UCL Université catholique de Louvain

LKINE1038

2013-2014

Biomechanics applied to physiotherapy

3.0 credits	30.0 h	2q

Teacher(s) :	Schepens Bénédicte (compensates Willems Patrick) ; Mahaudens Philippe (coordinator) ; Willems Patrick (coordinator) ;
Language :	Français
Place of the course	Louvain-la-Neuve
Main themes :	The main themes to achieve these objectives are : - biomechanics of the muscle, - electromyography and kinesiology, - strength of biological material like bones, tendons and ligaments
Aims :	The aim of this course is to apply the principles of biomechanics in physiotherapy. Using these principles, the student will be able to identify the mechanical causes of several pathologies of the locomotory system, et de justify therapeutic design from a biomechanical point of view. *The contribution of this Teaching Unit to the development and command of the skills and learning outcomes of the programme(s) can be accessed at the end of this sheet, in the section entitled "Programmes/courses offering this Teaching Unit".*
Content :	- Notion of tribology (how to study the mechanical properties of biological structures: static solicitation (creep, stress - strain diagram, stress relaxation...) dynamic solicitation (effect of speed on the visco-elastic properties of biological structures, resonant frequency...), fatigue test. - Rheological properties of bone tissues, effect of growth and aging on these properties, effect immobilization and of exercise on these properties, mechanical properties of osteo-synthesis materiel... - Rheological properties of cartilage, wear of cartilage, effect of immobilization and exercise on these properties. - Rheological properties of ligaments et tendons, effect of immobilization and exercise on these properties. - Biomechanical properties of muscle, effect of exercise and immobilization on these properties. - Muscular reinforcement: isotonic reinforcement, isometric reinforcement, isokinetic reinforcement, the stretching. - Electromyography (EMG), origin and characteristic of the signal, electrodes, treatment of the signal, effect of force, length, speed and fatigue of the muscle on the EMG.
Other infos :	Pre-requisite Mechanics, biomechanics, Fundamentals of locomotory physiotherapy Evaluation Oral or written exam Support Books or syllabus Supervision Teachers Others
Cycle and year of study :	> Bachelor in Physiotherapy and Rehabilitation > Preparatory year for Master in Physiotherapy and Rehabilitation and for Master in Motor Skills: General
Faculty or entity in charge:	FSM