

Academic Year/course: 2022/23

25432 - Physiological bases of nutrition and drugs

Syllabus Information

Academic Year: 2022/23

Subject: 25432 - Physiological bases of nutrition and drugs

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

275 - Escuela Universitaria de Enfermería de Huesca

375 - Escuela Universitaria de Enfermería de Teruel

Degree: 559 - Degree in Nursing

560 - Degree in Nursing

561 - Degree in Nursing

ECTS: 6.0

Year: 2

Semester: Annual

Subject Type: Basic Education

Module:

1. General information

1.1. Aims of the course

This subject is included in the Basic Sciences and must be the basis for the safe use of drugs and other therapies, including diet therapy.

Its general objectives are:

1. To know the behaviour of drugs in the body from Pharmacokinetics and Pharmacodynamics.
2. To know the drug forms, routes and administration guidelines.
3. To interpret medication prescriptions correctly.
4. To identify the patient and inform him/her about the treatment and techniques to be used.
5. To perform adequate monitoring of therapeutic effects, adverse and toxic effects, and pharmacological interactions.
6. To educate the patient and family on the proper use of medications.
7. To record incidents related to medication administration properly.
8. To identify the factors that determine eating habits in humans.
9. To expose the biochemical and physiological aspects of nutrients and food, as well as their influence and importance in normal eating.
10. To establish energy and nutrient needs.
11. To demonstrate knowledge about the assessment of the patient's nutritional status.
12. To describe the characteristics of nutrition in the different stages of life.
13. To be able to promote, support and encourage health through food, adapting to the needs and demands of different groups or communities.
14. To individualize diets, taking into account the social, cultural, psychological, spiritual and environmental factors that may influence its monitoring.
15. To take control of feeding as basic patient care.

These approaches and objectives are aligned with the following Sustainable Development Goals (SDGs) of the United Nations 2030 Agenda (<https://www.un.org/sustainabledevelopment/es/>) in such a way that the acquisition of the results of Subject learning provides training and competence to contribute to some extent to its achievement.

Specifically, this subject works deeply on objective 3: Health and well-being.

1.2. Context and importance of this course in the degree

Pharmacological therapeutics form a body of knowledge that is interdependent with the physiological processes of people. Thus, health personnel rely on this knowledge to carry out processes of diagnosis, prevention, treatment and/or cure of diseases. Nursing graduates are the healthcare professionals who are most often in charge of administering the

pharmacological therapy prescribed to hospitalized patients, so it is considered important for these professionals to be able to carry out these actions adequately. Likewise, these professionals are the ones who accumulate the most hours together with hospitalized people. Therefore, they must be able to assess the changes in the health of these people and be able to discern whether these changes are due to the patients' pathology or are derived from the treatments administered, to be able to make decisions appropriate to each situation.

In the primary health care environment, nursing professionals are in charge of monitoring patients with chronic pathologies, sometimes with multiple pathologies and polypharmacy to address these situations. In this context, recognition of changes in the health and individual needs of patients is important.

Likewise, both in primary care and in specialized care, the nutritional needs of people can be altered or compromised. Thus, professionals who graduated in Nursing, through knowledge of these needs, can carry out an early approach in these situations, adapting food to nutritional needs, also taking into account the different social and cultural contexts of people.

1.3. Recommendations to take this course

Basic training in Human Physiology is convenient.

As a general rule, the use of mobile phones will be prohibited if it is not for educational purposes.

This guide's approach, methodology and evaluation are prepared to be the same in any teaching scenario. They will be adjusted to the socio-sanitary conditions of each moment, as well as to the indications given by the competent authorities.

2. Learning goals

2.1. Competences

1. To work in a professional, ethical context and regulatory and legal codes, recognizing and responding to dilemmas and ethical or moral issues in daily practice.
2. To undertake comprehensive and systematic assessments using appropriate tools and frameworks for the patient, taking into account relevant physical, social, cultural, psychological, spiritual, and environmental factors.
3. To recognize and interpret normal or changing signs of health-poor health, suffering, or disability of the person (assessment and diagnosis).
4. To respond to the needs of the patient by planning, providing services and evaluating the most appropriate individualized programs of care together with the patient, their carers and families and other health or social workers.
5. To question, evaluate, interpret and critically synthesize a range of information and data sources that facilitate the patient's choice.
6. To enforce clinical judgments to ensure quality standards are met and practice is evidence-based.
7. To administer drugs and other therapies (using skills...) safely.
8. To consider emotional, physical and personal care, including meeting the needs for comfort, nutrition and personal hygiene and allowing the maintenance of daily activities (using skills...).
9. To respond to personal needs during the life cycle and experiences of health or illness. For example: pain, vital choices, invalidity or in the process of imminent death (using the skills...).
10. To inform, educate and supervise patients and carers and their families (using the skills...).
11. To apply problem-solving and decision-making.
12. To apply principles of research and information.
13. To carry out effective communication (including the use of technologies): with patients, families and social groups, including those with communication difficulties.
14. To allow patients and their carers to express their concerns and interests, and to respond appropriately. For example, emotionally, socially, psychologically, spiritually or physically.
15. To inform, record, document and refer care using appropriate technologies.

2.2. Learning goals

1. The student must demonstrate that they can explain the behaviour of drugs in the body taking into account pharmacokinetic and pharmacodynamic aspects.
2. The student must demonstrate that he knows the different medication forms, as well as the different medication administration guidelines.
3. The student must demonstrate that he knows how to correctly interpret the prescription.
4. The student must show that he recognizes the influence of age, pregnancy and lactation, in the response to drugs.
5. The student must demonstrate that he can establish energy and nutrient needs.
6. The student must demonstrate that he can individually develop the individual's diet, taking into account the factors that may influence its monitoring.

2.3. Importance of learning goals

The learning outcomes are considered to be of interest to the nursing profession in all areas of activity in this profession.

In the healthcare field, it is considered especially relevant that the professional is capable of detecting adverse drug reactions to establish the appropriate guidelines for action. Likewise, in the different care settings, the professional must try to maintain and promote basic care, including feeding the patient.

In the teaching field, the professional must be able to educate patients and family members on the correct use of different medications and their derived effects, or on the need to make individually adapted dietary modifications. In addition, the possibility of having students of the degree in the different services implies that the professional must act as a teacher of the same, including all clinical activities, including the administration of drugs and subsequent surveillance.

In the research field, the professional must be able to ask research questions arising from their own clinical experience and be able to answer them through the best scientific evidence, and in the case of not finding it, be able to propose investigations of a and multidisciplinary interest, without losing the framework of care in which the nursing discipline is framed.

Lastly, in the management field, the nurse must maintain a critical sense of the economic, social and cultural context, both of the institution in which they carry out their managerial work, as well as of the care staff and users, being capable of performing global analyzes that include all perspectives, to be able to make decisions with the greatest possible reliability at all times.

3. Assessment (1st and 2nd call)

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

Type of tests and their value on the final grade and evaluation criteria for each test

1- The assessment of theoretical contents of the subject will be carried out through written tests, each one of them divided into two parts, one part of multiple choice questions and another part of development question, being necessary to pass both parts to pass each test.

The first part consists of 50 multiple choice questions, with 4 answer options of which only 1 is valid. Each correct answer adds 1 point and each wrong answer subtracts 1/3, adjusting the subtraction to the whole number (that is, 1 and 2 wrong answers do not subtract; 3, 4 or 5 wrong answers subtract 1; 6, 7 or 8 wrong answers 2 remain, 9, 10 or 11 wrong answers remain 3, and so on). This first part of the exam is passed with 30 points. If not passed, the second part will not be corrected, in this case, the final grade of the test will correspond to the grade obtained in this first part.

The second part consists of developing a topic to choose from among the three proposals. In this section, knowledge, synthesis capacity and adequacy of written expression to professional language will be assessed, assessing both the appropriate use of technical terminology and spelling and grammatical correction. In terms of qualification, and always in case of approval, this second part has the exclusive purpose of qualifying the score obtained in the first part of the test. Therefore, this part does not generate a numerical grade by itself, but will be graded as a ?pass? or ?fail?. Since it is mandatory to pass both parts to pass each test, a grade of "fail" in this section inevitably leads to not passing the test, regardless of the grade obtained in the first part of it. For the same reason, in no case can the qualification of "apt" be used in this section to pass a fail of the first part.

The first part will be held in the January/February call, with the thematic content of the first semester. If this first part is passed in this call, your grade will be kept throughout the academic year (1st and 2nd official calls). If it is not passed, it must be re-examined together with the second part (corresponding to the theoretical content of the second semester), in the official calls. If only the first part is passed in the 1st call, only the second part must be passed in the 2nd call. In other words, the qualification of a first approved partial is maintained during the corresponding academic year. Only the grades of a first passing part (final grade of 5) onwards will be maintained. The grades that failed in the first part (less than 5) will not be maintained between different calls in any case. Nor will the qualifications of the second approved partial be maintained between calls in the case of a failed first partial. To pass the subject, the average of both partials must be equal to or greater than 5, averaging between them only from a grade of 4.5. This section of the evaluation will suppose a maximum of **5.5 points on the final summative grade of the subject out of 10.**

2- For the assessment of specific assessment skills and nutritional recommendations, a diet will be prepared for a proposed case at the end of February voluntarily and in the official calls, with the following assessment: correct calculation of the caloric value (2), adequate use of the table of units and correct adjustment of the FCA (3), daily distribution of the units (1), elaboration of the diet for one day (3), adequate distribution of fats (1). This exam is approved with 5 points. The note will suppose up to **3 points of the qualification out of 10.**

3- For the evaluation of transversal and specific competencies related to the integration of pharmacological and nutritional knowledge in the nursing discipline, an essay will be prepared on a topic related to the contents of the subject. This work will be done in groups of 4 to 6 people. An approximate length of between 1,500 and 3,000 words is proposed (not including the section on references, tables, graphs or annexes that may be included in the count).

All assignments must have the approval of the teaching staff of the subject before their completion. To this end, the following thematic lines are proposed as a guide: detection and notification of adverse reactions, patient safety in drug administration, patient education in drug administration, nursing action in the face of drug intoxication, professional training and safety in the manipulation of devices intended for pharmacological administration, nurse involvement in pharmacological research, historical approach to pharmacological discoveries (in this case, a single pharmacological group or specific drug must be chosen), pharmacological interactions with other substances (food, herbalism or other natural remedies), intermittent fasting, ultra-processed foods, acquisition of good dietary habits, health-nutrition relationship, food labelling, healthy eating relationship and economic cost, daily difficulties in carrying out a healthy diet and its possible solutions or differences between the types of nutritional pyramids in different countries. Students can propose other thematic lines of their interest, as long as they are related to the contents of the subject. The work proposals must be sent during the first semester.

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 should end with the clear establishment of the main objective of the work. This section will be valued with a maximum of 2 points out of 10.
- Methodology: in this section, the bibliographic search carried out must be described, indicating the databases used, keywords (with Boolean operators or truncations if used) and limitations applied (both temporary and of any other nature). Likewise, the document selection criteria must be included, both for inclusion and exclusion concerning 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?). This section will be valued with a maximum of 2 points out of 10.
- Development: this section will describe the main findings and their implications for professional nursing activity, relating them to the professional taxonomy (NANDA-NIC-NOC) whenever possible. This section will be valued with a maximum of 4 points out of 10.
- Conclusions and recommendations: This section should summarize, in a synthetic way, the conclusions drawn from the performance of the work, as well as recommendations for nursing clinical practice and the development of future research in the field, approached from a nursing point of view. This section will be valued with a maximum of 1 point out of 10.
- References: this section will indicate all the bibliographic references consulted for the preparation of the work, both those recovered in the searches and those used to write its introduction and justification. All references that appear in this section must have been previously mentioned in the document. Both the text references and the list of them will be made according to the standards of the American Psychological Association (APA 7th edition). This section will be valued with a maximum of 1 point out of 10.

The delivery 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 will be found on the said platform for the preparation of the work. The delivery format will be in PDF format, and must be titled as follows: surnames and name of the person making the delivery, preferably the first by alphabetizing the surnames of all the members of the group, followed by a low bar and the expression ?essayobasesfarma? (for example EchanizSerranoEmmanuel_essayobasesfarma.pdf).

This essay is approved with 5 points and will mean up to a maximum of **1.5 points of the final grade out of 10**.

4. Participation in the Seminars will be evaluated, if any, and may involve up to a 5% increase in the final grade of each student.

It is a mandatory condition to pass all the evaluation sections to pass the subject. In no case may the subject be passed with a grade lower than 5 in any of its parts (both in the theoretical evaluation and in the practice).

In the evaluation and activities, the characteristics of the centre where the degree is taught will be taken into account for Huesca and Teruel, always ensuring the acquisition of skills.

Transparency in the evaluation process:

By the Agreement of December 22, 2010, of the Governing Council of the University, which approves the Regulation of Learning Assessment Standards, and about the transparency of the assessment processes, the following are the success rates of the subject in the three immediately preceding academic years that are accessible at the date of writing and publication of this teaching guide in the three centres where the subject is taught:

| Year | EUE Huesca | EUE Teruel | FCS Zaragoza |
|-----------|------------|------------|--------------|
| 2020-2021 | 83.6% | 94.2% | 90.4% |
| 2019-2020 | 96.23% | 94.12% | 99% |
| 2018-2019 | 93.48% | 96.88% | 75.14% |

4. Methodology, learning tasks, syllabus and resources

4.1. Methodological overview

Most of the contents of the subject are considered basic. For this reason, most of the proposed activities focus on understanding the fundamentals of pharmacological therapy, and on the knowledge of the different drugs and their applicability in a clinical context, the knowledge that is considered essential in professional Nursing. For this reason, most of the sessions are master classes, in which the participation of the students will be encouraged. The knowledge acquired will be complemented with the practical application in the Clinical Nursing subjects, and later in the clinical stays that the students will carry out throughout the degree.

The contents of the diet and nutrition block are addressed similarly. However, the acquisition of this knowledge by the students is aimed at the ability to prepare diets according to the specific requirements of the patients, including their physiological situation, habitual activities, and pathological situations, whether acute or chronic. For this reason, the subject includes practical seminars in which students can understand and work on diets as well as acquire skills in handling theoretical formulas, food tables, as well as different nutrition and human dietary tools.

4.2. Learning tasks

The following activities have been planned to help the student achieve the intended results:

1. Master classes. 45 h: Full group explanations of the content of each topic will be made, guiding the theoretical contents of the subject for the subsequent study and individual work of the students. These sessions will have the necessary audiovisual support, encouraging student participation, especially after passing through the subject corresponding to Clinical Stays.
2. Problem and case resolution and seminars. 15 h.: The practical sessions will be held in small groups, and will consist of the preparation of a personalized diet, based on the specific energy needs of a specific situation, applying the modifications required in specific pathological situations, if necessary. The students will have the necessary materials and resources to be able to prepare a personalized diet, and the teacher will contribute through the moddle2 platform but will also be contributed and worked on in person at each of the seminars. In this way, it is intended that the student initially carry out an individual work of the key contents to know, understand basic aspects of nutrition and dietetics that allow the elaboration of a personalized diet that will be practiced in the classroom.

The students will have permanent communication with the teaching staff both in person and through moddle2, to resolve doubts about the content provided. Although the teaching staff will be the one who will solve the doubts and corrections of the nutritional and dietary practical aspects, at first, small groups of 4-6 students will be created within the different seminar groups that allow doubts to be worked on in a way about the different aspects. of the elaboration of the diets, reviewing the calculations, using the tools created for its correction and elaboration, as well as the debate among the students of the group for a first resolution both in different seminars and through moddle2. Subsequently, a final correction is proposed that can be sent through moddle2 to be resolved by the teacher, using the templates designed for it.

3. Individual student work

4.3. Syllabus

Main theme I: Physiological bases of pharmacology

- Introduction to pharmacology: History and basic concepts for the study of pharmacology
- Pharmacodynamics: mechanisms of drug action
- General concepts of pharmacokinetics
- Administration and absorption of drugs
- Distribution of drugs
- Drug metabolism
- Elimination of drugs
- Adverse effects, pharmacovigilance and drug dependence

Main theme II: Basic clinical pharmacotherapy

- Pharmacology of the vegetative nervous system
- Adrenergic drugs
- Antiadrenergic drugs
- Parasympathomimetic drugs
- Parasympatholytic drugs
- Pharmacology of cell mediators: histamine
- Pharmacology of cell mediators: serotonin
- Pharmacology of pain: local anaesthetic drugs
- Pharmacology of pain: opioid drugs
- Pharmacology of pain: non-steroidal anti-inflammatory drugs

Main theme III: Physiological bases of nutrition

- Historical development of Nutrition and Dietetics, the concept and importance as well as the interest of its study in Nursing training
- Energy requirements
- Study of Nutrients
- Study food as a source of energy and nutrients
- Food safety
- Assessment of Nutritional Status
- Study food at different times in the life cycle.
- Study of nutrition in healthy people: Balanced diet. Mediterranean diet.

4.4. Course planning and calendar

The dates of the activities will be informed at the beginning of the course and will be posted on the digital teaching platform.

4.5. Bibliography and recommended resources

<http://psfunizar10.unizar.es/br13/egAsignaturas.php?codigo=25432>