

Peer Review

Review of: "Artificial Intelligence in Experimental Surgery: Ethical Breakthroughs and Technological Innovations within In Silico Models"

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Well written! Looking forward to the final version!

The integration of artificial intelligence (AI) into experimental surgery marks a paradigm shift in biomedical research, offering transformative alternatives to traditional animal-based preclinical models. This review critically examines the role of AI in enhancing surgical precision, reproducibility, and ethical compliance, while reducing reliance on in vivo experimentation. By systematically analyzing AI-driven methodologies, including computerized models, surgical simulations, and predictive analytics, this review highlights the potential of AI to revolutionize surgical research and training. However, it also identifies significant challenges, such as data standardization, regulatory adaptation, and ethical concerns, which must be addressed to ensure the successful implementation of AI in experimental surgery.

Declarations

Potential competing interests: No potential competing interests to declare.