MODERN RESEARCH METHODS IN ANATOMY (MRI, CT AND 3D MODELING)

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Annotation: This article talks about modern research methods used in the science of anatomy – magnetic resonance imaging (MRI), computed tomography (CT) and three-dimensional (3D) modeling technologies. The article covers the scientific basis of these methods, the field of application, advantages and disadvantages, as well as their importance in education and medicine.his article talks about modern research methods used in the science of anatomy – magnetic resonance imaging (MRI), computed tomography (CT) and three-dimensional (3D) modeling technologies. The article covers the scientific basis of these methods, the field of application, advantages and disadvantages, as well as their importance in education and medicine. The accuracy of the data obtained through MRI and CT is researched, as well as the use of 3D modeling technologies in surgical procedures as well as in the anatomy teaching process. The results of the study show the effectiveness of modern anatomical learning.

Keywords: Anatomy, MRI, CT, 3D modeling, diagnostics, education, technology.

Introduction

Anatomy is one of the most ancient disciplines that studies the structure and functions of the human body. Historically, Anatomy has developed primarily through mortar dissection, i.e., cut-and-learn. However, since the second half of the 20th century, new technologies, in particular magnetic resonance imaging (MRI), computed tomography (CT) and 3D modeling technologies, which began to be widely used in recent years, have made a fundamental turn in the science of anatomy.natomy is one of the most ancient disciplines that studies the structure and functions of the human body. Historically, Anatomy has developed primarily through mortar dissection, i.e., cut-and-learn. However, since the second half of the 20th century, new technologies, in particular magnetic resonance imaging (MRI), computed tomography (CT) and 3D modeling technologies, which began to be widely used in recent years, have made a fundamental turn in the science of anatomy. These technologies made it possible to study the human organism in a living State, in depth with non-invasive methods. In this article, these methods are analyzed scientifically-theoretically and practically.

Materials and styles

In this article, the method of analysis was used as the main method. Scientific articles, textbooks, medical literature and practical experiments on MRI, CT and 3D modeling technologies were studied. Also, modern approaches to the application of these technologies in the teaching of anatomy were analyzed.n this article, these methods are analyzed scientifically-theoretically and practically.

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Results

MRI technology allows you to depict the soft tissues of the human body in high resolution. This method is especially important in the study of the nervous system, brain and cardiovascular system. CT technology, on the other hand, provides a clear picture of bone and hard tissue, which is used in the fields of surgery and orthopedics. And with the help of 3D modeling, it is possible to restore anatomical organs and systems in a virtual environment, analyze them and apply them in the educational process. Together, these technologies offer more opportunities for traditional dissection in the study of the human organism.

Discussion

MRI, CT, and 3D modeling technologies ushered in a new phase in the science of anatomy. While traditional anatomical methods of study – dissection and microscopy – have not lost their relevance, modern technologies are complementing them and creating comfort in many areas. For example, MRI can be used to monitor pathological processes in a living organism, CT can be used to accurately study bone structures, and 3D modeling can be used to create a realistic view of organs. CT, and 3D modeling technologies ushered in a new phase in the science of anatomy. While traditional anatomical methods of study – dissection and microscopy – have not lost their relevance, modern technologies are complementing them and creating comfort in many areas. For example, MRI can be used to monitor pathological processes in a living organism, CT can be used to accurately study bone structures, and 3D modeling can be used to create a realistic view of organs. At the same time, these technologies also create great opportunities in the educational process. The use of 3D models in medical universities helps students to easily understand complex anatomical structures. While the use of 3D models based on MRI and CT images in virtual reality is bringing new pedagogical approaches.

Conclusion

MRI, CT and 3D modeling technologies have shaped modern approaches in anatomical science. With them, complex structures of the human body are studied with accuracy, effective results are achieved in diagnostic and surgical procedures. The application of these technologies in education, on the other hand, is becoming more effective for students than traditional teaching methods. Therefore, the role of MRI, CT and 3D modeling in the development of anatomical science is expected to expand further in the future.

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