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Міжнародна дистанційна  
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# «MODERN APPROACH OF EXPERIMENTAL AND PRECLINICAL PHARMACOLOGY»

(Реєстраційне посвідчення УкрІНТЕІ № 896  
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ДЕПАРТАМЕНТ ОХОРОНИ ЗДОРОВ'Я  
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НАВЧАЛЬНО-НАУКОВИЙ ІНСТИТУТ ПРИКЛАДНОЇ ФАРМАЦІЇ

## **«Modern approach of experimental and preclinical pharmacology»**

Матеріали Міжнародної дистанційної  
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EDUCATIONAL AND SCIENTIFIC INSTITUTE OF APPLIED PHARMACY

# **«Modern approach of experimental and preclinical pharmacology»**

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Збірник містить тези доповідей Міжнародної дистанційної науково-практичної конференції «Modern approach of experimental and preclinical pharmacology», де розглядаються сучасні підходи до вивчення фармакологічних активностей, наводяться результати експериментальних та клінічних досліджень, доклінічні фармакологічні дослідження біологічно активних речовин природного і синтетичного походження.

Видання розраховано на широке коло наукових і практичних працівників медицини і фармації.

Відповідальність за зміст наведених матеріалів несуть автори.

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The collection contains abstracts of the International distance scientific-practical conference "Modern approach of experimental and preclinical pharmacology", which considers modern approaches to the study of pharmacological activities, results of experimental and clinical studies, preclinical pharmacological studies of biologically active substances of natural and synthetic origin.

The publication is designed for a wide range of scientific and practical workers in medicine and pharmacy.

The authors are responsible for the content of these materials.

# **APPLICATION OF THE INTERDISCIPLINARY RELATIONS TECHNIQUE AS A COMPONENT OF THE "CASE-STUDY" METHOD FOR FORMATION IN MEDICAL STUDENTS THE PRINCIPLES OF CLINICAL THINKING**

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Nowadays an important and significant task of medical institutions is to improve the future doctors' professional training quality and strengthen the competitiveness of higher medical education. According to the requirements of the state educational standard of higher professional education at the graduate of medical high school as a result of preparation on profile disciplines and courses should be formed medical behavior skills and basics of clinical thinking - competence that prepare solutions to professional problems in providing medical care.

Requirements for the doctor are based on the fact that his professional activity will be based on the application of knowledge about the basic physical, chemical, biological and physiological laws, processes and phenomena in the norm and pathology; rules and methods of work with medical and diagnostic equipment; structure, topography and development of cells, tissues, organs and systems of the body in relation to their normal function and pathology; general laws of origin and development of life, vital functions of the organism and the laws of genetics; main characteristics of drugs and forms, their classification, pharmacodynamics and pharmacokinetics, indications and contraindications to the appointment and use for prevention and treatment.

A more important part of the education of a health worker is the formation of clinical thinking, which is realized through the use of interdisciplinary links in the study of a significant number of vocational disciplines.

To implement the task of improving professional training, use in the process of teaching interdisciplinary links is gaining importance [1,2].

Interdisciplinary learning is a method or set of methods used to teach different disciplines or "combine individual disciplines around common themes, issues or problems." Interdisciplinary connections are expressions of factual connections that are established in the learning process or in the student's mind between different subjects. Interdisciplinary links are a form of the methodological principle of systematization, which determines systemic thinking as the basis of clinical thinking [3,4].

The inclusion of interdisciplinary connections in the educational process adds quality to all the specific components of teaching and learning of students:

- increasing interest in the subjects with which the connection is established, which significantly enriches the motives of learning;
- contributes to the activation of the process of cognition.

All this should be perceived by students as a single complex. Thus, the systematic assimilation of material, the formation of skills and abilities of students is largely ensured by the implementation of interdisciplinary links, which are an important condition for the strength and effectiveness of knowledge.

Interdisciplinary links in higher education play an important role in improving the practical and scientific-theoretical training of students, provide an opportunity to apply the acquired knowledge and skills in both education and future practice. With the help of multilateral interdisciplinary links, the foundation is laid for a comprehensive vision, approach and solution of complex problems of providing timely medical care, the formation of key points of competence of medical students is provided. The content of interdisciplinary links is not limited to the study of concepts common to related subjects [5]. Interdisciplinary links provide an opportunity to combine biomedical and special items and form a coherent system of students' views on the modern scientific picture of medicine. Every teacher of a higher medical educational institution should look for points of contact with the materials of other subjects in his subject. The thematic connection of the studied subjects with other subjects will promote the full mastering of the acquired skills and knowledge necessary for further practical activity.

Study of clinical disciplines impossible without a basic knowledge gained in basic departments. Interdisciplinary links show what is used in fundamental disciplines in the study of a particular topic in clinical departments. The implementation of an interdisciplinary approach in the study of clinical disciplines is considered as a promising method of professional training of students [6].

For example, take a few subjects of biomedical disciplines: pathophysiology and pharmacology and clinical disciplines: anesthesiology and resuscitation, as these items are generalized and integrated. To determine the level of professionalism and competence in most countries, the method of problem-based learning (PBL) is used as a variant of another method - case based learning (CBL), which has become widespread in many medical schools [7]. A study by Asad M.R., Tadvil N.A., Amir K. et al. (2019) showed that students prefer the PBL technique as part of a systemic hybrid curriculum [8]. Problem-based learning (PBL) is a method of "active learning", which is a logical step to promote the synthesis and integration of fundamental knowledge into clinical thinking [9].

The choice of pathophysiology resulted from the fact that not only it occupies one of the leading places in the system of knowledge about the nature of diseases, but also has a high degree of generalization and integration of different knowledge. The method of teaching Case Based Learning (CBL) is more effective in the study of such a subject as pathology (pathophysiology), as it contributes to a deeper study of the unity of the mechanisms of pathological conditions and clinical manifestations of diseases [10].

The studying of pathophysiology contributes to the transformation of individual knowledge of students about the basics of the structure and functioning of the human body into a single system. The thematic construction of this discipline allows us to consider its educational topics as separate "nodes" of systematized knowledge, which are in some connection with each other. In addition, knowledge of the basic concepts of pathophysiology, mechanisms of development of typical pathological processes, mechanisms of cell damage, creates conditions for a more thorough study of senior students of clinical subjects.

Knowledge of pharmacology is an important necessity for the prevention and treatment of diseases. Research performed by VoraMB and Shah CJ. (2015) aimed to elucidate the positive effects of case-based learning compared to a didactic lecture on pharmacology and to assess students' perceptions of CBL. These studies have shown that the emphasis on the formation of critical thinking and arousal of interest in the subject were the positive effects of CBL in teaching the concepts of pharmacology [11].

The application of knowledge in pharmacology will contribute to: 1) assessment of the possibility of using drugs based on ideas about their properties; 2) analysis of the effects that develop when using drugs, taking into account the dosage and their side effects (knowledge of the pharmacokinetic parameters of drugs - the volume of distribution, clearance, half-life); 3) analysis of the effects that develop with the joint use of drugs of different groups. In addition, the establishment of interdisciplinary links allows us to focus on the mechanisms of drugs' side effects.

For example, when studying the topic "Intensive care of various types of shock" the student when choosing a scheme of intensive care must take into account knowledge of pathophysiology (mechanisms of shock, "small" geodynamic profiles, pathogenesis of hypoxia, metabolic pathophysiology, vascular pathophysiology, pathophysiology alkaline balance, cell pathophysiology, etc.), pharmacology (features of the pharmacological action of drugs aimed at restoring BCC, tissue oxygenation, correction of changes in acid-base balance, etc.).

The choice of general approaches to the treatment of cardiovascular system pathology, such as hypertension, is based primarily on knowledge of the mechanisms of interaction of pressor and depressive humoral systems, physiological and pathological reflexes that regulate cardiac output and vascular tone, metabolism of biologically active substances and use of pharmacological agents.

One of the ways to effectively implement interdisciplinary links can be the using in the educational process the case method as a form of interactive training of future professionals [12,13]. The main concepts of case-method is the term "situation analysis". So the value of the case method to form a practically-oriented graduate is a student while solving "case-scenario" activates personal updates of a certain complex of knowledge that should be applied in resolving the situation.

Thus, interdisciplinary links deepen the interpenetration of related disciplines, improve the perception of educational content by students and ensure the formation of their holistic view of their chosen profession. This approach creates the necessary preconditions for the formation of a professional who has such qualities as universality of thinking and professional erudition, which makes him competitive in the European labor market. In addition, the use of the case method as a factor in the acquisition of professional skills by graduates of the medical faculty is quite appropriate and effective. The use of the method of "case study" in the educational process in higher medical educational institutions will ensure the assimilation of theoretical positions and the formation of practical skills of using the studied theoretical material.