



UNIVERSITÀ DEGLI STUDI DI PALERMO

DEPARTMENT	Biomedicina, Neuroscienze e Diagnostica avanzata		
ACADEMIC YEAR	2022/2023		
BACHELOR'S DEGREE (BSC)	NEUROPHYSIOPATHOLOGY TECHNIQUES		
INTEGRATED COURSE	NEUROELECTROMYOGRAPHY: PRINCIPLES AND TECHNIQUES		
CODE	22329		
MODULES	Yes		
NUMBER OF MODULES	3		
SCIENTIFIC SECTOR(S)	MED/33, MED/26, MED/48		
HEAD PROFESSOR(S)			
OTHER PROFESSOR(S)	GAGLIARDO ANDREA	Professore a contratto	Univ. di PALERMO
	DI STEFANO VINCENZO	Ricercatore a tempo determinato	Univ. di PALERMO
	MOSCADINI SALVATORE	Professore a contratto	Univ. di PALERMO
CREDITS	6		
PROPAEDEUTICAL SUBJECTS			
MUTUALIZATION			
YEAR	2		
TERM (SEMESTER)	1° semester		
ATTENDANCE	Mandatory		
EVALUATION	Out of 30		
TEACHER OFFICE HOURS	DI STEFANO VINCENZO Wednesday 15:00 16:30 Via del Vespro 143, padiglione 26/A, Palermo 90129. Tel: 091 6554780. Concordare scrivendo una mail all'indirizzo vincenzo19689@gmail.com oppure alla mail istituzionale. MOSCADINI SALVATORE Friday 08:00 09:00 U.O.C. Ortopedia e Traumatologia AOUP Paolo Giaccone		

DOCENTE:

PREREQUISITES	Anatomy and physiology of the motor unit and peripheral nerve.
LEARNING OUTCOMES	Provide the physiological and pathophysiological bases to understand the electromyographic findings Acquire the theoretical foundations and practical skills to perform the main electromyographic methods pertaining to the neurophysiopathology technician Know the responsibilities and duties of the neurophysiopathology technician in the electromyography laboratory. study of the main peripheral nerve entrapment syndromes such as carpal tunnel syndrome, ulnar nerve entrapment syndrome at the elbow, tarsal tunnel syndrome. Study of cervical and lumbar root pathologies. Also provide the basic knowledge on the pathologies of the locomotor system and in particular those that most often can be complicated with root or nerve involvement.
ASSESSMENT METHODS	Verification is carried out by means of an oral exam according to the University calendar. The oral exam consists of an interview, aimed at ascertaining the possession of the disciplinary skills and knowledge required by the course; the interview can focus on one or more relevant questions. Open or semi-structured questions tend to verify the knowledge acquired, the ability to organize and process technical information and the ability to display it. The ability to organize and elaborate the contents aims at verifying the complex and transversal clinical reasoning between disciplines and the application of notions in a professional context, including a multidisciplinary one. As regards the exposition capacity, the ability of the student to demonstrate a language property appropriate to the reference professional context, and sufficiently articulated, will be assessed with a score gradually increasing. The sufficiency threshold will be reached when the student shows knowledge and understanding of the topics at least in general lines and has minimal applicative skills. In order to solve concrete cases; he will also have to possess exhibition skills e arguments such as to allow the transmission of his knowledge to the examiner. Below this threshold, the examination will be insufficient. The more, however, the student with his argumentative and expository skills manages to interact with the examiner, and the more his knowledge and application skills go into the detail of the discipline being tested, the more the evaluation will be 'positive. The evaluation takes place out of thirty. Rating: excellent 30-30L; 27-29 excellent; 24-26 good; 21-23 discreet; 18-20 sufficient; 1-17 insufficient.
TEACHING METHODS	frontal lessons

MODULE EMG-ENG RECORDING TECHNIQUES

Prof. ANDREA GAGLIARDO

SUGGESTED BIBLIOGRAPHY

Materiale didattico fornito dal docente

AMBIT	10343-Scienze e tecniche di neurofisiopatologia
INDIVIDUAL STUDY (Hrs)	30
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

Acquire the theoretical technical bases and the practical skills to perform the main electromyographic methods pertaining to the neurophysiopathology technician. Know the equipment for recording the EMG signal and for the study of nerve conduction; the surface electrodes and the needle electrodes the different functioning and the different applications; the electrical stimulators, the ways of improving the signal, electrical interference, artifacts.

At the end of the course the student will know and will also be able to manage the responsibilities and tasks of the neurophysiopathology technician in the electromyography laboratory.

SYLLABUS

Hrs	Frontal teaching
3	EMG and nerve conduction recording (Electroneurography:ENG) equipment, how does the electromyograph work?
2	patient preparation and management during the exam
3	The electrodes: types, impedance, applications
3	Recording parameters for EMG/ENG signal: amplification filters, impedance check
3	artifacts: typology, identification, correction, reporting
4	Main procedures for electromyoneurographic recording: modalities for recording the ENG: sensory and motor conduction of the main nerve trunks of the limbs (electrodes, stimulators, mounts)
2	Role of the neurophysiopathology technician in the EMG / ENG laboratory: support activities, activities in autonomy, responsibility

MODULE LOCOMOTOR SYSTEM DISEASES

Prof. SALVATORE MOSCADINI

SUGGESTED BIBLIOGRAPHY

4 La patologia della spalla: lesioni mio-capsulo-legamentose, lesioni del cerchio glenoideo, lesioni osteoarticolari. Le lussazioni di spalla
 8 La patologia del ginocchio: patogenesi, clinica e trattamento delle lesioni meniscali e delle lesioni legamentose. Le lesioni cartilaginee articolari
 4 La patologia del piede: quadri clinici più frequenti
 5 Lesioni muscolari e tendinee nello sport: la pubalgia e il gomito del tennista

AMBIT	10349-Scienze medico-chirurgiche
INDIVIDUAL STUDY (Hrs)	30
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

The educational purposes of the course are aimed at providing students with the necessary knowledge of orthopedic pathologies and trauma, in developmental age and in adulthood, with particular attention to traumatic and degenerative injuries of the various joints (shoulder, elbow, spine, hip, knee, etc), particularly where conflict with neural structures could occur (entrapment neuropathies, radiculopathies etc.). They will be clarified for each pathology considered the etiopathogenesis, the classification criteria, the clinical signs, specific for the identification of the damage, the imaging, essential for the definition of a correct diagnosis and therapy, be it medical or surgical.

SYLLABUS

Hrs	Frontal teaching
4	Fractures: classification, clinical pictures, complications and methods of treatment, with practical exercises of bandages and dressings
2	Congenital deformities: congenital hip dysplasia, congenital clubfoot, myogenic torticollis
2	Paramorphisms and dysmorphisms: scoliosis
2	Arthritic disease
4	Pathologies with possible neural conflict: neck pain, lumbago, lumbosciatica and lumbocruralgia. Cervical and lumbar disc herniation: pathogenesis, clinic and treatment; entrapment neuropathies in the upper and lower limbs (carpal tunnel, cubital tunnel, entrapment of the peroneal nerve at the knee)
2	Shoulder pathology: myocapsulo-ligament lesions, lesions of the glenoid labrum, osteoarticular lesions. Shoulder dislocations
2	The pathology of the knee: pathogenesis, clinic and treatment of meniscal and lesions ligament injuries. Articular cartilage lesions
2	Foot pathology: more frequent clinical pictures

**MODULE
EMG-ENG**

Prof. VINCENZO DI STEFANO

SUGGESTED BIBLIOGRAPHY

materiale didattico fornito dal docente.

Nozioni sulle apparecchiature di registrazione elettromiografica. Attività muscolare spontanea. Analisi dei potenziali di unità motoria; analisi del tracciato da sforzo massimo; elettroencefalografia, neurografia dei nervi routinari; onda F, riflesso H,

AMBIT	10343-Scienze e tecniche di neurofisiopatologia
INDIVIDUAL STUDY (Hrs)	30
COURSE ACTIVITY (Hrs)	20

EDUCATIONAL OBJECTIVES OF THE MODULE

Provide the physiological and pathophysiological basis to understand the electromyographic and electroencephalographic findings. Acquire the theoretical foundations and practical skills. Introduce students to the study of cervical and lumbar root pathologies and the main peripheral nerve entrapment syndromes such as carpal tunnel syndrome, ulnar nerve entrapment syndrome at the elbow, tarsal tunnel syndrome and the main pathologies of the nerve of the muscle and neuromuscular junction.

SYLLABUS

Hrs	Frontal teaching
3	Introductory aspects and notions on electromyography equipment
4	Electromyography: Spontaneous muscular activity. Motor unit potentials analysis; analysis of the maximum effort path
4	Electroencephalography, neurography of routine nerves; wave F, reflection H
3	Techniques for the study of the neuromuscular junction: Repetitive electrical stimulation and single fiber electromyography.
6	Electroneuromyography and diagnostic work-up for neuromuscular diseases