UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Muscle Physiology and Conditioning

2021-1-I0201D130-I0201D192M

Aims

The course aims to show the main principles of muscular physiology and to illustrate the basis of the training methodology in order to give to the physical therapist the appropriate tools for the assessment and training of the specific muscular performance.

Contents

Detailed program

Based on the principles of muscular

conditionig the course will cover: - characteristics of the contractile tissue

- tendon characteristics - characteristics of the support structures of the

muscle - muscular metabolism - the modifications of the muscular tissue

in relationship with the stimulus: immobilization in elongated position or

in shortened position, electrostimulation, voluntary contraction, training

of the specific task the methodology of the training will cover: - type of

muscular contraction and their characteristics - theory if the training:

objectives and optimal stimulus to achieve it - methodological basis for

the resistance training - methodological basis for the power training -

stretching and muscular modifications in length - recover strategies -

relationships between alignment and muscular activity - the physiologic

movement - recruitment schemes of a selection of elementary

movements - the break test for the muscular evaluation based on a

defined grading - basic muscular dysfunction: weakness, stiffness,

shortness and long muscle

Prerequisites

Teaching form

Lectures or, in case of Covid-19 emergency, e-learning videos.

Textbook and teaching resource

* Kendall Florence Peterson, Elizabeth Kendall McCreary, Patricia Geise Provance, I muscoli - funzioni e test (quinta edizione),Verducci Editore, Roma, 2002

* Skeletal Muscle Structure, Function, and Plasticity: The Physiological Basis of Rehabilitation, 3rd Edition Richard L. Lieber ISBN: 978-0-7817-7593-9

* Jürgen Weineck, l'allenamento ottimale, Calzetti e Mariucci, 2006

* Ola Grimsby e Jim Rivard, STEP – Scientific Therapeutic Exercise progression – basic theory, The academy of graduate physical therapy, 2009

Semester

2nd semester

Assessment method

During the Covid-19 emergency period, oral exams will only be online. They will be carried out using the WebEx platform and on the e-learning page of the course there will be a public link for access to the examination of possible virtual spectators.

Office hours

By appointment