

NAME OF THE SUBJECT

TITLE (english): Ergogenic Aids and Doping Substances in Sport

Grado en Nutrición Humana y Dietética
Curso 2026-2027

Code: 804008

Module: 7

Subject: Ergogenics and Doping in Sport

Type of subject: Elective

Aimed at: 3rd and 4th grade nutrition students

Department: Radiology and Rehabilitation Department

Credits: 3 ECTS

Teaching period: end of January 2025 to end of April 2025

Start date: 27 January 2025

Hours: Monday morning from 12:00 to 14:00; Monday afternoon from 3:30 p.m. to 5 p.m.

Place: Classroom I of the School of Sports Medicine (Faculty of Medicine, Pavilion VI – 5th Floor)

GROUPS: 1 theoretical group and 6 practical subgroups.

Number of students: 30

FACULTY (TEACHERS)

COORDINATOR/S: Dra. Pilar Martín Escudero (pmartinescudero@med.ucm.es).

TEACHERS: Dr. Francisco Miguel Tobal (miguelto@ucm.es)

SHORT DESCRIPTION

The subject aims to provide students with the basic knowledge applied to the specific fields of supplementation and ergogenics and doping in athletes, focusing on nutritional, pharmacological and physiological aspects, as well as doping principles (as a differential element of supplementation and ergogenics), in order to continue developing the knowledge of the professional activity in sport started in the third year of the Degree.

COMPETENCES

General Competences

CG.1.1 hasta CG 1.4, CG 2.2, CG2.3, CG4.1, CG4.2, CG4.4, CG 4.5, CG 8.1

Specific Competences

CE.M 4.1 hasta 4.12, CE.M 4.17, CME 4.22 y CME 4.23

GOALS:

- 1.- Achieve the necessary knowledge for professional development in the field of ergogenics and doping applied to both high competition and amateur athletes.
- 2.- Obtain information management skills in the field of ergogenics applied to sport.
- 3.- Obtain information management skills in the field of doping applied to sport and sports nutrition.
- 4.- Obtain training to apply knowledge in the field of ergogenics in sports and sports nutrition.
- 5.- Obtain training to apply knowledge in the field of ergogenics in sports and sports nutrition.

SYLLABUS

Topic 1. Concept and classification of supplementation and ergogenics (Prof. Francisco Miguel)

Topic 2. Supplementation and nutritional ergogenics (Prof. Francisco Miguel):

- Proteins and amino acids.
- Carbohydrates.
- Fats.
- Vitamins.
- Minerals.
- Water.

Topic 3. Supplementation and pharmacological ergogenics. History (Prof. Pilar Martín Escudero).

Topic 4. Supplementation and physiological ergogenics (Prof. Pilar Martín Escudero).

Topic 5. Functional foods and sport (Prof. Francisco Miguel).

Topic 6. Concept of doping and main doping substances: pharmacological, hormonal and physiological ergogenics (Prof. Pilar Martín Escudero).

TEACHING METHODOLOGY

1.- Theoretical classes:

Monday morning from 12:00 to 14:00; Monday afternoon from 3:30 p.m. to 5 p.m.

Topic 1. Concept and classification of supplementation and ergogenics (Prof. Francisco Miguel)

Topic 2. Supplementation and nutritional ergogenics (Prof. Francisco Miguel):

- Proteins and amino acids.
- Carbohydrates.
- Fats.
- Vitamins.
- Minerals.
- Water.

Topic 3. Supplementation and pharmacological ergogenics. History (Prof. Pilar Martín Escudero).

Topic 4. Supplementation and physiological ergogenics (Prof. Pilar Martín Escudero).

Topic 5. Functional foods and sport (Prof. Francisco Miguel).

Topic 6. Concept of doping and main doping substances: pharmacological, hormonal and physiological ergogenics (Prof. Pilar Martín Escudero).

Topic 7. Sports supplementation health risks

2.- Practical classes:

Monday afternoon from 3:00 p.m. to 5:00 p.m.

Practical practices and seminars (with student presentations) will be carried out, with the following content:

1. Evaluation of sports supplementation
2. Knowledge of mobile applications (app) and sports supplementation consultation web pages.
3. Anti-doping control. How it is done, characteristics and applicable regulations.
4. Doping control simulation.

SEMINARS:

Students, in groups of three or four, will have to present the assigned work for 15-20 minutes. Each group will have to carry out three or four works, and each of them will be presented by a different student.

The written work (not the presentation) will be delivered to the Professor on the same day of the presentation or by email beforehand; and a copy of 5 of the articles used to carry it out, between the years 2014 and 2020 (the same day of the presentation). The mark will be the same for each group of students. If a student in the group cannot do the presentation on the day that corresponds to him, he will

look for someone to replace him among his classmates and then present it on another day.

Each presentation will consist of the following sections:

- Brief history of the sport that is presented.
- Characteristics of the sport, rules of the game (number of players that make it up, times or series that make it up, anthropometry of the players, etc.).
- Physiological characteristics of the sport.
- Ergogeny used more frequently and reasoned.
- Most used and reasoned prohibited substances and methods of doping.
- History of athletes sanctioned in this sport for doping. Other particularities.

Tutorials

3.- Online teaching material:

Through the virtual campus, students will receive information about websites, videos, current affairs reports, related questions, and news related to the world of doping, on which they will have to prepare short summary papers.

EVALUATION CRITERIA

The evaluation will consist of three parts:

Ordinary Call (to pass this call you have to pass each of the parts (exam + practices + moodle activities). If any of the three parts are not passed, no average is done and you will have to go directly to the extraordinary call:

- a) *Test type exam of 30 questions* on the theoretical and practical content of the subject (multiple choice and with existence of negatives). The maximum score that can be achieved in the exam is 7 points (3.5 minimum to pass). The scoring of the questions will be done as follows: +1 for a correct answer, incorrect answers do not subtract points, and unanswered questions neither add nor subtract points. *This part accounts for 40% of the grade.*
- b) *Presentation and realization of the seminars and practices* (attendance control), in which a maximum score of 2 can be obtained (minimum to pass 1). *This part accounts for 50% of the grade.*
- c) *Moodle Activities*: in which the maximum that can be achieved is a 1, minimum grade 0.5, it is mandatory and also serves to increase the grade as long as the subject is approved. If this part is not completed, the subject is considered failed. *This part accounts for 10% of the grade.*

The Theoretical evaluation will be done in two exams, one ordinary call and the other in an extraordinary call.

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