

## Degree Course in Physiotherapy

### **INTEGRATED COURSE: INTERDISCIPLINARY CLINICAL SCIENCES 1**

**CFU: 6**

**SSD: MED/30, MED/31, MED/33, MED/34, MED/36**

**COORDINATOR:**

**E-MAIL:**

MODULE: PHYSICAL AND REHABILITATION MEDICINE

CFU: 2

SSD: MED/34

PROFESSOR: LUCA PADUA

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MODULE: EYE DISEASE

NUMERO DI CFU: 1

SSD: MED/30

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MODULE: LOCOMOTIVE SYSTEM DISEASE

CFU: 1

SSD: MED/33

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MODULE: DIAGNOSTIC IMAGING AND RADIOTHERAPY

CFU: 1

SSD: MED/36

PROFESSOR: ROBERTO PASQUARELLI

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MODULE: OTOLARINGOLOGY

CFU: 1

SSD: MED/31

PROFESSOR: FRANCESCO RONCHETTI

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### **PREREQUISITES**

PHYSICAL AND REHABILITATION MEDICINE

EYE DISEASE

*The course has no prerequisites. The knowledge of basic principles on the visual system would be supportive for understanding the topics covered.*

LOCOMOTIVE SYSTEM DISEASE

*Musculoskeletal anatomy knowledge*

DIAGNOSTIC IMAGING AND RADIOTHERAPY

*Knowledge of the general features of Human Anatomy and Physiology is preferred but not mandatory*

OTOLARINGOLOGY

*Basic concepts of anatomy and physiology of the acoustic-vestibular system and air-*

digestive pathways are required, with particular reference to acute, chronic and degenerative diseases.

## LEARNING OBJECTIVES

### PHYSICAL AND REHABILITATION MEDICINE

#### EYE DISEASE

The primary goals of the course include the basic principles of visual anatomy and physiology helpful in understanding the relevant aspects of ophthalmic disorders.

#### LOCOMOTIVE SYSTEM DISEASE

Introduction to basic clinical and therapeutical concepts of the most common orthopaedic pathologies in the pediatric age. Recognition of the most common skeletal deformities during growth period.

#### DIAGNOSTIC IMAGING AND RADIOTHERAPY

The Student will be able to acquire the information and diagnostic and / or therapeutic indications of the equipment used in Diagnostic Imaging, Nuclear Medicine and Radiotherapy, both with Ionizing Radiation(IR) and with Non Ionizing Radiation(NIR).

In addition, notions will be provided regarding radiation protection in patients and workers.

#### OTOLARINGOLOGY

The understanding of the pathophysiological mechanisms underlying the alterations in balance and the production mechanisms of speech and swallowing are essential objectives. These objectives will be achieved through face-to-face lectures, seminars and interactive teaching activities, designed to facilitate learning and improve the ability to deal with and solve the main pathological and degenerative diseases.

## LEARNING OUTCOMES

### PHYSICAL AND REHABILITATION MEDICINE

#### EYE DISEASE

Students should demonstrate the comprehension of all the basic concepts of the ocular anatomy and the visual mechanism and recognize the characteristics of the different ophthalmic disorders and visual defects, including possible implications in the locomotor system.

#### LOCOMOTIVE SYSTEM DISEASE

##### **Knowledge and understanding**

At the end of this teaching the student will need:

- to know the major orthopedic joint pathologies described;
- to know the clinical and instrumental diagnostic criteria;
- to know the most commonly used treatment options;

### **Applying knowledge and understanding**

Al termine dell'insegnamento lo studente sarà in grado di:

- Utilizzare le conoscenze acquisite per l'approfondimento autonomo di aspetti relativi al campo specifico al quale lo studente si dedicherà nell'ambito della attività professionale;

### **Communication skills**

At the end of the course the student will be able to:

- Use the knowledge acquired to independently investigate the aspects related to the specific field in which the student will be involved in his professional activity

### DIAGNOSTIC IMAGING AND RADIOTHERAPY

At the end of this course the Student will have to demonstrate knowledge of the diagnostic and / or therapeutic indications of the equipment used in Diagnostic Imaging, Nuclear Medicine and Radiotherapy. He will have to know, in the osteo-articular field, the indications of Non-Ionizing and Ionizing Radiation equipment.

In addition, he will have to know radiation protection to protect patients and workers.

### **Communication skills**

Finally, the Student has to use the scientific terminology adequately

### **Making judgements**

At the end of the course, the Student will be able to make general assessments relating to the topics covered.

### OTOLARINGOLOGY

#### **Knowledge and understanding**

At the end of this teaching the student will have to know:

- Anatomy and physiology of the central and peripheral vestibular system
- Describe the main methods of clinical analysis of the peripheral vestibular system
- Knowing the main pathological frameworks of the peripheral vestibular system
- Knowing the principles of physical rehabilitation of vestibular pathologies
- Principles of prosthetic rehabilitation of the peripheral vestibular system
- Know the anatomy of the oral, larynx and the air-digestive tract
- Know the physiology of voice production and swallowing
- Know the main clinical analysis tests of the air-digestive system
- Knowing and describing the main pathological and degenerative frameworks of the air-digestive system
- Know the rehabilitative methods of swallowing

#### **Applying knowledge and understanding**

At the end of the teaching, the student will be able to:

- Use the knowledge acquired for the autonomous deepening of aspects related to the specific field to which the student will devote himself in the field of professional activity;

#### **Communication skills**

At the end of the teaching, the student will need to know:

- Use specific scientific terminology appropriately.

### **Making judgements**

At the end of the teaching, the student will need to know:

- general assessments of the topics covered.

## **COURSE SYLLABUS**

### PHYSICAL AND REHABILITATION MEDICINE

#### EYE DISEASE

##### **Elements of anatomy and physiology**

Fibrous tunics: Sclera - Cornea

Vascular tunics: Choroid - Ciliary body - Iris

Nerve tunics: Retina

Crystalline lens and vitreous

Anterior chamber, posterior chamber, aqueous humor

Optic Nerve and Optic Pathways

Eyelids and Conjunctiva

Lacrimal system: Gland and Lacrimal Tracts

Extrinsic Ocular Muscles

Orbit

##### **Pathophysiological optics**

The eye from an optical point of view

Elements of optics, prisms and lenses

Vision defects (myopia, hyperopia, astigmatism, presbyopia)

Visual acuity measurement (charts, decimals, diopters, retinoscopy (schiascopy), refractometer)

##### **Pathology and Clinic**

Eyelid diseases (chalazion, hordeolum, ectropion, entropion, ptosis)

Diseases of the lacrimal drainage system (occlusion, dacryocystitis)

Diseases of the conjunctiva (conjunctivitis, pinguecula, pterygium)

Diseases of the cornea (keratitis, corneal ulcers, keratoconus)

Diseases of the sclera (scleritis)

Diseases of the lens (cataracts)

Diseases of the vitreous

Diseases of the uvea (uveitis, tumors)

Diseases of the retina (angiomas, diabetic retinopathy, Hypertensive retinopathy, venous and arterial occlusions, inherited retinal degeneration, age-related macular degenerations, retinal detachment, retinoblastoma).

Neuro-ophthalmology (papilledema, optic neuritis, chiasmatic and retrochiasmatic syndrome).

Glaucoma (humor aqueous circulation, tonometry, visual field, optic nerve alterations)

Concomitant and paralytic strabismus (amblyopia, esotropia, exotropia)

##### **Semeiotics and instrumental examinations**

Physical examination (biomicroscopy, ophthalmoscopy)

Corneal evaluation (ophthalmometry, topography, endothelial microsc.)

Glaucoma and optical pathways (perimetry, ERG, VEP)  
Color sense tests (Ishihara plates, Farnsworth test)  
Retina imaging (Fluorescein angiography + ICGA, OCT, Ultrasound)

### LOCOMOTIVE SYSTEM DISEASE

- Pathologies of the major joints such as:
  - Shoulder
  - Elbow
  - Spine
  - Hip
  - Knee
  - Ankle
- Surgical and conservative treatment focused on the rehab
- Rehab concepts based on type of surgical treatment
- Knowledge of the rehab based on the surgical treatment

### DIAGNOSTIC IMAGING AND RADIOTHERAPY

- **Diagnostic Imaging and Radiotherapy Equipment:**

Physical foundations, equipment technicians and main clinical indications: Ultrasound (US); analogic/digital radiology (RX); Computerized Bone Mineralometry (CBM); Mammography (MX); Computed Tomography (CT); Magnetic Resonance (MR); Nuclear Medicine (NM); Hybrid equipment (PET/CT); Interventional Radiology (IR); Radiotherapy (RT).

- **Radiations:**

Natural and artificial sources of radiation. Non Ionizing Radiation (NIR) and Ionizing Radiation (IR). Radioactivity and radioactive decay. Biological effects of ionizing radiation on the human species; Tissue Radiosensitivity Scale; stochastic, deterministic and genetic effects.

- **Radiation Protection:**

The Ethical Principles of Radioprotection; Dosimetric quantities and Dosimetry; Physical Surveillance; Medical Surveillance; Devices for Protection against Ionizing Radiation (individual, collective, environmental); Irradiation, Contamination and Decontamination. Radioprotection in fertile age and pregnancy.

- **Clinical indications of the Diagnostic Imaging in the study of the Spine and great Joints.**

### OTOLARINGOLOGY

#### Vestibular system:

Anatomy and physiology of the auditory and vestibular system, immuno-mediated diseases of the inner ear associated with vertigo, pathophysiology of the optical-kinetic system and the visuo-vestibulo-oculomotor reflex, electro-nystagmography, caloric and instrumental vestibular evaluation, the potential evoked myogenic vestibular (VEMP's) clinical applications, assessment of the patient with dizzying-postural disorders the bed-

side examination, clinic of peripheral disorders of balance with Associated audiological symptoms, positional paroxysm dizziness from labyrinthitis, vertigo and barotrauma, cervical whiplash and visuo-vestibular system, rehabilitative therapy in vestibular system pathology peripheral

#### Dysphagia:

Terminology of dysphagia, pathophysiological components in swallowing disorders, dysphagia and other disorders of swallowing, aspiration, etiology of dysphagia, mechanic and neurological dysphagia, clinical of the dysphagic patient, procedures diagnostics, primary pathological frameworks in paediatric and adulthood, dysphagia in the elderly, voice and dysphagia, treatment of dysphagia. texts uncamillus

### **COURSE STRUCTURE**

#### PHYSICAL AND REHABILITATION MEDICINE

##### EYE DISEASE

The course consists of a total of 10-hours frontal lessons.

##### LOCOMOTIVE SYSTEM DISEASE

The Teaching is structured in 10 hours of frontal teaching, divided into lessons of 2 or 3 hours according to the academic calendar.

##### DIAGNOSTIC IMAGING AND RADIOTHERAPY

This teaching programme is made up of 10 hours of frontal/interactive lessons of 3 and 4 hours.

##### OTOLARINGOLOGY

The Teaching is structured in 10 hours of frontal teaching, divided into lessons of 2 or 4 hours according to the academic calendar. The frontal teaching includes theoretical lectures and supplementary seminars on the topics covered.

### **COURSE GRADE DETERMINATION INTEGRATED COURSE**

#### PHYSICAL AND REHABILITATION MEDICINE

##### EYE DISEASE

The final exam consists of multiple choices test followed by an oral examination

##### DIAGNOSTIC IMAGING AND RADIOTHERAPY

The Student assessment will be determined through an oral exam.

### LOCOMOTIVE SYSTEM DISEASES

The student's knowledge will be evaluated through a multiple choice written exam.

The exam will have 30 questions with 4 possible answers per question; 1 answer correct only. Each correct answer is worth 1 point for a total of 30 points available. 18 points will be necessary in order to pass the exam.

Possibly, there might be some questions that need an open answer to justify the answer to a previous question. This type of answer is also worth 1 point.

### OTOLARINGOLOGY

The verification of the preparation of the students will take place with a written exam followed by an oral test. The written test will consist of 30 questions with multiple choice answers, for each exact answer will be assigned a point. The final score of the written test will be given by the sum of the partial scores assigned to each correctly answered question. To enter the oral exam, the student must have scored at least a minimum of 18 points. During the oral test, the Examining Commission will assess the Student's ability to apply the knowledge and ensure that the skills are adequate to support and solve microbiological problems. In addition, the results of the evaluation of the evaluation (making judgments), communication skills and learning skills will be assessed as indicated in the Dublin descriptors.

### **OPTIONAL ACTIVITIES**

#### PHYSICAL AND REHABILITATION MEDICINE

n/a

#### EYE DISEASE

Optional activities are not included in the present course. However, student reception would be available during the provided office hours

### LOCOMOTIVE SYSTEM DISEASES

No additional activities are provided.

### OTOLARINGOLOGY

In addition to the educational activity, the student will be given the opportunity to participate in Seminars, Research Internships, Departmental Internships and Monographic Courses. The subjects of the activities are not subject to examination. The acquisition of allocated hours takes place only with a mandatory frequency of 100% and is expected to be eligible.

### **READING MATERIALS**

#### PHYSICAL AND REHABILITATION MEDICINE

La riabilitazione in ortopedia S. Brent Brotzman, Kevin E. Wilk, Masson 2008

Clinical Orthopaedic Rehabilitation. Kevin E. Wilk; S. Brent Brotzman.  
Elsevier - Health Sciences Division



## EYE DISEASE

lecture notes

## LOCOMOTIVE SYSTEM DIDEASE

Review of Orthopaedics VI edition; Miller M.D., Thompson S.R, Hart J.A; Elsevier

## DIAGNOSTIC IMAGING AND RADIOTHERAPY

- **The topics of the lessons will be provided to students in PDF and / or PowerPoint.**

- It is recommended for **self-study** to visit the site:

[https://www.physio-pedia.com/Diagnostic\\_Imaging\\_for\\_Physical\\_Therapists](https://www.physio-pedia.com/Diagnostic_Imaging_for_Physical_Therapists)

## OTOLARINGOLOGY

Vertigo and Dizziness Common Complaints Dieterich, Strupp, Springer London Limited 2005

Clinic Of LabyrinthS Peripherals Official Report XCII National Congress Enzo Mora

Dysphagia diagnosis and Treatment Olle Ekberg Springer London

Dysphagia Otolaryngologic Clinics of North America volume 31 number 3