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The intersection of Radiological physics, Technology, and Psychology in Healthcare and medical science

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Advancements in healthcare technology have transformed the practice of medicine and enabled healthcare professionals to deliver improved patient care. Radiological physics plays a crucial role in medical imaging technologies such as computed tomography (CT), magnetic resonance imaging (MRI), and positron emission tomography (PET), which allow for non-invasive imaging of the human body. These imaging technologies provide invaluable diagnostic information that can lead to more accurate and timely treatment decisions. However, radiological procedures can also have psychological effects on patients. Radiation therapy, for example, can cause anxiety and fear due to the association of radiation with cancer treatment. This fear can negatively impact patient compliance and treatment outcomes. Healthcare professionals must work to alleviate patient fears by educating them about the safety and efficacy of radiation therapy. Additionally, technological advancements in radiological physics have enabled the development of precision medicine techniques such as proton therapy, which targets cancerous cells with greater accuracy and reduces the risk of damage to surrounding healthy tissues. These advancements have improved treatment outcomes and reduced the need for invasive surgical procedures. The intersection of radiological physics, technology, and psychology in healthcare and medical science is crucial to ensure optimal patient care. It is important for healthcare professionals to consider the psychological effects of radiological procedures on patients and work to mitigate fears and anxieties. By combining advancements in radiological physics and technology with psychological interventions, healthcare professionals can provide more personalized, precise, and effective patient care.

In conclusion, the importance of considering the intersection of radiological physics, technology, and psychology in healthcare and medical science. While radiological physics has enabled significant advancements in diagnostic and treatment options, it's important to consider the potential psychological effects on patients. By understanding and addressing these effects, healthcare professionals can work to provide a more positive patient experience and ultimately improve patient outcomes.

Recent publications

1. Krstic, D., Nikezic, D., Jeremic, M. Z., Dolicanin, E., Miladinovic, T. B., & Zivkovic, M. (2023) Comparison between MCNP and planning system in brachytherapy of cervical cancer. Appl Radiat Isot, 192, 110614.
2. Yu, Kwan Ngok; Watabe, Hiroshi; Zivkovic, Milena et al. (2023) DynamicMC: An Open-source GUI Program Coupled with MCNP for Modeling Relative Dynamic Movement of Radioactive Source and ORNL Phantom in a 3- dimensional Radiation Field. Health Physics 124(4):p 301-309.
3. Živković, M., Beni, M. S., Yu, P. K. N., Watabe, H., Krstić, D., & Nikezić, D. (2023) A dosimetric comparison between ICRP and ORNL phantoms from exposure to 137Cs contaminated soil. Radiat Phys Chem, 207, 110878.

Biography

Milena P. Zivkovic was born on September 1, 1995, in Kragujevac, Serbia. She graduated with a remarkable academic record, achieving a 9.49 in her undergraduate studies during the 2018/2019 academic year. She was recognized as the top-performing student at the Faculty of Sciences and Mathematics for four consecutive years. Currently, Milena is pursuing her postgraduate studies at the Institute of Physics within the Faculty of Natural Sciences and Mathematics in Kragujevac. She has maintained an outstanding academic record, with a 9.67 average grade in her master's studies, specializing in physics. Milena has actively participated in various research projects, including the Ministry of Education-funded project on "Experimental and Theoretical Research in Radiation Physics and Radioecology.

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