

Academic Year/course: 2022/23

25661 - Pharmacology and Nutritional Principles in Physiotherapy

Syllabus Information

Academic Year: 2022/23

Subject: 25661 - Pharmacology and Nutritional Principles in Physiotherapy

Faculty / School: 127 - Facultad de Ciencias de la Salud

Degree: 605 - Degree in Physiotherapy

ECTS: 6.0

Year: 4

Semester: First semester

Subject Type: Compulsory

Module:

1. General information

1.1. Aims of the course

The general objectives of the course are:

1. To understand the behaviour of drugs in the body from the pharmacokinetics and pharmacodynamics point of view.
2. To learn about drug forms, routes and patterns of administration.
3. Correctly interpret the prescription of medicines.
4. Identify the patient and inform him/her about the treatment and techniques used.
5. Properly monitor therapeutic effects, adverse effects, toxins and drug interactions.
6. Educate the patient and family on the appropriate use of medicines.
7. Adequately record incidents related to the administration of medicines.
8. Identify the factors that determine eating habits in humans.
9. Explain the biochemical and physiological aspects of nutrients and foodstuffs and their influence and importance in normal nutrition.
10. Establish energy and nutrient requirements.
11. Demonstrate knowledge of the assessment of the nutritional status of the individual.
12. Individualise the diet of the person, taking into account social, cultural, psychological, spiritual and environmental factors that may influence adherence to the diet.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations Agenda 2030 (<https://www.un.org/sustainabledevelopment/es/>), so that the acquisition of the learning outcomes of the subject provides training and competence to contribute in some measure to their achievement.

Specifically, in this course, we work deeply on Goal 3: Health and well-being. However, throughout the syllabus of the subject, emphasis is also placed on other SDGs, especially those related to diagnostic and therapeutic prescription differences according to sex (Goal 5: Gender inequality), differences in accessibility to pharmacotherapy and healthy food according to socioeconomic levels (Goal 10: Reducing inequalities), as well as the impact of the production, excretion and disposal of pharmaceuticals, both economically (Goal 12: Responsible production and consumption) and environmentally (Goal 14: Underwater life and Goal 15: Life of terrestrial ecosystems).

1.2. Context and importance of this course in the degree

The achievement of objectives on the maintenance and improvement of the health of individuals and communities requires a multidisciplinary approach from different health professions that requires communication based on common bases and language and transversal to all health professions.

In addition, the incessant growth of the pharmacological catalogue and the increasing use of different products by patients make knowledge of pharmacological therapeutics essential for health professionals. Given that the use of pharmaceuticals is never risk-free, knowledge of the impact that pharmacological consumption can have on the work of each healthcare professional allows for optimising resources, setting realistic objectives and minimising potential risks.

In terms of current legislation, according to RD 1/2015 of the revised text of the Law on guarantees and rational use of

medicines and health products, "physiotherapists may also indicate, use and authorise, autonomously, the dispensing of medicines not subject to medical prescription and health products related to the exercise of their profession, by means of a dispensing order".

1.3. Recommendations to take this course

Previous knowledge of Human Physiology is recommended.

As a general rule, the use of mobile phones is forbidden except for teaching purposes.

2. Learning goals

2.1. Competences

General competences:

CG13 - Knowing how to work in professional teams as a basic unit in which professionals and other staff in healthcare organisations are structured in a uni or multidisciplinary and interdisciplinary way.

Transversal competences:

CT02 - Capacity for analysis and synthesis

CT05 - Ability to work on the basis of quality criteria

CT11 - Ability to demonstrate research skills

Specific competences:

CE29 - Understand and carry out specific methods and techniques related to static and dynamic alterations and urogynaecological processes. Specific methods and techniques that take into account the implications of orthopaedics in physiotherapy, reflex therapeutic techniques, as well as other alternative or complementary methods and techniques whose safety and efficacy is demonstrated according to the state of development of science. Specific methods and techniques in obstetrics.

2.2. Learning goals

1. Explain the behaviour of drugs in the body taking into account pharmacokinetic and pharmacodynamic aspects.
2. Know the different drug forms, as well as the different drug administration patterns.
3. Interpret the prescription of medicines.
4. Recognise the influence of age, pregnancy and breastfeeding on the response to drugs.
5. Demonstrate the ability to carry out the appropriate monitoring of therapeutic effects, adverse effects, toxicity and pharmacological interactions.
6. Demonstrate the ability to educate the patient and family on the appropriate use of medicines.
7. Demonstrate the ability to adequately record incidents related to the administration of medicines.
8. Establish energy and nutrient requirements.
9. Know how to assess the nutritional status of the patient. 10. Describe the characteristics of nutrition in the different stages of life.

2.3. Importance of learning goals

The learning outcomes obtained in this subject constitute the basis from which the student will be able to learn about the pharmacological resources used in the management and treatment of the different situations addressed throughout the degree. The integration of this knowledge will allow better professional management of those situations in which pharmacological administration may condition in some way their professional intervention.

On the other hand, the ability to assess the nutritional status of the patient and knowledge of the characteristics of the diet will enable healthy recommendations to be made in terms of both intake and possible restrictions that may benefit the physiotherapeutic approach.

Furthermore, the knowledge acquired in this subject will enable future graduates to design and develop research proposals in their discipline in which pharmacological and/or nutritional aspects may be acting as modulating or confounding factors, integrating them into their proposals as variables to be considered.

3. Assessment (1st and 2nd call)

3.1. Assessment tasks (description of tasks, marking system and assessment criteria)

Students must demonstrate that they have achieved the expected learning outcomes through the following assessment

activities in which they will have to pass the 2 exams, compensating from 4 in each one.

1. **The evaluation of the theoretical contents** will be carried out by means of a written test of multiple choice questions. It will consist of 40 questions with 4 answer options, of which only 1 will be valid, and the rest false but plausible. Each correct answer will add 1 point to the mark and each incorrect answer will subtract 1/3, the subtraction being adjusted to the whole number (i.e. 1 and 2 wrong answers do not subtract; 3, 4 or 5 wrong answers subtract 1; 6, 7 or 8 wrong answers subtract 2; 9, 10 or 11 wrong answers subtract 3, and so on). This test is passed with a minimum of 24 points. This exam must be passed and will be worth a maximum of 5 points out of 10 in the summative grade of the subject.
2. **For the evaluation of specific nutrition contents**, a diet will be prepared for a proposed case, with the following assessment: correct calculation of the caloric value (2), correct use of the table of units and correct adjustment of the FCA (2), distribution of the units (1), preparation of the diet for one day (4), adequate distribution of fats (1). This exam must be passed and is passed with a mark of 5. The mark will represent up to a maximum of 3 points out of the final mark out of 10.
3. **For the evaluation of transversal and specific competencies**, an essay on a topic related to the contents of the subject will be prepared. This work will be carried out in groups of 4 to 6 people. The proposed length is approximately between 1500 and 3000 words (not including references, tables, graphs or any other information that may be included in the count).

All work must have the approval of the subject's teaching staff before being carried out. For this purpose, the following thematic lines are proposed as guidelines: autonomous use of drugs and medical devices by the physiotherapist, early detection and notification of adverse reactions, interactions between pharmacological and physiotherapeutic treatments, incorporation of pharmacological and nutritional aspects into physiotherapy research, the role of the physiotherapist in the acquisition of healthy dietary habits or the relationship between healthy eating and economic costs.

Students may propose other thematic lines of their interest, as long as they are related to the contents of the subject. Work proposals must be submitted during the first four-month period.

Each group will submit a single final report document for evaluation, which must contain at least the following sections:

- Introduction and justification: this section must adequately justify the importance and relevance of the work to be carried out. It must end with a clear statement of the main objective of the work.
- Methodology: this section must describe the bibliographic search carried out, indicating the databases used, keywords (with Boolean operators or truncation if used) and limitations applied (both temporal and of any other nature). Likewise, the criteria for the selection of documents must be included, both for inclusion and exclusion with respect to the documentation found in the databases, as well as the justification for the inclusion of other documentary sources (books, videos, press releases, web pages or other online content, etc.). This section will be valued with a maximum of 2 points out of 10.
- Development: in this section, the main findings and their implications for the professional activity of the physiotherapist will be described. It can be written separately from the results and discussion sections, or they can be combined in a single joint section.
- Conclusions and recommendations: this section should summarise the conclusions drawn from the work, as well as recommendations for clinical nursing practice and the development of future research in the field addressed from a nursing point of view. This section will be assessed with a maximum of 1 point out of 10.
- References: in this section all the bibliographical references consulted for the preparation of the work will be indicated, both those retrieved in the searches and those used to write the introduction and justification. All the references that appear in this section must have been previously mentioned in the document. Both the references in the text and the list of references must follow the standards of the American Psychological Association (APA 7th edition). This section will be valued with a maximum of 1 point more than 1 point.

Both the delivery of the proposals and the delivery of the final report of the work will be done through a task enabled for this purpose on the Moodle platform. It is recommended to follow the style manual that can be found on this platform for the preparation of the work. The delivery format will be in PDF format, and must be titled as follows: surname and name of the person who delivers the paper, preferably, the first by 1. 2. 3. 4. as follows: surname and name of the person who delivers the paper, preferably, the first by alphabetisation of surnames of all the members of the group, followed by underscore and the expression "ensayoofarmafisio" (e.g.: EchanizSerranoEmmanuel_ensayobasesfarma.pdf). This essay will be awarded 5 points and will represent up to a maximum of 2 points of the final grade out of 10.

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

Most of the proposed activities focus on understanding the fundamentals of drug therapy and its applicability in a clinical context. For this reason, the lecture-type sessions, in which student participation will be encouraged, will be complemented with seminars and problem solving and case studies.

The contents of the nutrition block are approached in an eminently practical way, given that the acquisition of this knowledge by students is aimed at the ability to prepare a balanced diet. For this reason, through the Moodle platform of the University of Zaragoza, part of the theoretical content will be provided through files, tables, articles and documents, videos or even audios or podcasts as a resource to get the student to work, study, reflect and understand the theoretical content with individual work, so that later in class and in the practical seminars students can resolve doubts, understand and implement the concepts and even develop their own work materials, and then use them for the effective implementation of diets.

4.2. Learning tasks

The following activities are planned to help the student achieve the expected results:

1. Lectures.
2. Practical sessions.
3. Theoretical-practical seminars. Theoretical-practical sessions will be carried out in small groups, and will consist of the preparation of a personalised diet, according to the specific energy needs of a specific situation, applying the modifications required in specific pathological situations, if necessary. Students will have the necessary materials and resources to be able to prepare a personalised diet, which the teacher will provide through the Moodle platform, but will also be provided and worked on in person in each of the seminars. In this way, the aim is for the student to initially carry out individual work on the key contents in order to learn and understand basic aspects of nutrition and dietetics that will allow them to prepare a personalised diet that will be practised in the classroom. Students will have permanent communication with the teaching staff both in person and through Moodle2, to resolve doubts about the content provided. Although the teacher will be the one who will resolve the doubts and corrections of the practical nutritional and dietetic aspects, at first, small groups will be created (within the different groups of established seminars) that allow working on the doubts in a way about the different aspects of the elaboration of the diets, reviewing the calculations, using the tools created for their correction and elaboration, as well as the debate between the students of the group for a first resolution both in different seminars and through Moodle2. Subsequently, a final correction is proposed that can be sent through Moodle2 to be solved by the teacher, using the templates provided for this purpose.
4. Individual student work.

NOTE: "In the event of any modification that limits face-to-face teaching, the possibility is considered that teaching can also be carried out online.

4.3. Syllabus

Module I. Pharmacology:

Concepts of pharmacology, drug, drug and medication.

Mechanisms of action of drugs, pharmacological receptors and pharmacological actions.

General concepts of pharmacokinetics: ADME processes.

Routes of drug administration.

Toxic effects of drugs: concept of adverse reactions, intoxication and drug dependence.

Pharmacotherapy of different organs and systems.

Module II. Nutrition:

Concepts of nutrients and energy, as well as their physiological functions, factors that determine energy needs, nutritional needs and recommendations for a balanced diet.

Food as a source of energy and nutrients, modifications that these undergo with processing.

The nutrition of healthy people, and at different points in the life cycle.

Assessment of the nutritional state of individuals.

Diet in healthy people: The Mediterranean dietary pattern as a healthy pattern.

4.4. Course planning and calendar

Face-to-face sessions on Wednesday and Thursday afternoons (15-15:50 theory sessions and 16-17:50 practical seminar sessions/problem solving and case studies in small groups).

Deadline for submission of essays 22 December 2022

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=25661>