Teaching guide

IDENTIFICATION DETAILS

Degree:	Physiotherapy
Scope	Physiotherapy, podiatry, nutrition and dietetics, occupational therapy, optics and optometry and speech therapy.
Faculty/School:	Health Sciences
Course:	FISIOPATOLOGÍA
Type:	Basic Training
ECTS credits:	6
Year:	1
Code:	251366
Teaching period:	Second semester
Subject:	Human Physiology
Module:	Basic Training
Teaching type:	Classroom-based
Language:	Spanish
Total number of student study hours:	150

SUBJECT DESCRIPTION

Pathophysiology seeks to establish a large part of the basis for understanding how our body works and how the different systems and devices that make it up respond in their interaction with the surrounding context, taking into account the different changes that occur according to the needs of survival in healthy conditions.

Pathophysiology is a 6-credit subject, belonging to the basic training module that will be taught during the second semester. It is intended that the student knows the basic general concepts and principles to understand the functions of the different systems and organs of the human being, the way in which they work and the way in which each of them contributes to the functions of the human body as a whole, all with the ultimate goal of meeting the needs of patients as a physical therapy professional with excellence. In addition, it is intended that students

know the basics of exercise physiology in order to be able to adequately care for their patients through exercise, in order to seek the patient's physical well-being, which will influence their total well-being. This course, which will have as its precedent Human Physiology, the musculoskeletal, cardiovascular and respiratory systems will be addressed; together with a last unit that will serve to see how the human body responds and adapts to physical exercise.

GOAL

The objective of the course is for the student, future physiotherapist, to learn about one of the dimensions that constitute the human person, the physical dimension, exploring the functions of the different organs and systems (neuromuscular, respiratory and cardiovascular systems) that make up the human body. You will also understand the basics of the human body's responses and adaptations to movement.

The specific aims of the subject are:

With an eye on the whole person, it is intended that they understand the effects that their interventions, as professionals, may have on them.

PRIOR KNOWLEDGE

The minimum level of knowledge recommended for taking this subject is that corresponding to having taken the subjects of Human Physiology and Anatomy I within the Degree.

COURSE SYLLABUS

BLOCK 1. MUSCULOSKELETAL SYSTEM - Structure and function of skeletal muscle. Structure and ultrastructure of the myofibril. Muscle contraction. Excitation-contraction process. - Types of muscle fibers. - Modalities of muscle contraction. - Skeletal muscle as an endocrine organ. - Muscle strength, neuromuscular adaptations to strength training and muscle fatigue. - Prevailing pathologies. BLOCK 2. CARDIOVASCULAR SYSTEM - The heart as a muscle. - The heart as a pump. Main cardiovascular parameters: heart rate, stroke volume, cardiac output, heart rate variability, etc. Electrocardiogram. - Blood circulation. Blood pressure. Regulation of blood pressure. - Transport and defense system. - Prevailing pathologies. - WORK: Immune System - ACTIVITY: Electrocardiogram. BLOCK 3. RESPIRATORY SYSTEM - Mechanics of respiration. - Gas exchange. - Control of respiration. - Prevailing pathologies. - ACTIVITY: Spirometry. BLOCK 4. PHYSIOLOGY OF EXERCISE - Cardiovascular responses and adaptations to exercise. - Respiratory responses and adaptations to exercise. - Concept of VO2, VO2max and aerobic-anaerobic transition; and its clinical application. - WORK: Strength evaluation - ACTIVITY: Lactate Test

EDUCATION ACTIVITIES

Teacher exposure classes: students will be provided with essential and organized information from a variety of

sources. In addition to the oral presentation, other teaching resources will be used and the active participation of students will be encouraged in order to facilitate greater reception and understanding.
Problem solving or case studies and other individual or cooperative learning activities
Seminars, practices, workshops and/or round table: exercises, tests and implementation of the knowledge acquired.
Academic monitoring and evaluation activities: Individual tutoring to personalize the student's educational interests and answer questions. In addition, carrying out different tests to verify that you have acquired the knowledge, skills and attitudes of the corresponding competencies.
Group work: students learn to reflect and produce as a team, enriching themselves with diverse opinions and judgments. If they were exposed to the rest of the class, the group subjects their work to debate with the rest of their classmates; in addition to working on the ability to communicate the knowledge learned.
Study and independent work, practical exercises, complementary activities and virtual work: the student will be responsible for organizing their work and acquiring knowledge at their own pace.

DISTRIBUTION OF WORK TIME

TEACHER-LED TRAINING ACTIVITIES	INDIVIDUAL WORK
60 Horas	90 Horas

LEARNING RESULTS

Know the principles and theories of physical agents and their applications in physiotherapy.

Know the physiological and structural changes that may occur as a result of the application of physiotherapy.

To know the physiopathology of diseases by identifying the manifestations that appear throughout the process, as well as the medical-surgical treatments, mainly in their physiotherapeutic and orthopedic aspects.

SPECIFIC LEARNING RESULTS

Understand and describe the functions of the systems and apparatus of the healthy human organism at its different levels of organization

Apply the necessary skills to carry out certain functional explorations and laboratory techniques

Apply the integrative capacity that allows us to understand that knowledge is not constituted by independent fragments

Understand the idea of the body as a whole trying to relate concepts in order to progressively arrive at a global anatomo-physiopathological conception of the human body

Know and understand the morphology, physiology, pathology and behavior of people, both healthy and sick, in the

natural and social environment

LEARNING APPRAISAL SYSTEM

ORDINARY EVALUATION SYSTEM: According to the internal regulations of the UFV, class attendance is mandatory. Weighting the different parts of the evaluation:
• Theoretical tests: 65%
• Daily activities, work and individual and group exercises: 35%

ALTERNATIVE EVALUATION SYSTEM (students with 2nd or more enrollment, exchange students and those with Academic Exemption (*see below)): Weighting the different parts of the evaluation:
• Theoretical tests: 65%
• Daily activities, work and individual and group exercises: 35%

WHAT EVALUATION SYSTEM SHOULD I TAKE ADVANTAGE OF?
For first-time students: They will take advantage of the ordinary evaluation system. It will be necessary to obtain a grade of 5 in all the sections described above in order to pass the course. In the case of suspending the subject in an ordinary call, for the extraordinary call the student must undergo the necessary tests marked by the teacher to pass each of the suspended parts, keeping the grade of the approved parts.
For students with 2nd or more enrollment: They can take advantage of the ordinary evaluation system or the alternative evaluation system, with prior agreement with the teacher at the beginning of the course, and provided that the course has been taken in person beforehand.
For Exchange Stay students who do not have the subject validated: They will take advantage of the alternative evaluation system, and it is their obligation to know it.
For students with Academic Exemption: According to UFV regulations, academic exemption implies the authorization of the degree director for a student in first enrollment to undergo the alternative evaluation system. It will be granted on an extraordinary basis in duly justified cases, upon the student's request to the Degree Management.
Those students who are in the 6th call or in the call for 'grace' should take the subject according to the criteria established in this teaching guide for first-time students. In this way, they will be able to ensure the correct continuous evaluation with class attendance, as well as the rest of the criteria established in the evaluation of the subject. A partial test will be carried out approximately in the middle of the semester, with the possibility of releasing the evaluated content if a grade equal to or greater than 7 is achieved. If the exam is released, in the final grade of the subject, the score of the theoretical test will be the average of the score obtained in the partial and final grades. The test will be in person, if the health authorities allow it.
“Plagiarism, as well as the use of illegitimate means in evaluation tests, will be sanctioned in accordance with those established in the Evaluation Regulations and the University's Coexistence Regulations.”

ETHICAL AND RESPONSIBLE USE OF ARTIFICIAL INTELLIGENCE

1.- The use of any Artificial Intelligence (AI) system or service shall be determined by the lecturer, and may only be used in the manner and under the conditions indicated by them. In all cases, its use must comply with the following principles:
a) The use of AI systems or services must be accompanied by critical reflection on the part of the student regarding their impact and/or limitations in the development of the assigned task or project.
b) The selection of AI systems or services must be justified, explaining their advantages over other tools or methods

of obtaining information. The chosen model and the version of AI used must be described in as much detail as possible.
c) The student must appropriately cite the use of AI systems or services, specifying the parts of the work where they were used and describing the creative process followed. The use of citation formats and usage examples may be consulted on the Library website(https://www.ufv.es/gestion-de-la-informacion_biblioteca/).
d) The results obtained through AI systems or services must always be verified. As the author, the student is responsible for their work and for the legitimacy of the sources used.
2.- In all cases, the use of AI systems or services must always respect the principles of responsible and ethical use upheld by the university, as outlined in the Guide for the Responsible Use of Artificial Intelligence in Studies at UFV. Additionally, the lecturer may request other types of individual commitments from the student when deemed necessary.
3.- Without prejudice to the above, in cases of doubt regarding the ethical and responsible use of any AI system or service, the lecturer may require an oral presentation of any assignment or partial submission. This oral evaluation shall take precedence over any other form of assessment outlined in the Teaching Guide. In this oral defense, the student must demonstrate knowledge of the subject, justify their decisions, and explain the development of their work.

BIBLIOGRAPHY AND OTHER RESOURCES

Basic

HALL, John E. Guyton y Hall: Tratado de fisiología médica / 13ª ed. Barcelona :Elsevier,2016.

López Chicharro, José. Fisiología del entrenamiento aeróbico: una visión integrada / Madrid :Médica Panamericana,2013.

López Chicharro, José. Fisiología del ejercicio / 3ª ed. Madrid :Panamericana,2010.

López Chicharro, José. Fisiología clínica del ejercicio / Madrid :Panamericana,2008.

Tortora, Gerard J. Principios de anatomía y fisiología / 15ª ed. Buenos Aires [etc.] :Editorial Panamericana,2018.

G. Gregory Haff, N. Travis Triplett, editores. Principios del entrenamiento de la fuerza y del acondicionamiento físico, NSCA /

Additional

Silverthorn, Dee Unglaub (1948-) Fisiología humana: un enfoque integrado / 8ª ed. Madrid :Editorial Medica Panamericana,2019.

FOX, Stuart Ira. Fisiología humana / 14ª ed. Mexico [etc.] :McGraw-Hill Education,2016.