

AB206. SOH21AS030. Virtual reality operative simulation in orthopaedic surgical training during periods of restricted clinical hours: systematic review

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Background: The public health response to the coronavirus pandemic has imposed limitations upon orthopaedic surgeon's scheduled care practice, with a consequential diminution of training time for residents within the specialty. A potentially viable option for maintenance of operative competency is the use of virtual reality (VR) surgical simulation. This review looks at the effectiveness of (VR) as a pedagogical method of learning for orthopaedic trainees. Question: Can VR be a viable method of learning and skill retention for orthopaedic trainees during periods of diminished operative time?

Methods: A systematic search using Google Scholar, EMBASE and PubMed was conducted in July 2020.

Results: Following the PRIMSA guidelines; initial search revealed 779 studies. Thirty-five full text articles were analysed by two reviewers with a final total of 30 articles used in this review. The levels of evidence ranged from one to four with a variable quality. A thematic analysis revealed three broad categories: quality and validity of VR teaching simulations studies (n=8); learning curves and subject performance papers (n=14) and VR simulators utility in orthopaedics reviews (n=8).

Conclusions: We demonstrated that VR has the capacity to help trainees maintain their technical skills, enhance their precision and retain rudimentary competency during this pandemic. Additional developments are necessary to ensure its safety as a training tool. Although there are limited orthopaedic specific VR simulators, surgical trainees can benefit from VR based training when paired with other forms of orthopaedic education; such as cadaveric laboratories and telemedicine.

Keywords: Virtual reality (VR); orthopaedic training; simulations; education; COVID-19

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Footnote

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Ethical Statement: The authors are accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved.

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