

PATOPHYSIOLOGY

MODULE	CONTENT	YEAR	TERM	CREDITS	TYPE
Nutrition, Dietetics and Health Sciences	Pathophysiology	2º	2º	6 ECTS (4,5 T + 1,5 P)	Required Mandatory
LECTURER(S)			Postal address, telephone nº, e-mail address		
Departament of Physiology Carlos de Teresa Galván (T*; P*) Mª Alba Martínez Burgos (T*) Departament of Medicine Francisco Martí Jiménez (T*; P*)			Dpt. Physiology, 1st floor, Faculty of Pharmacy, Cartuja Campus. 958243879. cdeteresa@ugr.es ; malbam@ugr.es Dpt. Medicine, 6th floor, Faculty of Medicine. 958244054. fmarti@ugr.es		
DEGREE WITHIN WHICH THE SUBJECT IS TAUGHT			TUTORING		
Degree in Human Nutrition and Dietetics			Dpt. Physiology: http://www.ugr.es/~fisiougr/tutorias.php Prof. Francisco Martí Jiménez: Tuesday 10.00-12.00 h		
PREREQUISITES and/or RECOMMENDATIONS (if necessary)					
<ul style="list-style-type: none"> To have background knowledge of Chemistry, Human Anatomy and Histology, Structural and Metabolic Biochemistry, Human and Cell Physiology, Human Physiology. A good standard of English and computer skills are also required. 					
BRIEF ACCOUNT OF THE SUBJECT PROGRAMME (ACCORDING TO THE DEGREE)					
General aspects of pathophysiology. Dysfunction and disorders of the musculoskeletal, cardiovascular, respiratory, gastrointestinal, renal, nervous and hormonal systems. Blood disorders.					
GENERAL AND PARTICULAR ABILITIES					
GENERAL ABILITIES					
<ul style="list-style-type: none"> CG1: To recognize the essential elements of the dietitian-nutritionist profession, including ethical 					



principles, legal responsibilities and the exercise of the profession, applying the principle of social justice to professional practice and developing it with respect for people, their habits, beliefs and cultures.

- CG2: To develop the profession with respect to other health professionals, acquiring skills to work in a team.
- CG3: To recognize the need to maintain and update professional competence, paying special attention to the learning, independently and continuously, of new knowledge, products and techniques in nutrition and food, as well as the motivation for quality.
- CG4: To know the limits of the profession and its competences, identifying, when necessary, an interdisciplinary treatment or referral to another professional.
- CG5: To carry out communication effectively, both orally and in writing, with people, health professionals or industry and the media, knowing how to use information and communication technologies, especially those related to nutrition and life habits.
- CG29: To acquire basic training for the research activity, being able to formulate hypotheses, collect and interpret information for the resolution of problems following the scientific method, and understanding the importance and limitations of scientific thinking in health and nutrition.

SPECIFIC ABILITIES

- CE1: To know the chemical, biochemical and biological foundations of application in human nutrition and dietetics.
- CE2: To know the structure and function of the human body from the molecular level to the complete organism, in the different stages of life.
- CE26: To know the nutrients, their functions and their metabolic utilization. Know the bases of the nutritional balance and its regulation.
- CE32: To know the pathophysiological aspects of nutrition-related diseases.

OBJECTIVES (EXPRESSED IN TERMS OF EXPECTED RESULTS OF THE TEACHING PROGRAMME)

At the completion of the course the student should be able to:

- Obtain information about the alterations in the function of the different systems that make up the organism, as well as the etiopathogenic mechanisms involved in the alteration and the symptoms of each disease.
- Understand the concepts of health and disease.
- Know the pathophysiological mechanism of the disease.
- Obtain a basis for the understanding of the nutritional implication of the different pathologies studied that facilitates the later study of nutritional strategies involved in the prevention or treatment of those pathologies.
- Know the compensatory mechanisms to maintain the function of a system in pathological situations.
- Relate concepts with previous knowledge and acquire sufficient basis for subsequent.

DETAILED SUBJECT SYLLABUS

THEMATIC UNIT I: INTRODUCTION AND GENERAL PATHOPHYSIOLOGY

Module 1: Normal and pathologic function

Module 2: Cellular responses to stress and toxic insults. Alterations in cell physiology I: Apoptosis and ageing.

Module 3: Cellular responses to stress and toxic insults. Alterations in cell physiology II: Necrosis and



environmental diseases.

Module 4: Acute and chronic inflammation

THEMATIC UNIT II: BLOOD

Module 5: Pathophysiology of Erythrocytes.

Module 6: Pathophysiology of Leukocytes.

Module 7: Pathophysiology of hemostasis and thrombosis.

THEMATIC UNIT III: DIGESTIVE SYSTEM

Module 8: Disorders of gastrointestinal motility/transit.

Module 9: Disorders of gastric and intestinal secretions.

Module 10: Symptomatology of digestive pathology.

Module 11: Syndromes of gastrointestinal tract pathology.

Module 12: Syndromes of liver, biliary tract and pancreas pathology.

THEMATIC UNIT IV: ENDOCRINE SYSTEM

Module 13: Pathophysiology of growth. Alterations of the hypothalamic-pituitary axis

Module 14: Pathophysiology of Thyroid gland. Goiter. Hyperfunction, hypofunction.

Module 15: Alterations in calcium and phosphate metabolism.

Module 16: Alterations of suprarrenal cortex function.

Module 17: Alterations of glucidic and lipidic metabolism.

Module 18: Alterations of protein and amino acid metabolism.

THEMATIC UNIT V: REPRODUCTIVE SYSTEM

Module 19: Alterations in sex differentiation and development.

Module 20: Disorders of testicular function.

Module 21: Disorders of ovary function.

THEMATIC UNIT VI: CARDIOVASCULAR SYSTEM

Module 22: Pathophysiology of valve malfunction. Valvular heart disease.

Module 23: Pathophysiology of heart bit rate and rhythm disorders. Cardiac arrhythmia

Module 24: Pathophysiology of coronary circulation.

Module 25: Pathophysiology of arterial blood pressure.

Module 26: Cardiac insufficiency. Pathophysiology of the pericardium.

Module 27: Acute circulatory failure.

Module 28: Pathophysiology of peripheral vascular system.

THEMATIC UNIT VII: RESPIRATORY SYSTEM

Module 29: Respiratory failure I: Classifications. Symptomatology. Obstructive lung disease.

Module 30: Respiratory failure II. Restrictive lung disease.

Module 31: Pathophysiology of pulmonary circulation.

Module 32: Alterations of respiratory rhythm and pattern.

THEMATIC UNIT VIII: RENAL SYSTEM

Module 33: Alterations of glomerular and tubular functions.

Module 34: Acute and Chronic renal failure.

Module 35: Pathophysiology of the urinary tract.

Module 36: Acid-base metabolism disorders.

THEMATIC UNIT IX: MUSCULOSKELETAL SYSTEM

Module 37: Pathophysiology of muscle.



Module 38: Pathophysiology of bone.
Module 39: Pathophysiology of joints.

THEMATIC UNIT X: SYSTEMIC PATHOPHYSIOLOGY: THE NERVOUS SYSTEM

Module 40: Pathophysiology of sensory function
Module 41: Pathophysiology of peripheral, medular and brain stem alterations. Pathophysiology of the upper and lower motor neuron.
Module 42: Pathophysiology of motor coordination.
Module 43: Pathophysiology of basal ganglia.
Module 44: Pathophysiology of Autonomic Nervous System. Mood alterations.
Module 45: Pathophysiology of cerebral cortex.
Module 46: Alterations of consciousness, epilepsies, and sleeping disorders

PRACTICAL LABORATORY CLASSES

Group work sessions in the laboratory supervised by the lecturer. Meaningful construction of knowledge through interaction and student activity. Assistance is required. Students will use a pathophysiology laboratory notebook provided by the Department of Physiology in which they will annotate the results and complete the different exercises and problems proposed. Upon completion of the practical laboratory classes, the laboratory notebook will be evaluated by the instructor and it will count as part of the practical laboratory grade.

The practical classes at the laboratory will be taught as follows:

- **Practical session 1.** Pathophysiology of the digestive system. Pathophysiology cases: Lactose intolerance, peptic ulcer.
- **Practical session 2.** Pathophysiology of the endocrine system. Altered metabolism of carbohydrates and lipids. Pathophysiology cases: Hyperglycemia Diabetes mellitus type I and II.
- **Practical session 3.** Case studies and other activities related to part II of the theoretical syllabus.

READING

- Braun C.A. and Anderson C.M. Fisiopatología. Un enfoque clínico. 2ª Edición. Ed. Lippincott Williams & Wilkins, Barcelona. 2011.
- García Conde J., Merino Sánchez J., Glez Macías J. Patología General: Semiología Clínica y Fisiopatología. 2ª Edición. Ed. Interamericana - Mc Graw-Hill. Madrid. 2003.
- Perez Arellano J. L. Siciño de Castro, Manual de Patología General. 6ª Edición Ed. Masson S.A. Barcelona. 2006.
- Buja L.M. y Krueger G.R.F. Netter. Anatomía patológica. 1ª Edición. Ed. Masson, S.A. Barcelona. 2006.
- Kumar Abbas. Robbins y Cotran. Patología estructural y funcional + StudentConsult. Ed. Elsevier. 2015.
- Grossman S. and Porth C.M. Alteraciones de la salud. Conceptos básicos. 9ª Edición. Ed. Lippincott Williams & Wilkins. Barcelona. 2014.
- Pastrana Delgado J. and García de Casasola Sánchez G. Fisiopatología y patología general básicas para Ciencias de la salud. 1ª Edición. Editorial Elsevier. Barcelona. 2013.



RECOMMENDED INTERNET LINKS

<http://www.ugr.es/local/fisioaai>

