

ATHLETE'S DIET AND NUTRITION

Alimentación Y Nutrición Del Deportista

Degree in Human Nutrition and Dietetics

Course 2026/27

Code: 804003

Module: 7

Subject: Complementary Training

Type of subject: Elective (First semester)

Aimed at: Third and Fourth Year students

Department: Radiology, Rehabilitation and Physiotherapy

Credits: 3 ECTS

Lecturer: Francisco Miguel Tobal (miguelto@ucm.es)

Teaching period: First semester

Start dates: September 7, 2026 (Monday)

End: November 30, 2026 (Monday)

Detailed schedule:

Theory (In-person): Monday from 12 to 14 h.

Internships (In-person): Monday from 3:30 p.m. to 5:30 p.m. (They begin on September 7 and end on November 30, 2026, Monday)

Tutorials: Monday from 10:00 a.m. to 11:30 a.m. and from 5:30 p.m. to 7:00 p.m., Tuesday from 10:30 a.m. to 1:30 p.m.

Place: Classroom 1 of the School of Sports Medicine (Fac. Medicine, Pavilion VI – 5th Floor)

Total: number of students: 30

Groups: 1 Theoretical and 2 Practical.

Character: Face-to-face.

FACULTY

Francisco Miguel Tobal (miguelto@ucm.es)

SHORT DESCRIPTION

The subject aims to provide students with the basic knowledge applied to the specific field of nutrition and sport (physiological bases of movement, nutritional needs of both professional and amateur athletes, etc.), in order to introduce them to a new line of professional activity.

SKILLS

They are those corresponding to the Module and Subject to which this subject belongs.

General Competences

- C.G.8.1.

Specific Competences

- CE.M7.1
- CE.M7.2
- CE.M7.3
- CE.M7.4
- CE.M7.5

SYLLABUS

THEORETICAL

Topic 1. Fundamentals and principles of physical-sports activity.

Topic 2. Physiological and metabolic changes induced by exercise that affect nutritional parameters.

Topic 3. Balance of essential nutrients applied to sport. Training Diet or Daily.

3.1. Energy and energy and nutrient balance.

3.2. Carbs. Recommended foods.

3.3. Proteins and amino acids. Determination of protein needs. Recommended foods.

3.4. Fats. Fatty acids. Determination of fat needs. Recommended foods.

3.5. Vitamins. Increased needs. Recommended foods.

3.6. Minerals and their involvement in the functioning of the organism. Recommended foods.

3.7. Permanent hydration. Considerations about fluids before, during and after exercise.

Topic 4. Competition diet.

Topic 5. Weight control in the high performance athlete:

5.1. How to lose weight without altering physical performance.

5.2. How to increase muscle and lean mass.

Topic 6. Other useful diets for sports performance?. Keto diet, Intermittent fasting, Vegetarian, Vegan....

Topic 7. Ergogenic aids (basic principles).

SEMINARS (duration 1 hour/seminar)

1. Hydration in the athlete: isotonic and energy drinks.

2. Nutrition of the athlete during travel (Jet-Lag).

PRACTICES

They are related to the evaluation of the athlete's nutritional status. For this, 5 practices will be carried out in blocks of 2 hours with the following content:

Practice 1. Analysis of nutritional data and preparation of a sports nutrition report.

Practice 2. Dietary surveys applied to sport. Management of the calculation of indirect energy expenditure.

Practice 3. Assessment of body composition and its importance in sports performance I (Kinanthropometrics)

Practice 4. Assessment of body composition and its importance in sports performance II (Kinanthropometrics)

Practice 5. Assessment of body composition and its importance in sports performance III (Bioimpedance and interpretation of kinanthropometry).

At the end of the practices, a nutritional report made to an athlete will have to be delivered.

EVALUATION CRITERIA

La evaluación constará de dos partes.

The evaluation will consist of two parts:

- Multiple-choice exam. The student will be required to complete a 30-question multiple-choice exam (there are two types of questions: true or false and 3-choice or answer). Correct answers add one point, and there are no negative answers. However, to pass, a minimum of 18 correct answers is required (a score of 6 out of 10). This exam allows students to obtain a maximum score of 6 (minimum of 3) out of 10. The written exam will follow the guidelines recommended by the Complutense University.

- On the other hand, you will have to obtain a maximum score of 4 (minimum of 2) out of 10 for the practical part (attendance control), the seminars (attendance control) and the preparation and delivery of the nutritional report (of the 4 points, up to 3 correspond to the practice and seminars; and up to 1 to the nutritional report).

To pass the course, students must pass each of its sections (Test + Practice).

There will be 2 exam calls per year, ordinary and extraordinary, as established by the regulations of the Complutense University.

FORMATION ACTIVITIES

- Handling of Kineanthropometry material for the athlete's anthropometric assessment, following the ISAK criteria (4-component system with somatotype determination).

- Management of a clinical segmented multifrequency bioimpedance equipment (InBody 720), to determine the assessment of the athlete, for health and sports performance purposes.
- In the seminars, cases will be raised on the use of different types of carbohydrate and protein drinks in sports and nutritional guidelines for when athletes travel to compete in other countries.
- All the necessary knowledge and material will be used to carry out a Sports Nutritional Report (sports history, anamnesis of the athlete, nutritional survey applied to sports (includes supplementation, daily hydration and that of training and competition, the frequency of taking of food and the 24-h diet), management of the indirect calculation of energy expenditure applied to sports and management of a program for the assessment of the diet (the program is provided by the student or uses those available in the computer room).

BIBLIOGRAPHY

- Arévalo G (2024). Manual de Nutrición Deportiva: planificación de la dieta y suplementos para el máximo rendimiento. Independently published.
- Bean A (2018). Guía Completa de la Nutrición del Deportista. 5ª Edición. Badalona: Paidotribo.
- Benardot D (2021), Nutrición Deportiva Avanzada, Madrid, Ediciones Tutor.
- Burke L (2009), Nutrición en el Deporte. Un Enfoque Práctico, Madrid, Panamericana.
- Clark N (2016). La Guía de nutrición Deportiva. Tercera edición revisada. Badalona, Paidotribo.
- González-Groos M (2021). Nutrición Deportiva: desde la fisiología a la práctica. Madrid: Panamericana.
- Jeukendrup A, Gleeson M (2025), Nutrición Deportiva. Nueva edición ampliada y actualizada. Madrid, Tutor.
- Kerksick CM, Wilborn CD, Roberts MD, et al. (2018). ISSN exercise & sports nutrition review update: research & recommendations. Journal of the International Society of Sports Nutrition, Agosto; 15:38 <https://doi.org/10.1186/s12970-018-0242-y>
- Link L (2024). El Timing en la Nutrición Deportiva. Madrid, Tutor.
- Madden CC, Putukian M, McCarty EC, Young CC (2023). NETTER Medicina de Deporte. 3ª Edición. Barcelona: Elsevier. Capítulo 5, Nutrición Deportiva.
- Martínez-Sanz JM, Marques I, Sospedra I, Menal S, Norte A (2019). Manual práctico para la elaboración de dietas y menús. Alicante: Universitat D´Alacant.
- Maughan RJ, Burke LM, Dvorak J, Larson-Meyer DE, et al. (2018). IOC consensus statement: dietary supplements and the high-performance athlete. Br. J. Sports Med; 52: 439-455.; doi: 10.1136/bjsports-2018-099027
- Martin A (2022). Deportista y vegetariano. Barcelona: Integral.
- Mora Rodríguez R, García Pallarés J, Ortega Fonseca JF (2021). Fisiología del Deporte y el Ejercicio. Práctica de campo y laboratorio. Madrid: Panamericana
- Scott Powers, Edward Howley and John Quindry. Exercise Physiology (2023). Theory and Application to Fitness and Performance, 12th Edition. Editorial McGraw Hill. ISBN10: 1264529813 | ISBN13: 9781264529810
- Sirvent Belando JE, Alvero Cruz JR (2017). La Nutrición en la Actividad Física y el Deporte. Alicante: Universitat d´Alacant.
- Spina L. (2023). Nutrición Deportiva. Ciencia, herramientas y estrategias. Viamonte CABA (Argentina): Ediciones Journal.
- Valenzuela PL, Morales JS, Emanuele E, et al. (2019). Supplements with purported effects on muscle mass and strength. European Journal of Nutrition. <https://doi.org/10.1007/s00394-018-1882-z>