and format of the title of the research plan in the field of physiotherapy. Comparison with similar titles on the internet. Practical example of composing the "Introduction" section of the research plan.
- Examples of composing null and alternative hypotheses. Application of constructing null and alternate hypotheses in the title of the chosen research plan.
- Search process on the internet and methods of composing the "Literature Review" section of the chosen research plan title. Ways of structuring the "Material and Methods" section. Examples from the internet.
- Examples of measurement process and selection of the appropriate measurement scale. Examination of selection of the appropriate measurement scale in published studies on the internet.
- Examples of reliability, validity, sensitivity and specificity in studies related to health sciences, and especially to physiotherapy.
- Examples and critique of published descriptive studies.
- Examples and critique of published correlational studies. Calculation and evaluation of the Pearson and Spearman indices.
- Presentation of research plans.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles.

Practical

- The students practice in groups, searching and selecting published studies on the internet. Individual practice on the above topics and development of research plans with the use of the internet.

Student Assessment

Theoretical

- Final written examination.

Practical

- Intermediate assessments of students in practical teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Understand the aims and the goals of clinical research.
- Describe the information sources of clinical research, such as information derived from libraries and electronic information from sources like Medline/PubMed.
- Develop a plausible research question with minimal assistance.
- Discuss research plans and be aware of the consequences deriving from imperfections of the research plan.
- Understand the concept of appropriate research measurement and successfully apply the concepts of measurement reliability and validity.
- Acquire the skill to perform research measurements and to evaluate the reliability and validity of a measure.
- Compose a plausible research proposal that is related to the field of physiotherapy.
- Comprehend the concepts of descriptive statistics that include the median, the mean value, the standard deviation, the standard error, kurtosis, etc.
- Explain the concept of the hypothetical examination that includes correlation and difference tests.
- Select and apply simple parametric statistical tests, such as Student's t-test, Pearson's correlation index, prediction equations, analysis of variance (ANOVA), as well as simple applications of the respective non-parametric tests.
- Critique the quality of published studies.

Suggested Reading

1. Batavia M. Clinical Research for Health Professionals. A User Friendly Guide. Butterworth - Heinemann, 2001.
2. Bork CE. Research in Physical Therapy. Philadelphia PA: J.B Lippincott Co, 1993.
3. Bowling A. Research Methods in Health: Investigating Health and Health Services. 3rd Edition. Buckingham – Philadelphia: Open University Press, 2009.
4. Carter R, Lubinsky J, Domholdt E. Rehabilitation Research. Principles and Applications. 4th Edition. St. Louis, MO: Elsevier Saunders, 2010.
5. Currier DP. Elements of Research in Physical Therapy. 3rd Edition. Baltimore MD: Williams and Wilkins, 1990.
6. Domholdt E, Carter DR, Lubinsky J. Physical Therapy Research: Principles and Applications. 4th Edition. St. Louis, MO: Saunders, 2010.
7. Payton OD, Sullivan MS. Research: The Validation of Clinical Practice. 4th Edition. Philadelphia PA: F.A. Davis, 2005.
8. Portney LG, Watkins MP. Foundations of Clinical Research: Applications to Practice. 3rd Edition. Upper Saddle River NJ: Pearson/Prentice Hall, 2008
9. Sim J, Wright C. Research in Health Care. United Kingdom: Nelson Thornes, 2002.
10. Σαχίνη Α, Καρδάση Α. Μεθοδολογία Έρευνας στα Επαγγέλματα Υγείας. 3η Έκδοση. Αθήνα: Εκδόσεις Βήτα, 2007.

Course Description

Name	Physiotherapy in Musculoskeletal Pathology and Disorders
Code	N2-5020
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	5th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is the study and understanding of the physiotherapeutic assessment and treatment of musculoskeletal disorders, as defined according to the latest WHO classification (ICD-10).

The aim of the course is for the student to develop the ability to assess musculoskeletal disorders, to record the findings and to plan and apply the appropriate physiotherapy treatment. The theoretical part of the course is subdivided into units that represent wider categories, and the usual clinical disorders are discussed in each unit. Each possible issue or target that needs to be treated is analysed with regard to the physiotherapeutrc assessment and treatment. Then, characteristic musculoskeletal pathologies from each body region are analysed, with a systematic assessment, with a view to designing a physiotherapy programme based on clinical and research evidence.

Course Outline

Theoretical – Teaching Units

- Units 1 – 2: Introductory concepts for the physiotherapeutic assessment and treatment of musculoskeletal disorders. Definitions, classification, distinction between common and uncommon characteristics, description of the units of musculoskeletal disorders. Epidemiological data, predisposing and aggravating factors, prognosis, prevention. Physiotherapeutic assessment and rehabilitation principles in various methods – techniques (Maitland, Mulligan, McKenzie, Butler, etc.) relative to musculoskeletal disorders. Myofascial syndrome – detailed description of the phenomenon.
- Unit 3: Spine deformities (scoliosis, lordosis, kyphosis, flatback, torticollis, spondylolysis, spondylolisthesis, etc.). Detailed description of the most important parameters for the physiotherapeutic assessment of spine deformities in children and adults. Physiotherapy treatment of spine deformities through the planning and application of evidence-based intervention protocols (physiotherapy after conservative or surgical medical treatment).
- Unit 4: Deformities of the extremities (foot, knee, hip, hand, elbow, shoulder). Detailed presentation of the most important parameters in the physiotherapeutic assessment of deformities of the extremities in children and adults. Physiotherapy treatment of deformities of the extremities through the planning and application of evidence-based intervention protocols (physiotherapy after conservative or surgical medical treatment).

- Units 5-6: Arthropathies – Arthritis: Osteoarthritis. Presentation for all joints, more detailed discussion for the most common (hip, knee, spinal, etc.) with emphasis on the physiotherapeutic assessment and rehabilitation principles.
- Unit 7-8: Arthropathies – Arthrities: Rheumatoid arthritis, ankylosing spondylitis, fibromyalgia, lupus erythymatosus, and other types of inflammatory arthropathies. Presentation of all the common types of rheumatically related musculoskeletal disorders. More detailed discussion of the most common, with emphasis on the physiotherapeutic assessment and rehabilitation principles.
- Unit 9: Musculoskeletal disorders of the thoracic and lumbar spine (back pain, lower back pain with or without neurological signs, discopathies, radiculopathies, instabilities of the lumbar spine, etc.). Detailed discussion of the physiotherapeutic assessment and rehabilitation principles.
- Unit 10: Musculoskeletal disorders of the cervical spine (cervical pain, cervicobrachial syndrome, etc.). Detailed discussion of the physiotherapeutic assessment and rehabilitation principles.
- Unit 11: Disorders of the soft tissues (capsulitis, bursitis, tenosynovitis, tendinopathy, periarthritis, enthesopathy, etc.). Characteristic examples of musculoskeletal disorders of the upper extremity (shoulder and elbow joints) (e.g. adhesive capsulitis, rotator cuff syndrome, subacromial impingement syndrome, calcifying tendinits, bursitis, enthesopathy, periarthritis, medial and lateral epicondylitis, etc.). Detailed discussion of physiotherapeutic assessment and rehabilitation.
- Unit 12: Soft tissue disorders (capsulitis, bursitis, tenosynovitis, tendinopathy, periarthritis, etc.). Characteristic examples of musculoskeletal disorders of the lower extremity (hip and knee joints). Detailed discussion of physiotherapeutic assessment and rehabilitation.
- Unit 13: Soft tissue disorders (capsulitis, bursitis, tenosynovitis, tendinopathy, enthesopathy, aponeurositis, algodystrophy, etc.). Characteristic examples of musculoskeletal disorders of the hand and foot. Detailed discussion of physiotherapeutic assessment and rehabilitation.

Practical – Teaching Units

- Introductory concepts. Assessment of patient with a musculoskeletal disorder. Medical history, recording of data according to international standards. Practical application of techniques and methods of assessment and therapy.
- Physiotherapeutic assessment and treatment principles for spine deformities: Kyphosis – lordosis, flat-back, flaccid position.
- Physiotherapeutic assessment and treatment principles for spine deformities: Scoliosis – torticollis.
- Physiotherapeutic assessment and treatment principles for muscle tissue – fascia: Physiotherapy intervention techniques.
- Physiotherapeutic assessment and treatment principles for connective tissue (chronic problems): Ligaments/Capsulae/Bursae. Physiotherapy intervention techniques.
- Physiotherapeutic assessment and treatment principles for connective tissue (chronic problems): Tendons. Physiotherapy intervention techniques.

- Physiotherapeutic assessment and treatment principles for neural tissue (mobilisation of peripheral neural tissue) (for chronic problems). Physiotherapy intervention techniques.
- Practical application of the concepts of physiotherapeutic assessment and treatment of musculoskeletal disorders in the knee region. Practical exercise in a characteristic example of knee osteoarthritis.
- Practical application of the concepts of physiotherapy assessment and physiotherapy treatment of musculoskeletal disorders in the lumbar spinal region. Practical exercise in a characteristic example of lower-back pain/sciatica of myofascial aetiology, with or without radiculopathy.
- Practical application of the concepts of physiotherapeutic assessment and treatment of musculoskeletal disorders in the cervical spinal region. Practical exercise in a characteristic example of neck pain/pain radiating to the upper extremity.
- Practical application of the concepts of physiotherapeutic assessment and treatment of musculoskeletal disorders in the shoulder region. Practical exercise in a characteristic example of adhesive capsulitis of the shoulder.
- Practical application of the concepts of physiotherapeutic assessment and treatment of musculoskeletal disorders in the hip and elbow region. Practical exercise in a characteristic example of hip trochanteritis and elbow epicondylitis.
- Practical application of the concepts of physiotherapeutic assessment and treatment of musculoskeletal disorders in the hand and foot. Practical exercise in a characteristic example of plantar aponeurosits and DeQuervain tenosynovitis.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practice on practical and clinical problems of assessment and physiotherapeutic intervention in disorders of the musculoskeletal system.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Assess and record musculoskeletal problems due to disorders of the joint capsule/bursa, ligaments, muscles, tendons, aponeurosis and bone.

- Assess, plan and apply a basic physiotherapy rehabilitation protocol according to the type of the musculoskeletal disorder in children or adults, and according to the conservative or surgical option of medical treatment.

Suggested Reading

1. Αθανασόπουλος Σ. Κινησιοθεραπεία. Αθήνα: Χρ. & Γ. Παρμενιάδης Ο.Ε., 1989.
2. Βυθούλκα Ι, Τσακωνίτη Α, Διαμαντόπουλος Κ, Γεωργούδης Γ. Επικονδυλίτιδα αγκώνα: στοιχεία παθοφυσιολογίας-εργονομική παρέμβαση. Θέματα Φυσικοθεραπείας. 2005; 3(6):23-41.
3. Γεωργούδης Γ, Κανέλλου Β, Κατσουλάκης Κ. Γνωσιακή αξιολόγηση του μυοσκελετικού πόνου από τον φυσικοθεραπευτή: η Ελληνική έκδοση του Fear-Avoidance Beliefs Questionnaire, Θέματα Φυσικοθεραπείας. 2005; 3(7):5-21.
4. Baxter R. Musculoskeletal assessment. 2nd Edition. London: Saunders, 2003.
5. Butler D. The neurodynamic techniques. Australia: Noigroup, 2005.
6. Canale T, Beaty J. Campbell's Operative Orthopaedics. 12th Edition. London: Mosby, 2013.
7. Chortis A, Chorti A, Forrester G, Georogudis G. Therapeutic exercise in the management of anterior disc displacement of the temporomandibular joint. Physical Therapy Reviews. 2006: 11: 117-123.
8. Fritz S, Fryer G, Crenshaw K. et al. Muscle energy techniques. Edinburgh: Churchill Livingstone, 2006.
9. Georgoudis G, Felah C, Angourakis M. Functional improvement, satisfaction level and subjective ratings of improvement in patients using custom-made orthotics in the long-term for forefoot pain (metatarsalgia). World Congress on Pain, IASP, PF507. Milan 27-31, August 2012.
10. Hoppenfeld S. Ορθοπεδική Νευρολογία. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2005.
11. Hoppenfield S. Φυσική εξέταση της σπονδυλικής στήλης και των άκρων. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.
12. Kaltenborn F. Manual mobilization of the joints. 6th Edition – Revised. Oslo, Norway: Norli, 2007.
13. Kisner C, Colby L. Therapeutic Exercise: Foundations and Techniques. 6th Edition. Philadelphia: DavisPlus, 2012.
14. Magee D. Orthopaedic physical assessment. 5th Edition. New York: Saunders Company, 2008.
15. Petty JN. Neuromusculoskeletal Examination and Assessment: A Handbook for Therapists (Physiotherapy Essentials). 4th Edition. Edinburgh: Churchill Livingstone, 2013.
16. Snyder G. Differential diagnosis for physical therapists. 5th Edition. Edinburgh: Saunders Elsevier, 2012.
17. Solomon L, Warwick D and Nayagam S. Apley's System of Orthopaedics and Fractures. 9th Edition. Oxford: Taylor & Francis group, 2013.

Course Description

Name	Physiotherapy in Cardiovascular Diseases
Code	N2-5030
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	5th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is the understanding of basic assessment and rehabilitation methods for the cardiovascular patient. The evaluation of the functional capacity of the cardiovascular system of healthy persons and of cardiovascular patients is taught in detail. Special emphasis is given to the effect and the benefits of regular exercise in relation to the function of the circulatory system, while the role of exercise in the primary prevention and rehabilitation of cardiovascular disorders is stressed. The basic principles for the designing of cardiovascular adaptation programmes are analysed, as well as the protocols for the prevention and rehabilitation of cardiac diseases. Finally, the planning of fitness improvement programmes for persons with vascular diseases and metabolic disorders, such as diabetes and metabolic syndrome, is taught, with special emphasis on improving the aerobic capacity and the strength of the musculoskeletal system.

Course Outline

Theoretical – Teaching Units

- Degree and severity of the issue of cardiovascular diseases. Epidemiological data. Evidence for the necessity of planning prevention and rehabilitation problems. Elements of pathophysiology.
- Energy bais of physical work and exercise. Aerobic metabolism – anaerobic glucolysis. Aerobic exercise – strengthening programme. Functional capacity of the circulatory system.
- Adaptation of cardiovascular function to exercise. Economy of myocardial work. Heart rate. Arterial pressure, double product.
- Assessment of the economy of myocardial work. Immediate and long-term effects of exercise on the economy of myocardial work.
- Adaptation of cardiovascular function to exercise. Performance of the circulatory system. Stroke volume, cardiac output, oxygen intake.
- Assessment of the performance of the circulatory system. Maximal oxygen intake. Immediate and long-term effects of exercise on the performance of the circulatory system.

- Assessment of the functional capacity of the circulatory system. Maximal exercise stress test. Cardiopulmonary stress test. Utilisation of stress test data for the planning of cardiovascular adaptation programmes.
- Design and organisation methodology of cardiovascular adaptation programmes. Basic exercise design principles.
- Primary prevention of cardiovascular diseases. Planning of exercise programmes.
- Secondary prevention of cardiovascular diseases. Planning of rehabilitation programmes.
- Secondary prevention of cardiovascular diseases. Planning of rehabilitation programmes. Physiotherapy in the intensive care unit.
- Planning of special rehabilitation programmes for patients with coronary disease, for patients who have undergone bypass surgery, for patients with heart failure and for patients who have undergone heart transplantation.
- Physiotherapeutic assessment and treatment of peripheral vascular diseases.
- Planning of special rehabilitation programmes for patients with metabolic diseases and disorders, such as diabetes and metabolic syndrome.
- Assessment and treatment of cardiovascular patients with orthopaedic, neurological and other problems.

Practical – Teaching Units

- Functional assessment of the cardiovascular patient.
- Heart rate measurement and assessment techniques.
- Arterial pressure measurement and assessment techniques.
- Assessment of pulse waves.
- Assessment of clinical symptoms of the cardiovascular patient.
- Techniques of assessing the economy of myocardial work.
- Techniques of assessing the performance of the circulatory system.
- Physiotherapeutic treatment of the cardiovascular patient. Stage I (patients with myocardial infarction, ischaemic cardiopathy, etc.).
- Physiotherapeutic treatment of cardiovascular diseases. Stages II, III.
- Planning of exercise programmes for vascular problems. Peripheral arteriopathies.
- Planning of exercise programmes for vascular problems. Venous thrombosis – Phlebitis.
- Planning of exercise programmes for metabolic diseases, such as diabetes and metabolic syndrome.
- Physiotherapeutic treatment of cardiovascular patients with accompanying musculoskeletal, neurological and other problems.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practise on practical and clinical problems of cardiovascular function assessment and planning an exercise programme.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Intermediate assessment of students at practical units.

Learning Outcomes

After completing the course the students should be able to:

- Assess the basic parameters of the functional capacity of the circulatory system.
- Understand in detail the design methodology of preventive cardiovascular adaptation programmes and cardiovascular rehabilitation programmes and to apply the basic planning principles for exercise programmes in cooperation with patients, after obtaining their written informed consent.
- Cooperate with other health professional when necessary (multidisciplinary meetings).

Suggested Reading

1. Νανάς Σ: Αλγόριθμοι στην Καρδιοπνευμονική Αναζωογόνηση. Αθήνα: Εκδόσεις Αθ. Σταμούλης, 2006.
2. Νανάς Σ: Καρδιοαναπνευστική Δοκιμασία Κοπώσεως και Προγράμματα Καρδιοαναπνευστικής Αποκατάστασης. Αθήνα: Εκδόσεις Αθ. Σταμούλης, 2006.
3. Παπαθανασίου Γ. Ομάδα Εργασίας της ΕΕΕΦ για την Πρόληψη και Αποκατάσταση των Καρδιοαγγειακών και Αναπνευστικών Παθήσεων. Αποκατάσταση Καρδιοαγγειακών Παθήσεων. Βασικές Αρχές Σχεδιασμού Προγραμμάτων Άσκησης. Θέματα Φυσικοθεραπείας – Physiotherapy Issues. 2006; 4(3):6-12.
4. American Association of Cardiovascular and Pulmonary Rehabilitation: Guidelines for Cardiac Rehabilitation and Secondary Prevention Programs. 5th Edition. Champagne, IL: Human Kinetics, 2013.
5. American College of Cardiology / American Heart Association: Gibbons RJ, et al. ACC/AHA 2002 Guideline Update for Exercise Testing. Circulation. 2002; 106:1883-1892.
6. American College of Sports Medicine - American Heart Association. Physical Activity and Public Health: Updated Recommendation for Adults. Circulation. 2007; 116:1081-1093.
7. American College of Sports Medicine: ACSM`s Guidelines for Exercise Testing and Prescription. Wolters Kluwer/ Lippincott Williams & Wilkins, 9th Edition, 2013.
8. American College of Sports Medicine: ACSM`s Resource Manual for Guidelines for Exercise Testing and Prescription. Wolters Kluwer/ Lippincott Williams & Wilkins, 7th Edition, 2013.
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10. American Heart Association: A Scientific Statement. Balady GJ, et al. Clinician's Guide to Cardiopulmonary Exercise Testing in Adults: A Scientific Statement. Circulation. 2010; 122:191-225.

11. American Heart Association: A Scientific Statement. Thompson PD, et al. Exercise and Physical Activity in the Prevention and Treatment of Atherosclerotic Cardiovascular Disease. Circulation. 2003; 107:3109-3116.
12. American Heart Association: A Statement for Healthcare Professionals. Balady GJ, et al. Core Components of Cardiac Rehabilitation/Secondary Prevention Programs. Circulation. 2000; 102:1069-1073.
13. American Heart Association: A Statement for Professionals. Lauer M, et al. Exercise Testing in Asymptomatic Adults. Circulation. 2005; 112:771-776.
14. Astrand PO, Rodahl K, Dahl HA, et al. Textbook of work physiology. Physiological basis of Exercise. 4th Edition. Champagne, IL: Human Kinetics, 2003.
15. Charakida M, Masi S, Deanfield JE. The Year in Cardiology 2012: Focus on cardiovascular disease prevention. European Heart Journal. 2013; 34(4):314-317.
16. European Association for Cardiovascular Prevention and Rehabilitation. Piepoli MF, Cora U, Benzer W, et al. Secondary Prevention through Cardiac Rehabilitation. A Position Paper from the Cardiac Rehabilitation Section. European Journal of Cardiovascular Prevention and Rehabilitation. 2010; 17:1-17.
17. European Association for Cardiovascular Prevention and Rehabilitation. Perk G, Baker GD, Gohlke H, et al. European Guidelines on cardiovascular disease prevention in clinical practice (version 2012). European Journal of Preventive Cardiology. 2012; 19:585-667.
18. European Society of Cardiology Guidelines. Tendera M, et al. Diagnosis and Treatment of Peripheral Artery Diseases. European Heart Journal. 2011; 32:2851–2906.
19. Muller-Riemenschneidera F, Meinhard C, Damm K, et al. Effectiveness of nonpharmacological secondary prevention of coronary heart disease. European Journal of Cardiovascular Prevention and Rehabilitation. 2010; 17:688-700.
20. Papathanasiou G, Tsamis N, Georgiadou P, Adamopoulos S. Beneficial Effects of Physical Training and Methodology of Exercise Prescription in Patients with Heart Failure. Hellenic Journal of Cardiology. 2008; 49:267-2

Course Description

Name	Clinical Placement: Physiotherapy in Cardiorespiratory Diseases
Code	N2-5040
Category	Specialty Course, Mandatory
Required	Respiratory Physiotherapy
Type	Theoretical & Practical
Semester	5th
Teaching hours/week	11 hours (T:3, P:8)
ECTS	9

Aims of the Course

The aim of the course is to familiarise the students with the approach to patients with diseases of the respiratory system, the clinical reasoning and decision making in a clinical environment. The students learn to link theory to evidence-based practice in a clinical setting. The clinical practice is focused mainly on a) the assessment of the chronic respiratory patient, the patient in the intensive care unit (ICU) and the surgical patient (lungs, heart, abdomen), b) goal setting and the application of individualised inventive programmes for each clinical case, and c) the clinical significance of the reassessment in relation to the effectiveness/appropriateness of the selected intervention.

Course Outline

Theoretical – Teaching Units

- Unit 1: Respiratory physiotherapy – Clinical practice. The role of a physiotherapist in a clinical setting (standarisation of physiotherapy practice).
- Unit 2: Theories of changing behaviour (breathing). The health beliefs mode. The trans-theoretical model for the change of behaviour stages. The planned behaviour theory model.
- Unit 3: Methodological design of respiratory physiotherapy interventions. Validity-reliability of measurements with assessment tools for the respiratory patient. Experimental design in respiratory physiotherapy.
- Unit 4: The effect of respiratory physiotherapy on acidobasic balance. Literature review on the effect of respiratory physiotherapy on acidobasic balance in chronic respiratory patients and ICU patients.
- Unit 5: Oxygen therapy, oxygenation of the chronic respiratory patient and the ICU patient. Application and regulation of oxygen therapy devices. Oxygenation indices (PaO_2, $SatO_2$, PaO_2, F_iO_2).
- Unit 6: Analysis of clinical cases with obstructive diseases – guidelines for COPD, cycstic fibrosis, asthma. Methodology of assessment and design of individualised intervention. Clinical reasoning. Reference to experimental research.
- Unit 7: Respiratory rehabilitation. Assessment methodology. Inclusion/exclusion criteria. Standardised programmes of aerobic exercise (continuous, intermediate). Standardised

programmes for the strengthening of respiratory muscles, upper and lower extremities. Reference to experimental research.

- Unit 8: Analysis of clinical cases after thoracic or abdominal surgery (heart – lung tissue – abdomen), methodology of assessment and design of individualised intervention. Clinical reasoning. Reference to experimental research.
- Unit 9: Analysis of clinical cases with diseases of the pleura, spine and chest deformities, diseases of the pulmonary parenchyma and spinal cord injuries. Methodology of assessment and design of individualised intervention. Clinical reasoning. Reference to experimental research.
- Unit 10: Respirators – mechanical ventilation – non-invasive mechanical ventilation (NIMV). Acute respiratory failure. Indications for mechanical ventilation – NIMV. Clinical practical with presentation and demonstration of the capabilities and functions of respirators – NIMV devices in patients and students.
- Unit 11: Exercise programmes for the respiratory muscles in the ICU. Mechanisms of muscle strength reduction of the respiratory muscles in the ICU. Assessment methodology, standardised programmes for respiratory muscle strengthening in the ICU. Reference to experimental research.
- Unit 12: Analysis of clinical cases of early mobilisation in the ICU. Assessment methodology and design of individualised intervention. Clinical reasoning. Reference to experimental research.
- Unit 13: Analysis of clinical cases in the ICU. Patients at an advanced stage of chronic respiratory failure. Patients with respirator-related or atelectasis-related pneumonia. Patients with postoperative complications. Patients with brain injuries. Patients with spine and spinal cord injuries. Patients with flail chest. Patients with extended burns, pulmonary embolism, etc. Assessment methodology and design of individualised intervention. Clinical reasoning. Reference to experimental research.

Practical – Teaching Units

The practical part of the course takes place at public hospitals with the students forming small groups and rotating in Pulmonology, Surgery, Thoracic surgery, Cardiac surgery, Neurology, Internal Medicine clinics and in ICUs, in 5 to 7 clinics/stations:

- Pulmonology clinic (COPD, asthma)
- Pulmonology clinic (cystic fibrosis)
- Thoracic surgery clinic
- Cardiac surgery clinic
- ICU
- Pulmonary rehabilitation
- Paediatric clinic - ICU

The lecturer is solely responsible for the assessment methodology and planning of the individualised intervention and for the application of respiratory techniques—and afterwards, with the patient's consent, by the student. In each clinic/station the students are trained in:

- The approach to the respiratory patient and the development of good cooperation with both the patient and the clinic's multidisciplinary group.

- The methodology of assessing the respiratory patient, planning the individualised intervention, always with the patient's consent, and the clinical application in real patients: with asthma, COPD, cystic fibrosis, rib fractures, before and after pulmonary surgery, before and after cardiac surgery, before and after upper abdominal surgery, with diseases of the respiratory parenchyma, with pleural diseases, with neurological diseases, under treatment in the ICU with intubation or tracheostomy and on mechanical ventilation (NIMV) with an indication for respiratory rehabilitation (chronic respiratory/heart failure).

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department

Practical

Training of students on real patients for:

- Methodology assessment.
- Application of physiotherapy techniques.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Cooperate with the multidisciplinary group of each clinic for each case separately.
- Approach and communicate with any category of patient (different ethnicity, religion, etc.).
- Assess the respiratory and postoperative patient according to an appropriate methodology and to manage the findings of this assessment with comprehensive clinical reasoning.
- Comprehend the variety of the available options in clinical practice, to educate the patients about the possible benefits of each option, and to jointly select the most appropriate and safe for the achievement of short- and long-term goals.
- Reevaluate the selected intervention.

Suggested Reading

1. Μυριανθεύς Π, Μπαλτόπουλος Γ. Μηχανική υποστήριξη της αναπνοής. Αθήνα: Ιατρικές Εκδόσεις Π. Χ. Πασχαλίδης, 2005.
2. Bissett B, Leditschke IA, Paratz JD, et al. Respiratory dysfunction in ventilated patients: Can inspiratory muscle training help? Anesth Intensive Care. 2012; 40:236-246.

3. Cader SA, Vale RG, Castro JC, et al. Inspiratory muscle training improves maximal inspiratory pressure and may assist weaning in older intubated patients: A randomized trial. J Physiother. 2010; 56:171-177.
4. Daniels T. Physiotherapeutic management strategies for the treatment of cystic fibrosis in adults. Journal of Multidisciplinary Healthcare. 2010; 3:201–212.
5. Grammatopoulou E, Belimpasaki V, Valalas A, et al. Active Cycle of Breathing Techniques-ACBT contributes to pain reduction in patients with rib fractures. Hellenic Journal of Surgery. 2010; 82:42-47.
6. Grammatopoulou E, Haniotou A, Douka G, et al. Factors associated with BMI in Greek adults with asthma. Journal of Asthma. 2010; 47:276-280.
7. Mackenzie C, Imle C, Ciesla N. Chest physiotherapy in the intensive care unit. Baltimore, Maryland: Williams & Wilkins, 1989.
8. Moodie LH, Reeve JC, Vermeulen N, et al. Inspiratory muscle training to facilitate weaning from mechanical ventilation: Protocol for a systematic review. BMC Research Notes. 2011; 4:283.
9. Reeve J. Physiotherapy interventions to prevent postoperative pulmonary complications following lung resection. What is the evidence? What is the practice? New Zealand Journal of Physiotherapy. 2008; 36(3):118-130.
10. Schweickert A, William D, Kress JP. Implementing Early Mobilization Interventions in Mechanically Ventilated Patients in the ICU Early Mobilization in the ICU. Chest. 2011; 6:1612-1617.
11. Stiller K. Physiotherapy in intensive care towards an evidence-based practice. Chest. 2000; 118:1801-1813.
12. Stiller K. Safety issues that should be considered when mobilizing critically ill patients. Critical Care Clin. 2007; 23:35-37.

Course Description

Name	Biostatistics
Code	N2-5A10
Category	Special Core Course, Elective
Required	--
Type	Theoretical
Semester	5th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is for the students to comprehend the basic concepts of the science of statistics and of probability theory and their application in research in the field of health sciences. The goal is to enable the students to absorb the teaching material and use their knowledge in their professional field, as well as in wider applications of biostatistics that are necessary for the study of health problems.

Course Outline

Theoretical – Teaching Units

- The role of statistics in medicine. Basic concepts, selection of statistical analysis, elements of designing medical research studies.
- Population and sample. Sampling methods and sampling error, types of variables.
- Collection and presentation of the statistical material (tables, graphs).
- Measures of position and scatter.
- Randomised experiments. Sampling spaces. The concept of probability.
- Probabilities, random variables (rv), distributions of rv and study of related parameters.
- Main discrete one-dimensional distributions (binary distribution, hypergeometric distribution, geometric distribution, negative binary distribution, Poisson distribution).
- Main continuous one-dimensional distributions (uniform distribution, exponential distribution, normal distribution).
- Confidence intervals. Hypothesis control (one mean value, one percentage, applications). Estimation of difference of mean values, estimation of difference of two percentages, applications.
- Non-parametric statistics (chi square – adaptation control, chi square – independence control, chi square – homogeneity control, applications).
- Dependence. Correlation. Simple linear regression.
- Introduction to analysis of variance.
- Non-parametric tests.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Learning Outcomes

After completing the course the students should:

- Have basic knowledge about biostatistics and its application to the description and analysis of biological variables in health sciences.
- Understand the methodology of application of descriptive and conclusive statistical analysis in topics of physiotherapy research and clinical practice.

Suggested Reading

1. Κατσουγιαννόπουλος Β. Βασική Ιατρική στατιστική. Εκδοτικός Οίκος Αδελφών Κυριακίδη Α.Ε., 2009.
2. Altman G. Practical Statistics for Medical Research. Great Britain: Chapman & Hall, 1991.
3. Bland M. An Introduction to Medical Statistics. Second Edition. Oxford Medical Publication, 2000.
4. Cox DR, Oakes D. Analysis of Survival Data. Monographs on Statistics and Applied Probability. Chapmand and Hall, 1984.
5. Everitt B, Dunn G. Statistical Methods of Medical Data: New developments. Arnold Publications, 1998.
6. Fisher LD, Gerald van Belle. Biostatistics - Methodology for the Health Sciences. New York: Wiley 2004.
7. Hsu JC. Multiple Comparisons. Theory and methods. Chapman and Hall, 1996.

Course Description

Name	Pharmacology
Code	N2-5B10
Category	Special Core Course, Elective
Required	--
Type	Theoretical
Semester	5th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is for the students to acquire a basic knowledge of general pharmacology, the main categories of drugs per disease and per system, the indications for their administration and their side effects.

Course Outline

Theoretical – Teaching Units

General pharmacology

- Definitions, introduction to pharmacology and pharmacodynamics.
- Routes of drug administration. Principles of prescription writing. Definitions, patent medicines, principles of pharmaceutical action, goals of pharmaceutical action, cellular action of drugs. Absorption, bioavailability, distribution, excretion of drugs.
- Drug metabolism. Basic exercises involving units and calculation of pharmaceutical dosage.
- Adverse effects and side effects of drugs, tolerance, addiction, drug addiction.
- Special prescription.

Special pharmacology

- Drugs acting on the central nervous system: drugs for the sympathetic system. Drugs for the parasympathetic system. CNS suppressants – sedatives. Antiepileptics. Antipsychotics. Antidepressants – antimanics. Minor sedatives. Antiparkinson drugs.
- Antibiotics.
- Drugs acting on the digestive system. Stomach, intestine.
- Drugs acting on the circulatory system.
- Antipyretics, analgesics, anti-inflammatory analgesics.
- Drugs acting on the respiratory system.
- Drugs for endocrine glands.
- Haematological drugs.
- Chemotherapeutic – antineoplasmatic drugs.
- Targeted drugs. Drugs against gene anomalies.

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be:

- Familiar with the concept of drugs, be aware of the main modes of drug action, the drug categories according to disease and system, and should have acquired skills in relation to drug administration (principles of prescription, dosage, indications, side effects, etc.).

Suggested Reading

1. Greenstein B.Trounce's Κλινική φαρμακολογία για νοσηλευτές. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2007.
2. Netter Άτλας Βασικών Ιατρικών Επιστημών, Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2008.
3. Page C, Curtis M, Sutter M, Walker M, Hoffman B. Φαρμακολογία. Αθήνα:Εκδόσεις Π.Χ Πασχαλίδη, 2008.
4. Simonsen T, Aarbakke J, Kay I, Coleman I, Sinott P, Lysaa R. Νοσηλευτική Φαρμακολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2009.

6th Semester

	6th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Physiotherapy in Specific Population Groups	S	M	3	2	5	N2-6010	6
2.	English Medical Terminology	AELH	M	3	-	3	N2-6020	5
3.	Physiotherapy in Neurological Paediatric Disorders and Diseases	S	M	3	2	5	N2-6030	6
4.	Clinical Placement: Physiotherapy in Musculoskeletal Injuries and Disorders	S	M	3	8	11	N2-6040	9
5a	Ethics in Physiotherapy	SC	E	2	-	2	N2-6A10	4
5b	Health Psychology	AELH					N2-6B10	
	Total			14	12	26		30

Course Description

Name	Physiotherapy in Specific Population Groups
Code	N2-6010
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	6th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is for the students to understand the concept of the diverse physiotherapeutic approach to the patient depending on age and the specific morbidity that may be part of the health index. During the course, the students will have the chance to encounter and to analyse in detail various approaches, such as physiotherapy in the child and the teenager, in mastectomy, burns, amputations, the ergonomic physiotherapy approach for various vocations, the special problems of the third age, and the behavioural problems of persons with disabilities. The aim of the course is the acquisition of skills for searching the relevant literature and the understanding of complex clinical cases.

Course Outline

Theoretical – Teaching Units

- Analysis and understanding of clinical reasoning for the planning of therapeutical exercise programmes at various stages of rehabilitation. Particularities of therapeutic exercise depending on age.
- Normal changes of systems with age: a) cardiorespiratory system, b) musculoskeletal system, c) neuromuscular system, d) hormonal system.
- Similarities and differences of the muscular tissue in older and young people. Mechanical properties of bone and chondral tissue with age. Osteoporosis.
- Changes in the gait of older – young persons. Balance and proprioception problems in the elderly. Causes and prevention of falls at various ages. Group programmes. Ergonomic interventions at older people's homes. Everyday activities indoors and outdoors. Prevention – counselling.
- Hydrotherapy, health baths, thalassotherapy, physiotherapy intervention. Group hydrokinesiotherapy programmes.
- Obesity at various ages, physiotherapeutic approach to associated problems.
- Diabetes and musculoskeletal problems – physiotherapeutic approach.
- Pregnancy and changes in the a) musculoskeletal, b) cardiorespiratory and c) hormonal systems. Physiotherapeutic approach pre and postnatally. Particularities of normal or abnormal labour.
- Neurogenic cyst, pelvic floor insufficiency, incontinence. Physiotherapeutic approach.

- Burns, classification, rehabilitation according to age: a) children, b) adults, c) the elderly. Physiotherapeutic approach.
- Amputations – stumps – orthotics according to age and activities: a) children, b) the elderly, c) athletes. Abnormal gait of amputee according to height of amputation.
- Wheelchairs for children – wheelchairs for athletes – wheelchairs for elderly people.
- Behavioural problems of persons with disabilities: a) children – young persons, b) adults – the elderly. Psychiatric problems and physiotherapy in young and elderly persons.
- Immune Deficiency Syndrome. Complications in various systems. Physiotherapy approach.

Practical – Teaching Units

- Planning and applying composite therapeutic programmes for various clinical cases, with simulations involving the students and understanding of the process of analysis and obtaining consent.
- Planning and applying individualised therapeutical exercise programmes for the elderly. Balance problems – differences in the gait of younger and older persons. Rehabilitation – prevention of falls at various ages.
- Differences between younger and older people in rehabilitation after immobilisation with regard to a) bone tissue, b) muscle tissue, c) neural tissue. Planning and applying group therapeutical exercise programmes according to the age and category of patients.
- Ergonomic interventions at the homes of the elderly and other motor impaired clinical cases. Training of motor function indoors and outdoors.
- Individual and group exercise at organised centres of hydrotherapy, thalassotherapy, health baths.
- Physiotherapeutic approach to obesity in a) childhood, b) puberty, c) adulthood, the elderly.
- Pregnancy. Exercise programmes pre and postnatally. Particularities of postoperative cases.
- Lymphoedema – primary – postoperative, mastectomy and other neoplasm surgeries. Special massage and therapeutic exercise techniques.
- Incontinence – Assessment and reeducation of pelvic floor programmes.
- Planning and applying composite therapeutic programmes for diabetics. Age-related particularities, prevention and counselling for the diabetic foot.
- Physiotherapeutic treatment of burns depending on age: a) childhood, b) adulthood, c) the elderly. Particularities in the treatment of secondary complications.
- Rehabilitation – selection of orthosis. Gait training of amputee according to the height of amputation, age and activities. a) Children, b) the elderly, c) athletes.
- Planning and applying individual and group programmes for people with mental diseases.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- Recognition and differential diagnosis of clinical problems according to region, functional structure and age for the planning of therapeutic programmes.
- Application of physiotherapy programmes by the students in pairs, plus simulation of individualised programmes, composing a patient file and obtaining written consent for the type of therapy.
- Application of physiotherapy programmes by the students in groups, plus simulation of group programmes.

Student Assessment

Theoretical

- Final written examination and oral presentation of an assignment processed during the lectures with the assistance of the lecturer.

Practical

- Intermediate assessment of students in practical units.

Learning Outcomes

After completing the course the students should be able to:

- Assess and analyse the differences manifesting in clinical cases depending on age and plan physiotherapy programmes, taking into account international guidelines with regard to the decision-making process, bioethics and scientific data issues.
- Develop critical thinking and evidence-based perception regarding the application of therapeutic methods, based on physiotherapeutic assessment in special cases of patients who manifest a combination of problems, and to participate in multidisciplinary rehabilitation teams.
- Develop methods for solving problems deriving primarily from ageing tissues and from morbidity, such as neoplasms, diabetes and acquired motor dysfunctions due to burns, amputations and other disabilities.

Suggested Reading

1. Λυρίτης Γ. Μεταβολικά Νοσήματα των Οστών. 4η Έκδοση. Αθήνα: HYLONOME, 2007.
2. Πέττα Γ. Η παρουσία προγραμμάτων πρόληψης μυοσκελετικών προβλημάτων στα πλαίσια της αγωγής υγείας στους έφηβους μαθητές. 23ο Συνέδριο Φυσικοθεραπείας της Ελληνικής Επιστημονικής Εταιρείας Φυσικοθεραπείας. Αθήνα, 4-6 Δεκεμβρίου 2009. Θέματα Φυσικοθεραπείας. 2009; 5(8):64.
3. Πέττα Γ. Φύλλα διδασκαλίας σε ηλεκτρονική μορφή (e-class), Αθήνα: Εκδόσεις ΤΕΙ Αθήνας, 2013.
4. Πουλμέντης Π. Βιολογική μηχανική – Εργονομία. Αθήνα: Εκδόσεις Καπόπουλος, 2007.
5. Χριστοδούλου, Κονταξάκης. Η Τρίτη Ηλικία. Αθήνα: Εκδόσεις Βήτα, 2007.
6. HELIOS. Διατροφή και σκελετική Υγεία. Μονογραφία. Αθήνα: HELIOS, 2009.
7. HELIOS. Εγχειρίδιο Συστάσεων για τον Σχεδιασμό και την Εκτέλεση Κλινικών Μελετών. Μονογραφία , Αθήνα, 2011.
8. HELIOS. Κατευθυντήριες γραμμές για την διάγνωση και αντιμετώπιση της Οστεοπόρωσης στην Ελλάδα. Μονογραφία , Αθήνα, 2004.
9. Karakasidou P, Skordilis E, Dontas I, Postural profile and falls of osteoporotic women. J of Back and Musculoskeletal Rehabilitation. 2012; 25:55-66.

10. Kisner C and Colby LA. Therapeutic Exercise, Foundations and Techniques. 6th Edition. Philadelphia: DavisPlus, 2012.
11. Magee D. Orthopedic Physical Assessment. 5th Edition. Philadelphia: Saunders, 2007.
12. Maxey l, Magnusson J. Rehabilitation for the Postsurgical Orthopedic Patient. 2nd Edition. USA: Mosby Co, 2012.
13. Petta G. Osteoporosis and evidence based exercise. 3ο Παγκύπριο Συνέδριο Φυσικοθεραπείας με Διεθνή Συμμετοχή. Λεμεσός, Κύπρος, 11-13,Νοεμβρίου 2011. Congress Proceedings p:63-72. 2011.
14. Shumway-Cook A, Woollacott MH. Motor Control: Theory and Practical Applications. 2nd Edition. Philadelphia: Lippincott Williams and Wilkins, 2001.
15. Skinner J. Exercise testing and Exercise Prescription for special cases. 3rd Edition. Philadelphia: Lippincott Williams and Wilkins, 2005.
16. Thomson A, Skinner A, Piercy J. Tidy's Physiotherapy, 12th edition. London: Butterworth, Heinemann, 1991.

Course Description

Name	English Medical Terminology
Code	N2-6020
Category	AELH, Mandatory
Required	--
Type	Theoretical
Semester	6th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is the teaching of the applied knowledge of the English language through exercises in specialised texts of anatomy, physiology, pathology, etc., for the training of physiotherapy students in the comprehension of scientific texts with medical – physiotherapeutic terms.

Course Outline

Theoretical – Teaching Units

- Specialised texts – terminology
- Specialised texts – terminology
- Specialised vocabulary
- Specialised texts – terminology
- Specialised texts – terminology
- Specialised vocabulary
- Specialised vocabulary
- Language exercises
- Language exercises
- Grammatical knowledge of the English language – I
- Grammatical knowledge of the English language – II
- Syntax of the English language
- Student assessment

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Understand the written English scientific language in the field of physiotherapy.
- Translate and read specialty physiotherapy texts.

Suggested Reading

1. Greenman PE. Principles of Manual Medicine. USA Baltimore, Maryland: Lippincott Williams & Wilkins, 2010.
2. Kottke FJ, Lehmann JF. KRUSEN'S handbook of physical medicine and rehabilitation. Philadelphia, Pennsylvania: Saunders Company, 1994.
3. Long TM, Cintas HL. Handbook of Pediatric Physical Therapy. Baltimore, Maryland: Williams and Wilkins, 2001.
4. Pierson FM. Principles and Techniques of Patient Care. Philadelphia, Pennsylvania: Saunders Company, 2007.
5. Scott R. Foundations of Physical Therapy.USA: McGraw-Hill, 2002.
6. Shepherd RB. Physiotherapy in Pediatrics. Great Britain: Butterworth-Hienemann, Oxford, 1997.
7. Thomson A, Skinner A, Pierey X. Tidy's Physiotherapy. Great Britain: Butterworth-Hienemann, Oxford, 2000.

Course Description

Name	Physiotherapy in Neurological Paediatric Disorders and Diseases
Code	N2-6030
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	6th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

The aim of the course is for the students to understand the development process of the infant and the child, to understand muscle disorders and reflex mechanisms in order to assess each case and evaluate the clinical findings and, ultimately, to make an appropriate assessment and offer individualised physiotherapy treatment and rehabilitation.

Course Outline

Theoretical – Teaching Units

- Anatomical and physiological background of the nervous system, motor development.
- Reflex function, normal – pathological.
- Normal and abnormal motor development.
- Assessment of motor maturation from the 1st month up to 5 years of age.
- Cerebral palsy: causes – classification. Principles of therapeutic treatment.
- Posture mechanisms. Motor and tone disorders.
- Spastic tetraplegia – diplegia – hemiplegia.
- Athetosis: Assessment protocols.
- Ataxia: Assessment protocols.
- Home therapy for the child with a brain lesion.
- Orthotics and special aids for children with cerebral palsy.
- Duchenne muscular dystrophy. Myopathies. Myositis.
- Spina bifida and hydrocephalus.

Practical – Teaching Units

- Development and clinical picture of motor development.
- Examination of normal and abnormal reflex function.
- Motor development in all positions.
- Assessment of motor maturation. Motor dysfunction.
- Assessment protocols of normal motor behaviour.
- Cerebral palsy. Abnormal motor patterns. Principles of physiotherapy treatment. Synthesis of therapeutic approach systems.
- Examination of balance, postural and righting reactions. Assessment of muscle tone.

- Spastic tetraplegia, diplegia, hemiplegia. Modes of therapeutic approach.
- Athetosis: Therapeutic approach, methods and techniques.
- Ataxia: Therapeutic approach, methods and techniques.
- Training in the use of orthotic aids.
- Training in everyday activities. Association of play with everyday activities.
- Duchenne muscular dystrophy: Therapeutic approach, methods and techniques.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- The students practise on practical and clinical problems of assessment, planning and implementation of the techniques and methods of physiotherapy rehabilitation.

Student Assessment

Theoretical

- Final written examination with the option of written assignments.

Practical

- Continuous assessment of students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Adapt the therapeutic protocol to the disease and the particularities of each patient, taking into consideration issues related to ethnicity, religion and beliefs.
- Cooperate with other health professions when deemed necessary (multidisciplinary meetings).
- Assess and design individualised rehabilitation programmes for acquired dysfunctions in children with neurological disorders.

Suggested Reading

1. Bobath B, Bobath K. Κινητική Ανάπτυξη στους διάφορους τύπους της παράλυσης. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 1992.
2. Einspieler C, Heinz FR, Prechtl A, et al. Prechtl's Method on the Qualitative Assessment of General Movements in Pattern, Term and Young Infants. Cambridge U.K.: Mac Keith Press, 2008.
3. Ferrari A, Cioni G. The Spastic Forms of Cerebral Palsy. A guide to the assessment of the Adaptive functions. Berlin: Springer-Verlag, 2010.
4. Levitt S. Θεραπεία της Εγκεφαλικής Παράλυσης και της Κινητικής Καθυστέρησης. 3η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2002.

5. Lois B, Allison W. Τεχνικές Διευκόλυνσης. Θεσσαλονίκη: Εκδόσεις Προμηθεύς, 2001.
6. Miller F, Bachrach SJ. Cerebral Palsy: A Complete Guide for Caregiving (A Johns Hopkins Press Health Book). 2nd Edition. Johns Hopkins University Press, 2006.
7. Padeliadis P. Hans-Michael S. Cerebral Palsy: Principals and Management. Stuttgard: Thieme, 2004.
8. Scrutton D, Damiano D, Mayston M. Αντιμετώπιση των Κινητικών Διαταραχών σε Παιδιά με Εγκεφαλική Παράλυση. 2η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2009.
9. Vojta V, Peters A, Das Vojta-Prinzip. Muskelspiele in Reflexfortbewegung und Motorischer Ontogenese. Berlin: Springer Berlin, 2007.

Course Description

Name	Clinical Placement: Physiotherapy in Musculoskeletal Injuries and Disorders
Code	N2-6040
Category	Specialty Course, Mandatory
Required	Physiotherapy in Musculuskeletal Injuries and Disorders
Type	Theoretical & Practical
Semester	6th
Teaching hours/week	11 hours (T:3, P:8)
ECTS	9

Aims of the Course

The basic aim of the course is to teach the clinical physiotherapeutic rehabilitation of patients after surgical treatment of musculoskeletal injuries and disorders. The students are trained in the rehabilitation of outpatients with musculoskeletal disorders and problems. During the educational process, special emphasis is given to the preoperative and postoperative assessment of the patients, to attending surgeries, to students practising in the physiotherapy department of the hospital, and to cooperation with the doctors and nursing stuff of the hospital where the students are assigned. The ultimate goal of the course is the training of students in the planning of a rehabilitation programme for the duration of the hospitalisation and the maximal or partial protection of the operated limb or body region.

Course Outline

Theoretical – Teaching Units

- Preoperative assessment and training of patient. General principles of planning a physiotherapy rehabilitation programme during the early postoperative period.
- Physiotherapeutic intervention for postoperative complications in the operative treatment of musculoskeletal injuries and disorders. The contribution of physical agents to the treatment of early symptoms in the operated orthopaedic patient.
- Physiotherapeutic rehabilitation after hip arthroplasty: Indications – contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapeutic rehabilitation after hip arthroplasty: Planning the rehabilitation programme.
- Physiotherapeutic rehabilitation after surgical treatment of musculoskeletal injuries of the pelvis, hip and femur. Acetabulum fractures, fractures of the proximal end of the femur and the femoral shaft. Surgical techniques, elements of diagnostic imaging. Notes for the planning of the physiotherapy rehabilitation programme.
- Physiotherapeutic rehabilitation after knee arthroplasty. Indications – contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapeutic rehabilitation after knee arthroplasty: Planning the rehabilitation programme.

- Physiotherapeutic rehabilitation after surgical treatment of musculoskeletal injuries in the knee, leg and foot region. Surgical techniques, elements of diagnostic imaging. Notes for the planning of the physiotherapy rehabilitation programme.
- Physiotherapeutic rehabilitation after shoulder arthroplasty. Indications – contraindications. Surgical techniques. Elements of diagnostic imaging.
- Physiotherapeutic rehabilitation after shoulder arthroplasty: Planning the rehabilitation programme.
- Physiotherapeutic rehabilitation after the surgical treatment of musculoskeletal injuries in the shoulder girdle and humerus region. Surgical techniques, elements of diagnostic imaging. Notes for the planning of the physiotherapy rehabilitation programme.
- Physiotherapeutic rehabilitation after the surgical treatment of musculoskeletal injuries in the forearm and hand region. Surgical techniques, elements of diagnostic imaging. Notes for the planning of the physiotherapy rehabilitation programme.
- Physiotherapeutic rehabilitation after the surgical treatment of musculoskeletal injuries in the spine. Surgical techniques, elements of diagnostic imaging. Notes for the planning of the physiotherapy rehabilitation programme.

Practical – Teaching Units

The practical part of the lecture takes place in public hospitals with rotation of small groups of students in outpatient orthopaedic clinics, operating theatres, orthopaedic clinics and in the hospital's physiotherapy department. The assessment and planning of individualised intervention, as well as the implementation of the physiotherapy rehabilitation, is performed exclusively by the teaching staff. Afterwards, and with the patient's agreement, the students practice the intervention.

- Introduction to clinical placement: Briefing, communication with the members of the clinical physiotherapy rehabilitation group of the hospital. The role and contribution of the physiotherapist in the rehabilitation group.
- Medical history and assessment of patients with musculoskeletal problems. Pain assessment scales. Organisation of the physiotherapeutic rehabilitation. Clinical examples.
- Clinical reasoning and problem solving in the physiotherapeutic rehabilitation of musculoskeletal problems. Clinical examples.
- Gait retraining and use of walking aids in physiotherapeutic rehabilitation. Clinical examples.
- Physiotherapeutic rehabilitation in upper and lower extremity injuries: Surgical technique, limitations, assessment and planning of therapy, clinical applications.
- Physiotherapeutic rehabilitation in spine injuries: Surgical technique, limitations, assessment and planning of therapy, clinical applications.
- Visiting the operating theatre. Attending the surgical treatment of orthopaedic patients.
- Visiting outpatient clinics. The students participate in the clinical examination of patients with musculoskeletal injuries or disorders. Briefing by the multidisciplinary team. Practice in physiotherapy counselling.
- Physiotherapeutic rehabilitation after knee arthroplasty. Surgical technique, medical history, diagnostic imaging and clinical assessment, physiotherapy assessment, goals of physiotherapeutic rehabilitation, planning of therapeutic physiotherapy programme, clinical applications.

- Physiotherapeutic rehabilitation after hip arthroplasty. Surgical technique, medical history, diagnostic imaging and clinical assessment, physiotherapy assessment, goals of physiotherapeutic rehabilitation, planning of therapeutic physiotherapy programme, clinical applications.
- Physiotherapeutic rehabilitation after shoulder arthroplasty. Surgical technique, medical history, diagnostic imaging and clinical assessment, physiotherapy assessment, goals of physiotherapeutic rehabilitation, planning of therapeutic physiotherapy programme, clinical applications.
- Removal of fixation material of fractures and revision of total arthroplasties. Surgical technique, medical history, diagnostic imaging and clinical assessment, physiotherapy assessment, goals of physiotherapeutic rehabilitation, limitations and planning of therapeutic physiotherapy programme, clinical applications.
- The students practise in the physiotherapy department of the hospital. Physiotherapy assessment and planning of physiotherapeutic rehabilitation of patients with chronic musculoskeletal problems and disorders, such as soft tissue injuries and problems, osteoarthritis, rheumatoid diseases.
- Continuous assessment of students during the entire semester in clinical practical exercises and final assessment in clinical cases. The student assessment includes oral presentations of physiotherapeutic treatment of clinical musculoskeletal problems.
- Presentation of complex problems, like multitrauma patients, amputations, peripheral nerve injuries, other clinical health problems of the orthopaedic patient. Physiotherapy assessment and planning of physiotherapeutic rehabilitation. Clinical applications.
- Practice in paedo-orthopaedic clinic and in sport injuries clinic.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

- Briefing of the students by the doctors on issues of clinical and imaging assessment and rehabilitation (surgical or conservative) of musculoskeletal injuries and disorders.
- Application of physiotherapy assessment and planning of physiotherapeutic rehabilitation in clinical cases.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Continuous assessment of students during the entire semester in clinical practical exercises and clinical cases.

Learning Outcomes

After completing the course the students should be able to:

- Plan the clinical assessment of patients with musculoskeletal problems and injuries.
- Plan and implement the basic principles of a physiotherapy intervention in outpatients and operated patients in cooperation with the patient and family, having obtained informed consent.
- Cooperate with other health professionals when necessary.

Suggested Reading

1. Βερέττας Δ, Βούλγαρης Π, Καπετάνος Γ, et al. Σύγχρονη Ορθοπαιδική και Τραυματολογία Apley's. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2007.
2. Brotzman SB, Manske RC. Clinical Orthopaedic Rehabilitation. 3rd Edition. Philadelphia, PA: Mosby, 2011.
3. Brotzman SB, Wilk KE. Handbook of Orthopaedic Rehabilitation. Philadelphia, PA: Mosby, 2007.
4. Canale ST, Beaty JH. Campbell's Operative Orthopaedics. 12th Edition. Philadelphia: Mosby, 2012.
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6. Hall CM, Brady LT. Therapeutic Exercise: Moving Toward Function. 3rd Edition. Philadelphia, PA: Lippincott Williams & Wilkins, 2010.
7. Hoppenfeld S, Murthy VL. Treatment & Rehabilitation of Fractures. Philadelphia, PA: Lippincott Williams & Wilkins Editions, 2000.
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9. Koval JK, Zuckerman DJ. Handbook of Fractures. 4th Edition. Philadelphia, PA: Lippincott Williams & Wilkins Editions, 2010.
10. Leong J, Jupiter J. Orthopaedic Rehabilitation, Assessment, and Enablement. Berlin, Heidelberg: Springer, 2007.
11. Magee DJ. Orthopedic Physical Assessment. 5th Edition. Philadelphia, PA: W.B Saunders, 2008.
12. McRae R, Esser M. Practical Fracture Treatment. 5th Edition. Edinburgh: Churchill Livingstone, 2008. Ελληνική έκδοση: Σουκάκος Π, Βλάσης Κ, Νάτσης Κ. Κλινική Αντιμετώπιση Καταγμάτων. Αθήνα: Ιατρικές Εκδόσεις Π.Χ. Πασχαλίδης, 2008.
13. Miller M, Hart J. Review of Orthopaedics. 6th Edition. Philadelphia, PA: Saunders Elsevier, 2012. Ελληνική 'Εκδοση: Μπάμπης Γ. Review Ορθοπαιδικής. Αθήνα: Ιατρικές Εκδόσεις Κωνσταντάρας, 2010.
14. Solomon L, Warwick D, Nayagam S. Apley's System of Orthopaedics and Fractures. 9th Edition. London: Hodder Arnold, 2010.

Course Description

Name	Ethics in Physiotherapy
Code	N2-6A10
Category	Special Core Course, Elective
Required	--
Type	Theoretical
Semester	6th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course of bioethics in physiotherapy is the education of students in issues related to the written and "unwritten" laws/principles that underlie the health professions in Greece and internationally. The students are taught the role and the contribution of the science of physiotherapy in the field of health and the relationship between the physiotherapist and the patient, the patient's family, and other health professionals.

The units that comprise the course focus on: a) an understanding of the historical path of the concept "health-disease" during the evolution of humanity, b) the perception of the basic principles of bioethics during the application of physiotherapy techniques and methods, c) the recognition of the indications and contraindications based on the bioethical perspective of the therapeutic goals, d) the perception of the main bioethics principles for research in the field of health and physiotherapy in particular, e) the analysis of the main current bioethics issues that arise from developments in the field of health, and g) the analysis of the history of physiotherapy and the development of codes of ethics. In this way the students will be able to recognise the value of respecting the patient and the importance of obtaining consent during the decision-making process. Special emphasis is given to the investigation of the current established position and perceptions of the physiotherapist in health care centres, in primary health services and the physiotherapist's participation in multidisciplinary work groups.

Course Outline

Theoretical – Teaching Units

- Introduction to the concept of HEALTH. a) History of the field of health. b) Concept of health in ancient times. c) Treatment of disease and social dimensions.
- Description and analysis of health system. a) Health systems, grades of health care. b) Development in Greece and the international community. Description and analysis of the history of physiotherapy. c) Physiotherapy from antiquity to present times. d) Education and physiotherapy in Greece and the international community.
- Basic principles of the social dimensions in health. a) Theories of human rights, b) Social changes and effects on the field of health, c) Socioeconomic changes and effects on physiotherapy.

- Basic principles of ethics and social dimensions in the field of health. a) Basic principles of ethics that underlie the relations between health professionals and patients, b) Basic principles of ethics that underlie the relations between health professions and relatives, c) applications in physiotherapy.
- Basic principles of ethics. a) Medical confidentiality, b) Principles of minimum ethics, c) Process of obtaining voluntary consent from the patient, d) non-compliant patients, e) current issues, euthanasia, in vitro fertilisation, transplants, etc.
- Basic principles of ethics. a) Codes of ethics – international regulations and beliefs, b) Codes of ethics in Greece, c) Issues and newer data.
- Legislation and profession. a) Legislation about the practice of the physiotherapy profession, b) professional rights, c) Professional and scientific organisations.
- Physiotherapy and research. a) Codes of bioethics during the design of a research protocol, b) Codes of bioethics for participation in a research protocol, c) Codes of bioethics in funding.
- Quality control in health. a) The concept of quality in the field of health, b) Total quality management, c) Quality control in physiotherapy.
- Evidence-based practice and its effect on decision making and therapy planning in the case of ethical dilemmas.
- Issues in the analysis of bioethical principles. Multidisciplinary groups and the relationships between health professionals.
- Business and physiotherapy. a) The physiotherapist as a freelancer, b) The physiotherapist as part of the business of health care.
- Codes of conduct and bioethics of the Greek collective organisations.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Learning Outcomes

After completing the course the students should be able to:

- Understand the need to be aware of ethical principles.
- Develop basic skills in the assessment and selection of criteria during bioethical dilemmas.
- Develop the necessary critical thinking for dealing with current issues related to the socioeconomic dimension of the profession.
- Be aware of the bioethical rules at a national and international level for the application of the physiotherapy profession at all levels of health care provision and in relation to other health professions.

- Develop basic skills for communication with patients, in order to guide them, using scientific and dialectical methods, to making a decision about the therapy with active participation and voluntary consent.

Suggested Reading

1. Κουτσελίνης Α. Βασικές Αρχές Βιοηθικής και Ιατρικής Δεοντολογίας. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε, 2001.
2. Πανελλήνια Ένωση Ελευθεροεπαγγελματιών Φυσικοθεραπευτών. Κώδικας Δεοντολογίας. Αθήνα: Πανελλήνια Ένωση Ελευθεροεπαγγελματιών Φυσικοθεραπευτών, 2010.
3. Πανελλήνιος Σύλλογος Φυσικοθεραπευτών. Κώδικας Δεοντολογίας. Αθήνα: Πανελλήνιος Σύλλογος Φυσικοθεραπευτών, 2010.
4. Πουλής Ι. Βιοηθική στις Επιστήμες Υγείας. Αθήνα: Εκδόσεις Πουλής, 2013.
5. Adam Ph, Herzlich Cl. Κοινωνιολογία της Ασθένειας και της Ιατρικής. Πάτρα: Εκδόσεις Ελληνικό Ανοικτό Πανεπιστήμιο, 2000.
6. American Physical Therapy Association. Code of Ethics for the Physical Therapists. Usa: American Physical Therapy Association, 2013.
7. Association Luxembourgeoise des Kinésithérapeutes. Code de deontologie de kinesitherapie. Luxembourg: Association Luxembourgeoise des Kinésithérapeutes, 2013.
8. Caplan AL, Callahan D, Haas J. Ethical and policy issues in rehabilitation medicine. Hastings Center Report. 1987; 17:S1-S20.
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15. Petta G. Φύλλα διδασκαλίας σε ηλεκτρονική μορφή (e-class). Αθήνα: Εκδόσεις ΤΕΙ Αθήνας, 2013.
16. Scheff T. Règles de décision, types d'erreur et leurs conséquences sur le diagnostic médical. Στο Herzlich C. Médecine, maladie et société. Paris: 247-258, 1990.
17. Strauss A. L'hôpital et son ordre négocie". Στο La Trame de la négociation:sociologie qualitative et interactionnisme. Textesreunis par I. Baszanger, Paris: Le harmattan, 1992.
18. World Confederation for Physical Therapy. European code Standards of Physiotherapy practice. Revised version, Athens: 2008.
19. World Confederation for Physical Therapy. Report of the Chairman of the European Region. Malta: 2010-2013.

Course Description

Name	Health Psychology
Code	N2-6B10
Category	AELH, Elective
Required	--
Type	Theoretical
Semester	6th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is for the students to learn to understand psychological terms, in order to find other psychology texts accessible and learn about other psychological theories. In addition, an important aim is the education of the physiotherapy students about the limits of normal and abnormal behaviour. Through the knowledge that a human being is an indivisible psychosomatic entity, the students may understand the role of disease in the psychological economy of the individual. Finally, the course aims to educate the students about the value of interpersonal relationships at work.

Course Outline

Theoretical – Teaching Units

- Introduction. The science of psychology, branches of psychology, similar disciplines, the multidisciplinary team.
- Psychology methods.
- Biological basis of diversity. Individual differences. Sources of individual differences. Assessment of individual differences.
- Behavioural theory and learning. Classic conditioning, procedural learning, social learning.
- Psychoanalytic theory. Freud, the structure of the psychic device, defense mechanisms, psychosexual development, personality types and their characteristics in psychoanalytic theory.
- Cognitive approach and humanistic approach.
- Psychology of pathology.
- Psychotherapy techniques. Historical background, psychotherapeutic models.
- Development. Critical stages in development, the significance of first experiences, the stages of thought development according to Jean Piaget. The ages of the human being. Infancy, preschool, school, puberty, young adult, middle and third age.
- Health and the science of psychology. Stress and health, stress and crisis intervention, health personnel and the patient in crisis.
- The child with health problems and its family.
- Student assessment.

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be familiar with:

- The basic concepts of psychology. They should also have a grasp of the dynamic nature of modern psychology, so that they can learn more about this field in order to recognise abnormal behaviour and be able to control crisis situations at work.

Suggested Reading

1. Δημητρίου Λ, Χατζηνεοφύτου Λ. Τα 6 πρώτα χρόνια της ζωής. Αθήνα: Ελληνικά Γράμματα, 2001.
2. Καραδήμας ΕΧ. Ψυχολογία της υγείας. Αθήνα: Gutenberg, 2005.
3. Κοίλιας Χ, Καλαφατούδης Σ. Χρήση υπολογιστή. Αθήνα: Εκδόσεις Νέων Τεχνολογιών, 2007.
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5. Μπουσκάλια Λ. Άτομα με ειδικές ανάγκες και οι γονείς τους, Αθήνα: Γλάρος, 1993.
6. Παγοροπούλου Α. Ψυχολογία της τρίτης ηλικίας. Αθήνα: Ελληνικά Γράμματα, 2008.
7. Παπαδάτου Δ, Αναγνωστόπουλος Φ. Η Ψυχολογία στο χώρο της υγείας. Αθήνα: Ελληνικά Γράμματα, 1999.
8. Atkinson RL, Atkinson RC, Smith EE, et al. Εισαγωγή στην ψυχολογία του Hilgard. Αθήνα: Εκδόσεις Παπαζήση, 2005.
9. Duberstein PR, Masling JM. Ψυχοδυναμικές προοπτικές στην αρρώστια και στην υγεία. Αθήνα: Gutenberg, 2007.
10. Messer D, Meldrum C. Psychology for Nurses and Health Care Professionals. London: Prentice Hall, 1995.
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12. Βοσνιάδου Σ, Νασιάκου Μ, Χαντζή Α, Χαρίτου-Φατούρου Μ. Εισαγωγή στην Ψυχολογία. Αθήνα: Gutenberg, 2011.

7th Semester

	7th Semester	CC		Lec	Pract	Total	Code	ECTS
1.	Adapted Physical Activity	SC	M	3	2	5	N2-7010	5
2.	Physiotherapy in Sports	S	M	3	2	5	N2-7020	6
3.	Mobilisation and Manipulation Techniques	S	M	2	2	4	N2-7030	6
4.	Clinical Placement: in Neurological Disorders and Diseases	S	M	3	8	11	N2-7040	9
5a	Surgery	GC	E	2		2	N2-7A10	4
5b	Diagnostic Imaging	SC					N2-7B10	
	Total			13	14	27		30

Course Description

Name	Adapted Physical Activity
Code	N2-7010
Category	Special Core Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	7th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	5

Aims of the Course

The aim of the Adapted Physical Activity (APA) course is for the students to understand: a) the role and the goals of APA for people with disability, b) the significance of the assessment and measurements in adapted physical activity, c) the importance of the multidisciplinary approach to disability, d) the importance of an early intervention programme, e) the significance of reassessment in relation to the effectiveness – appropriateness of the selected intervention-physical activity.

Course Outline

Theoretical – Teaching Units

- The cognitive approach to human motor development.
- Stages of motor development.
- The adapted physical activity programme.
- The assessment of fitness in adapted physical activity.
- The assessment and research validation of adapted physical activity programmes in motor clumsiness.
- The assessment and research validation of adapted physical activity programmes in mental disability.
- The assessment and research validation of adapted physical activity programmes in cerebral palsy.
- The assessment and research validation of therapeutic horseriding-hippotherapy – therapeutic swimming programmes.
- The assessment and research validation of adapted physical activity programmes in sensory disorders.
- The assessment and research validation of adapted physical activity programmes in epilepsy
- The assessment and research validation of adapted physical activity programmes in autism.
- The assessment and research validation of adapted physical activity programmes in attention deficit-hyperactivity disorder.
- The assessment and research validation of adapted physical activity programmes in respiratory diseases.

Practical – Teaching Units

- Assessment tools used in adapted physical activity for motor sufficiency, basic motor patterns, function, autonomy, independence, fatigue, etc.
- Assessment of fitness in APA
- Design and application of individualised and group APA programmes for persons with motor clumsiness.
- Design and application of individualised and group APA programmes for persons with mental disability.
- Design and application of individualised and group APA programmes for persons with cerebral palsy
- Design and application of individualised and group APA programmes for the blind.
- Design and application of individualised and group APA programmes for the deaf.
- Design and application of individualised and group APA programmes for epileptics.
- Design and application of individualised and group APA programmes for persons with autism.
- Design and application of individualised and group APA programmes for persons with attention deficit-hyperactivity disorder.
- Design and application of individualised and group APA programmes for persons with asthma.
- Design and application of individualised and group APA programmes for persons with chronic obstructive pulmonary disease.
- Design and application of individualised and group APA programmes for persons with motor disabilities.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers approved by the Physiotherapy Department.

Practical

The students train in:

- The assessment of disability.
- The application of APA programmes.

Student Assessment

Theoretical

- Final written examination.

Practical

- Continuous assessment of students in practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Approach and cooperate with disabled persons.
- Understand the necessity-significance of cooperating with the multidisciplinary team for each patient, as well as with the patient (allowing for various types of ethnicity, religion, etc.).
- Assess disabled persons using a defined methodology and manage the findings through comprehensive clinical reasoning.
- Set short- and long-term goals for each case, design individualised and appropriate/safe interventions after briefing and obtaining consent from the disabled person, or the person responsible for them (parents, guardians, etc.).
- Apply with competence and safety the assessment tests and the individualised interventions.
- Reassess the selected intervention programme.

Suggested Reading

1. Αγγελοπούλου-Σακαντάμη Ν. Ειδική αγωγή, αναπτυξιακές διαταραχές και χρόνιες μειονεξίες. Θεσσαλονίκη: Εκδόσεις Πανεπιστημίου Μακεδονίας, 2004.
2. Κουτσούκη Δ. Ειδική φυσική αγωγή, θεωρία και πρακτική. 3η Έκδοση. Αθήνα: Εκδόσεις Δ.Κουτσούκη, 2008.
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4. Gallahue LD. Ozmun CJ. Understanding Motor Development. Infants, children, adolescents, adults. 7th Edition. New York: Humanities & Social Sciences, 2012.
5. Henderson SE, Sugden D. Movement Assessment Battery for Children. 7th Edition. London: Pearson, 2007.
6. Horvat M, Block M, Kelly L. Μετάφραση – Επιμέλεια: Σκορδίλης Ε, Γραμματοπούλου Ε. Μέτρηση και αξιολόγηση στην Προσαρμοσμένη Κινητική Αγωγή. Αθήνα. Εκδόσεις Τελέθριον, 2011.
7. Robert H. Bruininks. Oseretsky test of motor proficiency: Examiners manual. 2nd Edition. MN: Circle Pines AGS Publishing, 2005.
8. Ulrich D.A. Children with special needs - Assessing the quality of movement competence. Journal of Physical Education Recreation and Dance. 1988; 59(91):43-47.
9. Winnick J. Brockport Physical Fitness Test Manual: A Health-Related Test for Youths with Physical and Mental Disabilities. USA: Human Kinetics, 1999.

Course Description

Name	Physiotherapy in Sports
Code	N2-7020
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	7th
Teaching hours/week	5 hours (T:3, P:2)
ECTS	6

Aims of the Course

Physiotherapy in sports is a specialised field of physiotherapeutic rehabilitation. It focuses on the particular need of the patient/athlete who needs to return to everyday sports activities at the safest health and fitness level. The aim of physiotherapy in sports is focused on the prevention, assessment and planning of physiotherapy and functional rehabilitation for the safe reintegration and return to sports, taking into account the technical and training parameters of each sport. The teaching units focus mainly on: a) the prevention of injuries and the improvement of predisposing factors, b) the physiotherapeutic and functional rehabilitation of injuries related mainly to musculoskeletal problems and health problems in general due to exposure to external environmental conditions. The students will have the chance to learn about and train in special assessment tests, such as agility, muscle strength, elasticity and lipometry parameters and in applications of special bandaging techniques, as well as in the assessment through the use of high-tech equipment such as the isokinetic dynamometer, pelmatography, diagnostic ultrasound, and EMG.

Course Outline

Theoretical – Teaching Units

- Introduction to physiotherapy in sports. a) Special parameters of sports injuries, b) external and internal parameters, c) epidemiology of sports injuries.
- Physiotherapeutic assessment of athletes. a) Subjective-objective assessment, clinical reasoning and differential diagnosis, b) game seasons and physiotherapeutic assessment, c) special assessment forms and new technologies.
- Prevention of sports injuries. a) Pathophysiology and biomechanics of sports injuries (biological materials, healing process), b) preventive measures and parameters of the physiotherapy rehabilitation programme for sports injuries.
- Psychological approach to sports injuries and first aid. a) Principles of first aid, b) effect of cryotherapy, c) bandaging and immobilisation in splints.
- Use and assessment with high tech equipment. a) Isokinetic dynamometer, b) baropodometry, diagnostic ultrasound, c) kinetic-kinematic analysis, d) electromuscular activity.
- Designing functional rehabilitation programmes. a) Training techniques against resistance, b) open and closed kinetic chains, c) stretching techniques and myofascial pain, d)

neurological-neuromuscular rehabilitation techniques and motor control, e) alternative therapies, f) application of programmes by national organisations internationally recognised in sports rehabilitation (e.g. American College of Sports Medicine – ACSM).

- Musculotendinous injuries. a) Causes of muscular tears, b) causes of tendinous injuries, c) principles of physiotherapy rehabilitation.
- Overuse syndromes in athletes and injuries due to external sport parameters. a) Causes, b) physiotherapy rehabilitation principles, c) injuries and climatic conditions.
- Spine and injuries in athletes. a) Chronic pain and lower back pain-sciatica, b) prevention and physiotherapy rehabilitation principles.
- Shoulder girdle and injuries in athletes. a) Impingement syndromes – rotator cuff and tendinitis, b) the swimmer's shoulder, the thrower's shoulder, rhythmic and artistic gymnastics, c) prevention and physiotherapy rehabilitation principles.
- Elbow/hand and sports injuries. a) Overuse syndromes of bursae, tennis and golfer's elbow, wrestler's hand, skier's thumb, biker's hand, b) prevention and physiotherapy rehabilitation principles.
- Knee and sports injuries. a) Meniscal injury, b) ligamentous injuries – anterior cruciate, lateral ligaments, c) patellofemoral joint and patella deviations, d) bursae, e) tendinitis, f) physiotherapy rehabilitation principles and surgical rehabilitation.
- Foot and sports injuries. a) Sprains, b) ligamentous tears, c) deviation of axes of the foot joint system, c) Achilles tendinitis, d) physiotherapy rehabilitation principles and surgical rehabilitation.

Practical – Teaching Units

- Application of first aid techniques in sports injuries.
- Assessment of sports injuries and differential diagnosis, clinical cases.
- Sports bandaging (protective-preventive): a) Bandaging techniques with self-adhesive tape, b) with non self-adhesive bandage (cotton) and elastic self-adhesive, "kinesio tape".
- Assessment with high-tech equipment. Isokinetic dynamometer, EMG.
- Assessment with high-tech equipment. Baropodometry, diagnostic ultrasound.
- Musculotendinous injuries. Muscle strains. a) Assessment tests, b) physiotherapy and functional rehabilitation principles.
- Intermediate student assessment. Assignment presentation, assessment and analysis of clinical problems.
- Spine injuries: a) Lower back pain – sciatica, clinical tests, b) pain management during the game season, in relation to stress and sports psychology, c) physiotherapy and functional rehabilitation principles.
- Shoulder girdle and injuries. a) Clinical tests, b) physiotherapy and functional rehabilitation principles, c) postoperative physiotherapy rehabilitation.
- Elbow/hand. a) Clinical tests, b) physiotherapy and functional rehabilitation principles.
- Joint injuries (tibiofemoral, patellofemoral) of the knee. a) Clinical tests, b) physiotherapy and functional rehabilitation principles, c) postoperative physiotherapy rehabilitation.
- Injuries of the hip joint. a) Clinical tests, b) overuse syndromes, bursae, tendinitis and pelvic dysfunction, c) physiotherapy rehabilitation principles.
- Tibia and foot injuries. Ankle – foot, compartment syndrome, sport specific injuries. a) Clinical tests, b) physiotherapy and functional rehabilitation principles.

- Final student assessment. Oral examination, assessment, physiotherapy and functional rehabilitation in clinical cases, based on the time after injury, the type of sport and the training season.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- Recognition and differential diagnosis for region-specific and sport-specific clinical problems.
- Application of sports physiotherapy programmes by the students in pairs as simulation of individualised programmes.
- Application of sports physiotherapy programmes by the students in groups as simulation of group programmes.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Intermediate assessment of students in teaching units.

Learning Outcomes

After completing the course the students should be able to:

- Contribute to the prevention of sports injuries.
- Conduct special measurement tests, such as isokinetic measurements, measurements of agility, muscle strength, lipometry and special tests for the assessment of sports injuries, in order to evaluate and plan therapeutic programmes.
- Apply case-specific rehabilitation programmes for sports injuries after briefing and obtaining consent from the patients.

Suggested Reading

1. Anderson M, Hall S. Sports Injuty Management. USA: William & Wilkinks, 1995.
2. Arnheim D. Modern Principles of Athletic Training. USA: C.V. Mosby Co., 1992.
3. Bloomfield J, Fricker P, Fitch K. Textbook of Science and Medicine in Sport. Australia: Blackwell Scientific Publication, 1992.
4. Brotzman B, Wilk KE. Clinical Orthopaedic Rehabilitation. USA: C.V. Mosby Co., 2003.
5. Cox R. Sport Psychology. USA: Brown Benchmark Publication, 1994.
6. Hutson M. Sports Injuries. Recognition and Management. Oxford Medical Publications. 1990.
7. Flegel M. Sport First Aid. Champaign, Illinois: Leisure Press, 1992.

8. Kibler W. The Sport Preparation Fitness Examination. Champaign, Illinois: Human Kinetics Books 1990.
9. Lephart S, Fu F. Proprioception and Neuromuscular Control in Joint Stability. Human Kinetics, 2000.
10. Kibler W, Herring S, Press J. Functional Rehabilitation of Sports and Musculoskeletal Injuries. USA: An Aspen Publication, 1998.
11. Mcdonald R. Taping Techniques. Principles and Practice. Oxford: Butteworth Heinemann, 1994.
12. Norris C. Sports Injuries. Diagnosis, Management for Physioterapists. Oxford: Butteworth Heinemann, 1994.
13. Peterson L, Renstrom P. Sports Injuries. Their prevention and treatment. London: Martin Dunitz, 2001.
14. Perrin D. Isokinetic exercise and assessment. USA: Human Kinetics, 1997.
15. Prentice WE. Τεχνικές Αποκατάστασης Αθλητικών Κακώσεων. Αθήνα: Επιστημονικές Εκδόσεις Παρισιάνου, 2007.
16. Πουλμέντης Π. Φυσικοθεραπεία στον Αθλητισμό. Αθήνα: Εκδόσεις Καπόπουλος , 2004.
17. Reilly T, Secher N, Snell P, Williams C. Physiology of Sports. USA: E. & F. N. Spon, 1990.
18. Starkley C. Therapeutic Modalities for Athletic Trainers. Philadelhia: F.A. Davis Company, 1993.
19. Taylor P, Taylor D. Conquering Athletic Injuries. Champaign, Illinois: Leisure Press, 1988.
20. Whiting W, Zernicke R. Biomechanics of Musculoskeletal Injury. USA: Human Kinetics. 1998.

Course Description

Name	Mobilisation and Manipulation Techniques
Code	N2-7030
Category	Specialty Course, Mandatory
Required	--
Type	Theoretical & Practical
Semester	7th
Teaching hours/week	4 hours (T:2, P:2)
ECTS	6

Aims of the Course

The aim of the course is to train the students in the basic concepts of the examination and mobilisation of joints and soft tissues. The students are taught: a) the role and contribution of mobilisation and stabilisation in the rehabilitation of function of the involved joints (indications/contraindications) and b) the importance of the consent and active participation of the patient. The teaching units of the course focus on: a) the differential diagnosis of structures (bones, joint capsule, ligaments, tendons, muscles, neural tissue, fasciae, skin) responsible for the limitation of joint movement, b) the rehabilitation of joint movements by using special techniques that are applied specifically for each case, such as hand, elbow, shoulder, hip, knee, ankle, foot and spine stiffness, c) the rehabilitation of muscle mobility, d) the rehabilitation of joint stability and e) neural tissue mobilisation.

Course Outline

Theoretical – Teaching Units

- History of manual therapy – Definitions.
- Examination of the functional joint movements and structure – Differential diagnosis.
- Mobilisation of skin/fascia – Examination and scar mobilisation.
- Basic principles of examination of accessory joint movements.
- Basic principles of joint mobilisation.
- Examination of accessory movements and wrist and elbow mobilisation.
- Examination of accessory movements and shoulder mobilisation.
- Examination of accessory movements and hip mobilisation – Examinations of muscle elasticity and stretch techniques.
- Examination of accessory movements and knee mobilisation.
- Examination of accessory movements and ankle mobilisation – Muscle mobilisation.
- Basic principles of examination and mobilisation of the spine.
- Basic principles of neural tissue mobilisation.
- Basic principles of rehabilitation of neuromuscular disorders of the spine.

Practical – Teaching Units

- Application of palpation techniques with the patient's consent as main requirement for training in mobilisation techniques.
- Differential diagnosis of the structures that limit joint mobility (passive tissues – dynamic tissues – neural tissue).
- Muscle differential diagnosis.
- Mobility tests of the skin, fasciae, muscles – Skin, fasciae, scar mobilisation.
- Traction tests.
- Wrist-hand, Elbow-forearm: a) Application of assessment tests of the intra-articular wrist, metacarpal and finger movements, b) Application of mobilisation techniques for the wrist, the metacarpals and fingers, c) Application of assessment tests of the intra-articular movements of the elbow and the forearm, d) Application of mobilisation techniques in the joints of the elbow and the forearm.
- Shoulder: a) Application of assessment tests of the intra-articular movements of the glenohumeral, acromioclavicular, sternoclavicular and scapulothoracic joints, b) Application of mobilisation techniques to the joints of the shoulder girdle.
- Hip – muscle stretching: a) Application of assessment tests of the intra-articular movements, b) Application of joint mobilisation techniques, c) Application of examination techniques of muscle elasticity and application of stretching.
- Knee: a) Application of assessment tests of the intra-articular movements of tibiofemoral and patellofemoral joint, b) Application of joint mobilisation techniques.
- Ankle and foot – muscle mobilisation: a) Application of assessment tests of the intra-articular movements of the joints of the ankle, the tarsus, the metatarsals and the toes, b) Application of joint mobilisation techniques, c) Application of muscle mobilisation techniques.
- Spine: a) palpation in the cervical, thoracic and lumbar spine, b) Application of basic principles of mobilisation of the intervertebral joints.
- Neural tissue: Application of assessment tests and neural tissue mobilisation techniques.
- Application of neuromuscular control programmes.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.

Practical

- The students practise in groups on the application of the techniques.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Intermediate assessment of students in specific practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Understand the intra-articular movement of all the joints of the human body, as well as the movement capability of the neural tissue.
- Develop basic skills for the examination and the differential diagnosis of the tissues responsible for the decreased joint range of motion.
- Develop basic skills in the examination and the therapy of hypomobile joints of the upper, and lower extremities, and of the spine.
- Develop basic skills in the examination and the therapy of unstable joints of the upper and lower extremities, and of the spine.
- Develop an awareness of respect for the individuality of each patient.

Suggested Reading

1. Καρακασίδου Π. Φύλλα διδασκαλίας θεωρίας και εργαστηρίου. Αθήνα: Αθήνα: Εκδόσεις ΤΕΙ Αθήνας, 2005.
2. Κουτσαμπέλας Ν Χ. Εφαρμογή ειδικών διατάσεων σε όλους τους μυς του ανθρωπίνου σώματος. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε, 2006.
3. Boyling JD, Jull GA. Grieve's Modern Manual Therapy. Edinburgh: Churchill Livingston,2004.
4. Bronfort G, Haas M, Evans R, et al. Effectiveness of manual therapies: the UK evidence report. Chiropr Osteopat. 2004;18:3.
5. Butler D. The sensitive nervous system. 1st Edition. Australia: Noigroup, 2006.
6. Carnes D, MarsTs, Mullinger B, et al. Averse events and manual therapy: A systematic review. Manual Therapy. 2011; 15(4):355-363.
7. Evjenth O and Hamberg J. Muscle stretching in manual therapy. A clinical manual. The extremities. 5th Edition. Sweden: Alfta Rehab, 2002.
8. Kaltenborn FM, Evjenth O, Kaltenborn TB, et al. Manual Mobilization of the joints. The extremities. 7th Edition. Oslo: Norli, 2011.
9. Kaltenborn FM, Evjenth O, Kaltenborn TB, et al. The spine. Basic evaluation and mobilization techniques. 4th Edition. Oslo: Norli, 2009.
10. Maitland G, Hengeveld E, Banks K and English K. Maitland's vertebral manipulation. 7th Edition. Oxford: Butterworth-Heinemann, 2005.
11. Richardson C, Hodges P, Hides J. Therapeutic exercise for spinal segmental stabilization in low back pain. 7th Edition. Edinburgh: Churchill Livingstone, 2004.

Course Description

Name	Clinical Placement: Physiotherapy in Neurological Disorders and Diseases
Code	N2-7040
Category	Specialty Course, Mandatory
Required	Physiotherapy in Adult Neurological Disorders and Diseases
Type	Theoretical & Practical
Semester	7th
Teaching hours/week	11 hours (T:3, P:8)
ECTS	9

Aims of the Course

The aim of the course is to familiarise the students with: a) the approach to patients with diseases of the central and peripheral nervous system, b) the clinical reasoning, and c) the planning of a physiotherapy programme in a clinical setting. The students are required to link the theory with evidence-based clinical practice. The clinical practice focuses mainly on: a) assessment during the acute stage of the disease of the neurological patient, b) determination of the goals of the individualised programme for the patient, and c) the clinical significance of the reassessment in relation to the effectiveness/appropriateness of the selected intervention and the course of the disease.

Course Outline

Theoretical – Teaching Units

- Clinical neurological physiotherapy – physiotherapy practice. The role of the physiotherapist in neurological rehabilitation, codes and rules of neurological rehabilitation and basic bioethics principles in a clinical setting.
- Assessment of neurological patients in the acute and chronic stage.
- Analysis of clinical cases of patients with stroke (cerebrovascular accident – CVA) in the acute and chronic stage. Assessment of clinical cases with stroke in the acute or chronic stage, assessment tests and scales, planning of the physiotherapy intervention, re-planning depending on complications and changes of the clinical status of the patient.
- Analysis of clinical cases of patients with Parkinson's Diseases (PD). Assessment of clinical cases at various stages of PD, assessment tests and scales, planning and re-planning of the physiotherapy intervention depending on the stage of the disease, programmes and suggestions for maintaining social integration.
- Analysis of clinical cases of patients with multiple sclerosis (MS). Assessment of clinical cases at various stages of MS, assessment tests and scales. Planning and replanning of the physiotherapy intervention depending on the stage of the disease, fitness programmes and fatigue management.
- Analysis of clinical cases of patients with traumatic brain injury (TBI). Assessment of clinical cases with TBI, assessment of the patient in the intensive care unit (ICU), Glasgow Coma Scale and, in the chronic stage, assessment of the most common complications and

their treatment, planning of individualised physiotherapy interventions and realistic goals of the rehabilitation programme.

- Analysis of clinical cases of patients with diseases and injuries of the spinal cord. Assessment of clinical cases depending on the level of the spinal cord lesion, assessment in the acute and chronic stage, realistic goals of the rehabilitation programme, planning of individualised physiotherapy intervention.
- Analysis of clinical cases of patients with brain tumours. Assessment of clinical cases in the acute and in the chronic stage, realistic goals of the rehabilitation programme, planning of individualised physiotherapy intervention and replanning depending on the complications and the worsening of the clinical status.
- Analysis of clinical cases of patients with polyneuropathy and Guillain–Barré syndrome. Assessment of clinical cases in the acute stage, in the ICU and in the chronic stage. Differences in the planning and the goals of the programme in patients with lesions in the peripheral nervous system, prognosis and goals, planning of the physiotherapy intervention.
- Analysis of clinical cases of patients with myopathies. Assessment of clinical cases of patients with myopathies, prognosis, realistic goals and planning of the physiotherapy intervention.
- Analysis of clinical cases of children with cerebral palsy (CP). Assessment of clinical cases of children with various types of CP, assessment and treatment of spasticity in the various types of CP, realistic goals and planning of physiotherapy intervention.

Practical – Teaching Units

The practical part of the course is conducted with the students in rotation in regular intervals in neurological and neurosurgery clinics for children and adults and in rehabilitation based on the following subjects: Diseases of the central and the peripheral nervous system of the adult patient; diseases of the central nervous system of the paediatric patient. The students are taught the methodology of the assessment and the planning of the individualised physiotherapy intervention, the selection and the application of appropriate techniques and methods. The application of the techniques and methods is performed by the lecturer and afterwards, with the patient's consent, by the students under supervision.

- Clinical practice on adult patients with stroke. Clinical cases with stroke (ischaemic, haemorrhagic) in the acute and chronic stage are presented from the medical ward or from the rehabilitation centre for assessment (history, clinical picture, abnormal reflexes, muscle tone, balance, gait, fatigue, questionnaires) and the individual intervention plan is designed and applied.
- Clinical practice on patients with Parkinson's Disease (PD). Clinical cases of patients with PD are presented from the medical wards or from the rehabilitation center for assessment (history, clinical picture, muscle tone, balance, gait, fatigue, questionnaires) and the individualised intervention plan is applied).
- Clinical practice on patients with multiple sclerosis (MS). Clinical cases of patients with MS with recurrent exacerbations or in a chronic stage from the medical ward or the rehabilitation centre are presented for assessment (history, clinical picture, abnormal

reflexes, muscle tone, balance, gait, fatigue, questionnaires) and the individualised intervention plan is applied.

- Clinical practice on patients with traumatic brain injuries (TBI). Clinical cases of patients with TBI in the acute or chronic stage are presented from the medical ward or the rehabilitation centre for assessment (history, clinical picture, muscle tone, abnormal reflexes, balance, gait, fatigue, questionnaires) and the individualised intervention plan is applied.
- Clinical practice on patients with brain tumours. Clinical cases of patients with brain tumours from the medical ward or the rehabilitation centre are presented for assessment (history, clinical picture, muscle tone, balance, gait, fatigue, questionnaires) and the individualised intervention plain is applied.
- Clinical practice on patients with diseases and injuries of the spinal cord (SCI). Clinical cases of patients with SCI in the acute or chronic stage from the medical ward or the rehabilitation centre are presented for assessment (history, clinical picture, muscle tone, balance, gait, self-care) and the individualised intervention plan is applied.
- Clinical practice on patients with diseases of the peripheral nervous system (Guillain–Barré syndrome, polyneuropathies, etc.). Clinical cases of patients with Guillain–Barré syndrome in the acute stage from the medical ward are presented for assessment (history, clinical picture, muscle tone, balance, gait), and the individualised intervention plan in applied.
- Clinical practice on children with cerebral palsy (CP). Clinical cases of children with CP of every type from the neurological clinic ward or the rehabilitation centre are presented for assessment (history, clinical picture, abnormal reflexes) and the individualised intervention plan is designed and applied.

Teaching Methods

Theoretical

- Lectures and presentations.
- Use of e-class for the uploading and circulation of scientific articles, instructions, lectures, useful links, questionnaires, information related to the course conferences, etc.
- Guest speakers by approval of the Physiotherapy Department.

Practical

- The students practise on practical and clinical problems of assessment and physiotherapy intervention for musculoskeletal system injuries.

Student Assessment

Theoretical

- Final written examination with the option for written assignments.

Practical

- Continuous assessment of students in clinical practical exercises.

Learning Outcomes

After completing the course the students should be able to:

- Approach the neurological patient.
- Assess the neurological patient according to the taught methodology and criteria, design the physiotherapy intervention and apply it through appropriate techniques and methods.
- Cooperate with other health professionals when necessary.

Suggested Reading

1. Barnes MP, Johnson GR. Σύνδρομο Ανώτερου Κινητικού Νευρώνα και Σπαστικότητα. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2008.
2. Bromley I. Τετραπληγία και Παραπληγία: Ένας Οδηγός για Φυσικοθεραπευτές. 6η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
3. Davies MP. Steps to follow: The Comprehensive Treatment of Patients with Hemiplegia. 2nd Edition. Germany: Spinger, 2000.
4. Fuller G, Manford M. Νευρολογία. (Έγχρωμο Εικονογραφημένο Εγχειρίδιο). 3η Έκδοση. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2011.
5. Gertz SD, Tadmor R. Liebman's Neuroanatomy. Made Easy and Understandable. 7th Edition. Maryland: Pro ed, 2006.
6. Levitt S. Treatment of Cerebral Palsy and Motor Delay. 5th Edition. Great Britain: Wiley - Blackwell, 2010.
7. Norm A, Hanson B. Θεραπευτική Άσκηση στο νερό. Αθήνα: Εκδόσεις Παρισιάνου Α.Ε., 2000.
8. Parry A. Physiotherapy Assessment. United Kingdom: Nelson Thornes Ltd, 1990.

Course Description

Name	Surgery
Code	N2-7A10
Category	General Core Course, Elective
Required	--
Type	Theoretical
Semester	7th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is for the students to understand the concept of surgery and surgical diseases, to understand the surgical patient and his/her special needs, irrespective of age, and to acquire skills for managing such patients through the assessment and the application of therapeutic means for local or systemic surgical problems, as well as for the organs and systems that are affected by them. Finally, to prevent the systemic dysfunctions caused by the above surgical problems.

Course Outline

Theoretical – Teaching Units

- Introduction to Surgery, Main concepts and principles.
- Surgery, surgical incisions, types of wound closure, wound healing, stages of healing, factors influencing healing, types of healing, haemorrhage, postoperative complications, effect of age on the surgical patient.
- Surgical inflammation (causes, corroborating factors, symptoms, diagnosis, types, course, therapy), intrahospital infections, types of local inflammation, furuncle, carbuncle, hot abscess, cold abscess, erysipelas, gas gangrene, tetanus.
- Chemoprophylaxis in general surgery. Burn.
- Surface surgery, sore ulcer, pressure sores, coccyx cyst. Herniation, types, symptoms, therapy and complications.
- Breast diseases. Diaphragm diseases.
- Diseases of the stomach, the duodenum, the small and the large intestine. Elements of diseases of the liver, the bile duct and the pancreas.
- Appendicitis, causes, symptoms. Peritonitis – ileus – acute abdomen – abdominal trauma.
- Surgical disorders of the chest, haemothorax, pneumothorax, chylothorax, purulence, trauma, tracheostomy, pulmonary echinococcus, congenital chest diseases, chest neoplasms, cardiac surgery problems, heart and lung transplantation.
- Surgical vascular diseases. Arterial disorders, aneurysm, true aneurysm, false aneurysm, arteriovenous aneurysm, degenerative aneurysm, dissecting aneurysm. Venous disorders, post-thrombotic syndrome, enlarged veins, varicose veins, lower extremity varicose veins, haemorrhoids, cirsocele.

- Neurosurgery disorders, head injury, spine injuries, congenital abnormalities of the nervous system, ischaemic stroke, CNS neoplasms, endocranial inflammations.
- Anaesthesiology and its contribution to surgery, types of anaesthesia, anaesthetic drugs, intravenous drugs, opioids, volatile anaesthetics, muscle relaxants, local anaesthetics, anaesthesia equipment, pain, resuscitation.

Teaching Methods

Theoretical

- Lectures and presentations.
- Diagnosis simulation.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should be able to:

- Recognise the surgical diseases and surgical interventions.
- Assess the surgical patient based on his/her needs.
- Intervene therapeutically contributing to the best possible surgical outcome and at the same time preventing possible systemic dysfunctions.
- Function productively in a hospital unit.

Suggested Reading

1. Μπονάτσος Γ. Χειρουργική Παθολογία. Εκδόσεις Π.Χ Πασχαλίδη, 2010.
2. Παγκόσμιος οργανισμός υγείας (WHO). Η Διεθνής ταξινόμηση ογκολογικών νοσημάτων. Geneva: World Health Organization, 2009.
3. Παπαχριστοδούλου ΑΙ. Χειρουργική παχέος εντέρου. Αθήνα: Εκδόσεις Βήτα, 1995.
4. Πετρίδης Α. Εγχειρίδιο Χειρουργικής. Αθήνα: Εκδόσεις Έλλην, 2004.
5. Bailey H. Χειρουργική Σημειολογία. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2010.
6. Byrne JJ, Goldsmith HS. Goldsmith's Practice of Surgery. Philadelphia: Harper & Row, 1985.
7. Cameron JL. Σύγχρονη Χειρουργική Θεραπευτική. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2011.
8. Doherty GM, et al. Washington Εγχειρίδιο Χειρουργικής. Αθήνα: Εκδόσεις Π.Χ Πασχαλίδη, 2006.
9. Schwartz SI. Principles of Surgery. NY: McGraw-Hill, 2009.
10. Skandalakis JE. Χειρουργική Ανατομική και Τεχνικές. Θεσσαλονίκη: Εκδόσεις Σιώκης, 2000.

Course Description

Name	Diagnostic Imaging
Code	N2-7B10
Category	Special Core Course, Elective
Required	--
Type	Theoretical
Semester	7th
Teaching hours/week	2 hours (T:2)
ECTS	4

Aims of the Course

The aim of the course is to present to the students the methods and the systems of Diagnostic Imaging, with emphasis on those that have applications in diseases associated with the specialty of Physiotherapy, as well as the possibilities for diagnosis and treatment implemented by the Diagnostic Departments.

Course Outline

Theoretical – Teaching Units

- Medical imaging with the use of ionising radiation.
- Medical imaging with the use of non-ionising radiation.
- Interventional procedures in the Imaging Department (diagnostic, therapeutic).
- Imaging for diseases of the chest – midthorax.
- Imaging for diseases of the abdomen-digestive system.
- Imaging for diseases of the abodomen-urinary system.
- Imaging of the skull-spine and nervous system.
- Imaging of the ribcage – shoulder girdle and upper extremity.
- Imaging of the pelvis-hips and lower extremity.
- Imaging of fractures.
- Imaging of joints and degenerative diseases of the musculoskeletal system.
- Imaging of inflammations and neoplasms with emphasis on the musculoskeletal system.

Teaching Methods

Theoretical

- Lectures and presentations.

Student Assessment

Theoretical

- Final written examination.

Learning Outcomes

After completing the course the students should:

- Be familiar with the Department of Medical Imaging and the most common tests.
- Understand the essential differences between the imaging methods, as well as their combined use, in order to achieve a satisfactory rendering of the anatomical structures and the types of pathology.
- Be aware of the gross radioanatomy and the main pathological images relative to the specialty of Physiotherapy.
- Be aware of the interventional procedures carried out in the Medical Imaging Departments, with emphasis on those that have application in diseases associated with the specialty of Physiotherapy.

Suggested Reading

1. Αργυροπούλου Μ, et al. Κλινική Ακτινολογία. Αθήνα: Εκδότης Ι. Κωνσταντάρας, 2012.
2. Γαλανόπουλος Ν, Στυλιαράς Λ. Βασική Ακτινολογία. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2005.
3. Eisenberg RL, Johnson NM. Comprehensive Radiographic Pathology. 4th ed. MO: Mosby; 2007.
4. Lasserre A, Blohm L. Εγχειρίδιο Ακτινολογίας. Αθήνα: Εκδόσεις Παρισιάνου ΑΕ, 2007.
5. The Royal College of Radiologists. RCR Referral Guidelines. Making the best use of clinical radiology. 2007. Available at: http://www.rcr.ac.uk/content.aspx?PageID=995

8th Semester

	8th Semester						Code	ECTS
1.	Dissertation						500	20
2.	Practical Clinical Placement						250	10
	Total						750	30

Contact:

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