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# INTERACTIVE METHODS USED IN TEACHING THE TOPIC OF ONTOPHYLOGENESIS OF THE CARDIOVASCULAR SYSTEM

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**Annotation:** The article is devoted to the study of interactive methods used in teaching the topic of ontophylogenesis of the cardiovascular system. It describes methods such as problem-based learning, virtual simulations, role-playing games, group discussions and experimental modeling. The importance of these methods in ensuring the active participation of students in the learning process, developing critical thinking and making children's physiology understandable is emphasized. The article is enriched with practical examples, showing the advantages of using modern approaches in pediatrics and biology education.

**Key words:** cardiovascular system, ontophylogenesis, interactive methods, pediatrics, children's physiology, problem-based education, virtual simulation, role-playing games, modeling, innovation in education

The cardiovascular system is one of the most important systems of the human body, and its ontophylogenesis (ontogenesis and phylogenesis processes) is an important topic for students in the field of pediatrics, biology, and medicine. The use of interactive methods in teaching this topic, along with traditional methods, makes the learning process more interesting, effective, and understandable. In this article, we will talk about interactive methods used in teaching the ontophylogenesis of the cardiovascular system, their advantages, and practical applications.

Interactive methods ensure the active participation of students, develop their critical thinking, problem-solving, and creative approach skills. When teaching a complex topic such as the ontophylogenesis of the cardiovascular system, these methods not

only help to consolidate theoretical knowledge, but also allow students to visually and practically understand evolutionary processes. These methods are important in the study of children's physiology, in particular, in analyzing the characteristics of the organism of preschool children.

In the problem-based learning method, students are presented with real-life problems related to the ontophylogenesis of the cardiovascular system. For example, questions such as “Why did the human heart evolve into a four-chambered one?” or “How did the circulatory system change from unicellular organisms to multicellular animals?” are asked. Students work in groups, study evolutionary data, and collect evidence to prove their conclusions. This method develops students' ability to independently research and analyze.

Using modern technologies, virtual simulations and 3D models are used to study the ontophylogenesis of the cardiovascular system. For example, through computer programs or mobile applications, students can see the stages of development from single-celled organisms to reptiles, mammals, and the human heart. This method activates visual memory and makes complex processes simpler and more understandable. When studying children's physiology, this method helps to clearly describe the formation of organs.

Through role-playing games, students take on the roles of different organisms (e.g., fish, amphibian, reptile, or mammal) and discuss the characteristics of their circulatory systems. Each student explains how the cardiovascular system of their “organism” works and presents the evolutionary changes to the group. This method develops students’ imagination and helps them to master the topic creatively.

Students are divided into small groups and study a specific stage in the ontophylogenesis of the cardiovascular system (e.g., a two-chambered heart in fish, a three-chambered heart in reptiles, or a four-chambered heart in mammals). Each group prepares and discusses its research in a presentation to the class. This method improves teamwork skills and encourages students to study the topic in depth.

Students can model different evolutionary forms of the cardiovascular system using simple materials (plasticine, paper, wire, etc.). For example, by creating an open circulatory system of fish or a closed system of a human, they will see physiological differences in practice. This method develops students' motor skills through manual labor and makes the topic more memorable.

The advantages of interactive methods are as follows.

- Active participation: Students become active participants in the process, not passive listeners.

- Depth of understanding: Visual, practical, and discussion-based methods simplify complex processes.

- Arousal of interest: Interactive methods increase students' interest in biology and physiology.

- Compatibility with children's physiology: Taking into account the developmental characteristics of preschool children, these methods can be used in an age-appropriate manner.

**Conclusion.** The use of interactive methods in teaching the ontophylogenesis of the cardiovascular system is one of the best ways to make the learning process effective and interesting. Problem-based learning, virtual simulations, role-playing games, group discussions, and experiments provide students with not only theoretical knowledge, but also enrich them practically. These methods are of great importance in the study of child physiology in pediatrics and create a solid foundation for the training of future health professionals.

Conclusion. The use of interactive methods in teaching the ontophylogenesis of the cardiovascular system is considered one of the most effective and promising areas of modern education. These methods, in particular, problem-based learning, virtual simulations, role-playing games, group discussions, and experimental modeling, help students not only master theoretical knowledge, but also develop their practical

skills, creative approach, and ability to work in collaboration. These methods present complex evolutionary processes in a visual and understandable form, increasing students' interest in biology and physiology.

Interactive methods are especially important in the study of child physiology in the field of pediatrics. These methods can be used in an age-appropriate manner when analyzing the characteristics of the organism of preschool children, and have a positive effect on their physical and mental development. For example, viewing the process of organ formation using virtual simulations and 3D models, and creatively studying evolutionary stages through role-playing games, form long-term memory in students and help them understand the topic in depth.

In addition, interactive methods create a solid foundation for training future healthcare professionals. Students not only study the ontophylogenesis of the cardiovascular system, but also develop skills to the point of being able to connect it with modern technologies and scientific approaches. Therefore, the wider introduction of these methods in the educational process will not only increase the quality of education, but also prepare students to solve life problems. In conclusion, interactive methods will strengthen their position as an innovative approach in pediatrics and biology education, allowing for more effective mastering of physiological knowledge for the future generation.

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