

Course Unit	Exercise in Specific Pathologies		Field of study	Sport Sciences/Health Sciences	
Master in	Physical Exercise and Health		School	School of Education	
Academic Year	2022/2023	Year of study	1	Level	2-1
Type	Semestral	Semester	2	ECTS credits	9.0
Code	6125-520-1205-00-22				
Workload (hours)	243	Contact hours	T 10	TP 25	PL 20
			TC -	S 20	E -
			OT 6	O -	

T - Lectures; TP - Lectures and problem-solving; PL - Problem-solving, project or laboratory; TC - Fieldwork; S - Seminar; E - Placement; OT - Tutorial; O - Other

Name(s) of lecturer(s) Pedro Miguel Queirós Pimenta Magalhaes

### Learning outcomes and competences

At the end of the course unit the learner is expected to be able to:

1. Understand the etiological and pathophysiological mechanisms of diseases addressed in the course.
2. Show the ability to assess and prescribe exercise appropriately for patients with different pathologies.
3. Understand how physical exercise interferes with the secondary prevention of various diseases.
4. Know the benefit/risk from different types/intensities/durations of exercise prescription on the development of several diseases.

### Prerequisites

Not applicable

### Course contents

Pathophysiology and prescription of exercise in people with several diseases, namely: metabolic, cardiovascular, respiratory, osteo-articular, cancer, neurologic, as well as those related with overweight and obesity.

### Course contents (extended version)

1. Etiology, pathophysiology, risk factors and levels of association of various pathologies.
2. Metabolic diseases - Obesity
  - The genetics of obesity.
  - Lipodystrophy and lipoatrophy.
  - Biology of visceral tissue.
  - Endocrine determinants of obesity and body fat distribution.
  - Skeletal muscle and obesity.
  - Etiology of the metabolic syndrome.
  - The pathogenic role of visceral obesity.
  - Obesity effects on the cardiovascular system.
  - Relationship between obesity and other diseases.
3. Metabolic diseases - Diabetes mellitus.
  - Types of diabetes mellitus.
  - Peripheral insulin resistance.
  - Production of insulin by the pancreas.
  - Acute complications of diabetes.
  - Late complications of diabetes.
  - Dyslipidemia associated with diabetes.
4. Cardiovascular pathologies.
  - Cerebrovascular disease.
  - Coronary heart disease.
  - Peripheral vascular disease.
  - Pathogenesis (atherosclerosis, blood clotting, raised blood pressure).
5. Respiratory pathologies.
  - Obstructive.
  - Restrictive.
  - Dyspnea on exertion.
6. Osteoarticular pathologies.
  - Osteoarthritis.
  - Osteoporosis.
  - Cervicalgias.
  - Low back pain.
7. Neoplasms.
  - Colorectal cancer.
  - Breast Cancer.
  - Prostate Cancer.
8. Neurological pathologies.
  - Parkinson.
  - Alzheimer.
  - Epilepsy.
9. Prevention and treatment of several diseases.
  - Exercise in diabetes and obesity.
  - Exercise as part of the multidisciplinary management of adults and children with obesity.
  - Exercise in the prevention and treatment of cardiovascular disease.
  - Exercise in the treatment of respiratory disease.
  - Exercise in the treatment of musculoskeletal disease.
  - Exercise in patients with cancer.
  - Exercise and neurological conditions.

### Recommended reading

1. Fonseca, VA (2006). Clinical diabetes. Translating research into practice. Elsevier.
2. WHO (2007). Prevention of cardiovascular disease: guidelines for assessment and management of total cardiovascular risk.
3. ACSM's Guidelines for Exercise Testing and Prescription. 8th edition, Lippincott, Williams & Wilkins Philadelphia, 2009.
4. Isselbacher KJ, Brunwald E, Wilson JD, Martin JB, Fauci AS and Kasper DL: Harrison's Principles of Internal Medicine. 13th. Ed. . International Edition. McGraw-Hill. New York. 1994. (2 Volumes).
5. Gormley J & Hussey J (2005). Exercise therapy. Prevention and treatment of disease: Blackwell.

**Teaching and learning methods**

Oral presentation of content and through multimedia and/or interactive; Research work, analysis and interpretation of scientific papers. Knowledge application acquired at theoretical lessons and theoretical-practical lessons, as well as seminars, through the implementation of activities such as the filling out worksheets and the participation in physical exercise programs with specific populations

**Assessment methods**

1. Continuous evaluation - (Regular, Student Worker) (Final)
  - Development Topics - 30% (Individual works)
  - Intermediate Written Test - 70% (Written tests)
2. Exam evaluation - (Regular, Student Worker) (Supplementary, Special)
  - Final Written Exam - 100% (1 final written test)

**Language of instruction**

Portuguese

**Electronic validation**

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03-01-2023	19-01-2023	19-01-2023	20-01-2023