HUMANITAS UNIVERSITY	**Department of Biomedical Sciences** **Physiotherapy Degree Programme** **Physiotherapy of Musculoskeletal Disorders Syllabus**
Academic year 2020-2021. Academic term: first semester of the third year **Course coordinator: Prof Giuseppe Massazza**	

PHYSIOTHERAPY OF MUSCULOSKELETAL DISORDERS OF THE SPINE (3 ECTS)	
PT. Silvano Ferrari	Freelance physiotherapist. Expert in musculoskeletal physiotherapy. Lecturer for the Masters in Manual Therapy and Musculoskeletal Rehabilitation at the Universities of Padua and Bologna. E-mail: silvano.ferrari@fastwebnet.it
Objectives	Describe an Evidence-Based Practice approach based on clinical reasoning and Therapeutic Objectives by presenting the use of the main treatment modalities and continuous evaluation of results.
Teaching methods	Lectures are held directly in the practice room, to integrate lectures with practical exercises.
Teaching material	Slides presented during the lecture, available on the LMS for physiotherapy students, and pictures displaying the discussed techniques.

Content

THE LUMBOPELVIC REGION

1) Introduction

Introduction to the lecture, epidemiology and pathophysiology of low back pain. General concepts of manual therapy and therapeutic exercise, diagnostic triage and algorithm for physiotherapy planning.

2) Patient management in the acute phase

Pathophysiology and clinical aspects of disc dysfunction: description of the clinical picture, clinical evaluation and treatment principles. Differences between reducible and non-reducible pain

3) Exercises

Practical exercises for the treatment of disc dysfunction: McKenzie Assessment, manual therapy approaches from a prone position, manual traction of the lumbar spine.

4) Management of the subacute patient care

Pathophysiology and clinical aspects of motor control and posture dysfunction: description of the clinical picture, clinical evaluation and principles of treatment

5) Exercises

Assessment of neuromotor control: instability tests, motor control exercises

6) Management of the chronic patient care

Pathophysiology and clinical aspects of the chronic patient. Principles of Cognitive Behavioural Treatment and Central Pain Awareness

7) Guidelines
Presentation of the main guidelines for physiotherapy treatment of patients with lumbopelvic dysfunction

8) Conclusions
Final summary on low back pain management: plenary discussion with clinical reasoning

THE CERVICAL SPINE REGION

9) Neurodynamics
Rationale and treatment modalities with a neurodynamic approach

10) Neck pain introduction
Epidemiology, pathophysiology and rationale for physiotherapy treatment in subjects with neck pain

11) Neck pain with mobility deficit
Pathophysiology, evaluation and physiotherapeutic treatment of neck pain with mobility deficit. Evidence-based approaches

13) Neck Pain with motor control deficit
Pathophysiology, evaluation and physiotherapeutic treatment of neck pain with motor control deficit. Evidence-based approaches

14) Practical exercises
Training on the main manual techniques for neck pain patients with mobility and motor control deficits

15) Neck pain with headache
Pathophysiology, evaluation and physiotherapeutic treatment of neck pain with headache. Evidence-based approaches

17) Neck pain with radiating pain
Pathophysiology, evaluation and physiotherapeutic treatment of neck pain with radiating pain. Evidence-based approaches

18) Guidelines and conclusions
Presentation of the main guidelines on physiotherapy treatment of patients with neck pain

19) Exercises
Practical exercises on the treatment of neck pain: integration of manual therapy, therapeutic exercises and educational approach

20) The dorsal spine
Pathophysiology, evaluation and physiotherapeutic treatment of back pain. Osteoporosis and exercise

CONTENT OF THE EXERCISES
Manual therapy for the lumbar region

a. General and segmental lumbar assessment

b. Laslett Sacroiliac Test

Lumbar traction

c. Traction belt

Demonstration of assessment and treatment according to McKenzie

d. Directional preference
e. Simulation of disc dysfunction treatment

Instability test

f. Instability test
g. PIT
h. PLE
i. ASLR
j. Bridge tests

Demonstration of motor control exercises

k. ASLR
l. Bridging
m. Dancer

Neurodynamics

n. Slump test
o. ULTT 1

Cervical spine assessments (Neck pain with mobility and motor control deficits)

p. Klein test
q. Upper cervical flexion test
r. Cervical Flexion-Rotation test
s. Cranialcervical Flexion test

Mobilisation, Cervical Spine Manual Therapy and Exercises

t. Demonstration of assessment and treatment according to McKenzie
u. Cervical assessment
v. Cervical lateral glide
w. Pressure biofeedback
x. Wall

Cervical spine assessments (Neck pain with headache and radiating pain)

y. Spurling test
z. Neck distraction test

Cervical traction and pompage

a. Traction belt
b. Cervical pompage (C0/C1 and general)

TOS

c. Open arms GPR technique demonstration (TOS)

PHYSIOTHERAPY OF MUSCULOSKELETAL DISORDERS OF THE LIMBS (3 ECTS)	
Dr Marta Bonandrini	Bachelor's degree in Physiotherapy from the University Vita-Salute San Raffaele. Master's degree in Health Professions of Rehabilitation Sciences at the

	University of Florence. Master's degree in Rehabilitation of Musculoskeletal Disorders from the University of Genoa. Tutor of clinical practice for the Master's Degree Course in Rehabilitation of Musculoskeletal Disorders. Owner and General Manager of LOFT Medica, physiotherapy and rehabilitation centre in Lodi. E-mail: marta.bonandrini@gmail.com
Objectives	The Physiotherapy of Musculoskeletal Disorders of the Limbs module aims to teach students about: 1) clinical presentation, incidence and prevalence of the main dysfunctions of the musculoskeletal system, 2) recognizing signs and symptoms of the main musculoskeletal dysfunctions, 3) formulating pathophysiological hypotheses in relation to the patient's history, signs and symptoms, and verifying these hypotheses with evaluation tests, 4) choosing and applying manual techniques and/or therapeutic exercises for the specific clinical picture based on evidence from international scientific literature.
Teaching methods	Lectures are held directly in the practice room, to integrate lectures with practical exercises.
Teaching material	Slides presented during the lecture, available on the LMS for physiotherapy students, and pictures displaying the discussed techniques

Content

1) Manual therapy the bio-psycho-social model
International Classification of Functioning. From the biomedical model to the bio-psycho-social model. Classification of musculoskeletal disorders of the limbs and principles of arthokinematics and osteokinematics. The musculoskeletal medical record.

2) Rehabilitation of ankle joint disorders
Arthrokinematics of the tibiotarsal, subtalar, proximal and distal tibio-fibular joints. Evaluation of the tibiotarsal, subtalar and distal tibio-fibular joint by a battery of tests. Classification and clinical presentation of ankle sprains and tendinopathies. Manual therapy techniques and therapeutic exercise for ankle sprains and tendinopathies (in-depth study of achilles tendinopathy).

3) Rehabilitation of knee joint disorders
Arthrokinematics of the knee joint, function of ligaments and menisci. Knee joint clinical aspects (osteoarthritis, meniscal and ligamentous injuries, patellar tendinopathy). Functional assessment of the knee joint using specific tests. Manual therapy techniques and therapeutic exercises for musculoskeletal dysfunctions of the knee joint.

4) Rehabilitation of hip joint disorders
Arthro- and osteo-kinematics of the coxofemoral joint. The function of the anterior and posterior ligaments of the coxofemoral joint. Classification and clinical presentation of musculoskeletal disorders of the hip (osteoarthritis, femoroacetabular impingement, gluteal tendinopathy and pubalgia. Manual therapy techniques and therapeutic exercises for musculoskeletal dysfunctions of the coxofemoral joint.

5) Rehabilitation of shoulder joint disorders
Arthro- and osteo-kinematics of the shoulder complex, role of the rotator cuff muscles and scapulohumeral rhythm. Clinical presentation of musculoskeletal disorders of the shoulder (subacromial impingement, frozen shoulder, rotator cuff injury, glenohumeral dislocation and instability). Manual techniques and therapeutic exercises for the main musculoskeletal disorders of the shoulder complex.

6) Rehabilitation of elbow joint disorders
Arthro- and osteo-kinematics of the elbow: bony and ligamentous contribution to stability. Clinical presentation of musculoskeletal disorders of the elbow (stiff elbow, medial instability, lateral elbow pain). Manual techniques and therapeutic exercises for the main musculoskeletal disorders of the elbow joint.

ERGONOMICS (1 ECTS)	
Dr Federico Temporiti	Graduated in Physiotherapy in 2014 from the University Vita-Salute San Raffaele. He currently works at Humanitas University as a Course Coordinator of the Physiotherapy Degree Course and conducts clinical and research activities at the Istituto Clinico Humanitas. E-mail: federico.temporiti@humanitas.it
Objectives	Provide the students with the necessary knowledge to understand how the interaction between the human body and the living and working environment is involved in determining certain pathological conditions affecting the musculoskeletal system. In addition, the student will be presented with how these conditions can be prevented or treated.
Teaching methods	Lectures with classroom discussion.
Teaching material	Slides presented in class, available to physiotherapy students on the LMS platform, course notes, scientific articles provided by the lecturer.

Content

1) Ergonomics
Etymology of the term, introduction and general principles, areas of interest in the discipline and the rationale behind ergonomic interventions. The role of the environment in determining function.

2) Ergonomics of the spine
The concept of posture and regional interdependence. Alterations in the biomechanics of the spine and consequent dysfunctions of the cervical spine and lumbopelvic region during certain living and working conditions.

3) Ergonomics of the spine
Educational and corrective interventions for the cervical spine and lumbopelvic region. Evaluation of the indications for corrective intervention and therapeutic exercise. Choosing interventions in relation to the patient's characteristics.

4) Ergonomics of the upper limb
Alterations in the biomechanics of the shoulder girdle and upper limb during certain living and working conditions. Ergonomic, educational and corrective interventions in relation to prognostic factors of musculoskeletal disorders of the shoulder complex.

5) Ergonomics of the elbow and hand
Alterations in elbow and hand biomechanics. Ergonomics in lateral epicondylitis, medial elbow instability and cubital tunnel syndrome. Therapeutic approach and ergonomics of TFCC injuries.

HAND REHABILITATION AND SPLINTING TECHNIQUES (1 ECTS)	
PT Viviana Ferrari	Since 1998 she has been a physiotherapist at Humanitas Research Hospital, where she has been involved in hand rehabilitation in outpatient setting, mainly post-surgical. She has attended the following training courses: Global Active Stretching; lymphatic drainage according to the Vodder method; resistance band exercises; elements of hand surgery and rehabilitation; evaluation and treatment of adult hemiplegic patients according to the Bobath method. E-mail: viviana.ferrari@humanitas.it
Objectives	The objectives of the course on hand rehabilitation and splinting techniques are: 1) provide basic knowledge useful for correctly managing the post-surgical and conservative rehabilitation treatment of hand pathologies. 2) provide basic splinting techniques necessary to support the treatment of the hand.
Teaching methods	Each lesson consists of 1 hour-long lecture and 1 hour-long practical workshop with tutorials related to the topics covered.
Teaching material	Slides presented during lecture, available to physiotherapy students on the LMS platform, course notes

Content

1) Rehabilitation treatment for fractures of the wrist, metacarpals and phalanges

Treatment of oedema, stiffness and adhesions in distal radius fractures. Scaphoid fractures and conservative treatment. Splinting and characteristics of the various types of braces (static, static progressive and dynamic).

2) Arthrosis

Clinical features of arthrosis and where it is localized in the hand. Therapeutic exercises, rest and functional splints of the patient with arthrosis of the wrist, metacarpophalangeal and interphalangeal joints.

3) Nerve compression syndrome, inflammatory tendon diseases of the hand

Nerve compression syndrome of the median, ulnar and radial nerves: conservative and post-surgical treatment. Trigger finger, Dupuytren's disease and De Quervain's disease: therapeutic exercise and static and functional splinting.

4) Soft tissue injuries

Hand flexor and extensor tendon injuries. Early exercise and mobilisation protocols, and static, progressive static and dynamic splinting.

5) Soft tissue injuries

Capsular ligament injuries of the hand. Ulnar collateral ligament injury: splinting and therapeutic exercise. TFCC injuries: conservative and post-surgical treatment.

PRESENTATION OF CLINICAL CASES (1 ECTS)

Prof. Giuseppe Massazza	Full Professor in Physical Medicine and Rehabilitation at the University of Turin and Member of the Open Faculty at Humanitas University Director of the Complex Structure in Physical Medicine and Rehabilitation Director of the Department of Orthopaedics, Traumatology and Rehabilitation at the AOU Città della Salute e della Scienza of Turin E-mail: giuseppe.massazza@hunimed.eu giuseppe.massazza@unito.it
Objectives	Provide rehabilitation medical knowledge necessary to complement what has been taught in the previous modules. • Through the presentation of clinical cases, students will learn the value of anamnesis in the rehabilitation field, physical examination, and diagnosis and differential diagnosis, in order to identify the state of disability and the therapeutic approach to be implemented according to the patient's history. • Emphasis will be placed on how to identify the appropriate Diagnostic and Therapeutic Care Pathway (DTPC) and how to identify clinical alerts useful for redirecting rehabilitation treatment and redefining the prognosis of recovery. • Outline of the rehabilitation settings where patients with musculoskeletal disorders can be seen and treated by the rehabilitation team • Outline of the cornerstones of the rehabilitation prognosis, the rehabilitation objectives that are part of the Individual Rehabilitation Project, and the role of the rehabilitation team in caring for the patient. The module also includes a theoretical/practical part on techniques and materials for bandaging and braces aimed at providing professional insights into patient management.
Teaching methods	Lectures with classroom discussion.
Teaching material	Lecture slides, available for physiotherapy students on LMS Neuro-anatomia attraverso casi clinici di Hal Blumenfeld, edito PICCIN

Content

1) Introduction to the Module

Definition of roles and competencies in the rehabilitation team. The Individual Rehabilitation Project (IRP) as a tool for dialogue between professionals.

2) I° clinical case in the field of musculoskeletal trauma

Basic concepts of first aid and sports traumatology. From clinical practice to guidelines. Role of anamnesis and physical examination. Diagnosis and differential diagnosis. Instrumental examinations: who, what, why, when. Complications and clinical strategies. The IRP and essential physiotherapy aspects.

3) II° clinical case in the orthopaedic musculoskeletal field

Basic concepts of orthopaedics in the musculoskeletal field. From clinical practice to guidelines. Role of anamnesis and physical examination. Instrumental examinations: who, what, why, when. Differential diagnosis. The surgical indications and post-surgical indications. The IRP and essential physiotherapy aspects.

4) Rehabilitation settings in the musculoskeletal field

Outpatient setting, Hospital setting. Code 56: intensive rehabilitation. Role of the rehabilitation team: competencies and responsibilities

5) Elements of Bandaging Techniques
Introduction to bandaging. Introduction to the materials. Introduction to techniques. Indications for bandaging, limitations and possible complications. Practical exercise in the classroom

6) Elements of Braces in the musculoskeletal field
Indication of the use of braces. Application of the main braces used in the field of musculoskeletal disorders. Complications of orthopaedic braces. Practical exercise in the classroom

7) III° Clinical Case: Musculoskeletal fragility
Definition of frailty and clinical care implications within the IRP. Definition of sarcopenia and clinical care implications in the context of the IRP. Role of nutrition in the frail elderly. Risk of falling from home to RSA. Comorbidity and geriatric aspects in rehabilitation.

8) Non-rehabilitation settings
RSA (Residenza Sanitaria Assistenziale). Long-term care. Home-based.

9) IV° Clinical Case: low back pain
From definition to diagnosis. Role of the medical specialist. Role of the physiotherapist. Role of the Physical Therapist. General concepts of Osteopathy

10) Viewing of video clips in the context of emblematic clinical cases
Classroom discussion

11) Course summary, critical review of some topics
Summary of the main topics presented in the course

12) Examination simulation and presentation of clinical cases developed by students in groups

Examination for the Physiotherapy of Musculoskeletal Disorders course
Written examination with multiple-choice questions for all modules. Oral examination for the modules "Physiotherapy of musculoskeletal disorders of the limbs", "Physiotherapy of musculoskeletal disorders of the spine", "Ergonomics" and "Hand rehabilitation and splinting techniques". Examination with practical test for the modules "Physiotherapy of musculoskeletal disorders of the limbs" and "Physiotherapy of musculoskeletal disorders of the spine". (Chairman of the Examination Committee: Prof. Giuseppe Massazza)