UNIVERSITÀ
DEGLI STUDI DI MILANO-BICOCCA

COURSE SYLLABUS

Muscle Physiology and Conditioning

2122-1-I0201D130-I0201D192M

Aims

The course aims to show the main principles of muscular physiology and to illustrate the basis of the training process and method. This concepts are explained in order to give to the physical therapist the appropriate tools for specific muscular performance training, to choose the correct dosage, for management of tendinopathies and DOMS, to understand how muscle flexibility and length can be improved.

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

Lessons in attendance, subject to any ministerial changes following the COVID pandemic situation

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

By digital platform

Office hours

By appointment