

Orthopedics, Osteoporosis, Rheumatology & Trauma Care

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Simulation training in orthopaedic surgery: A systematic literature review

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Aim: While direct observations in the operating room have served as the educational approach of choice in acquiring orthopaedic skills, due to concerns regarding inconsistency of skills acquisition, increasing workload, higher patient expectations, greater complexity of procedures, and demands for increased efficiency of operating room time, simulation-based learning has recently been introduced in orthopaedic training. We aim to evaluate the findings of the studies that compare simulation-based undergraduate teaching to conventional styles of teaching and make recommendations on the role of simulation in undergraduate and postgraduate orthopaedic curricula.

Method: A systematic review was conducted according to PRISMA guidelines. A total of 604 articles were identified using Ovid Medline®, Books@Ovid, Journals@Ovid, and Embase (Ovid) databases, with 12 of these studies included in qualitative synthesis.

Results: A total of 370 participants were included across the 12 studies. Seven articles (58%) were randomised controlled trials, and five (42%) were cohort studies. Features associated with improved performance parameters included pre-assessment training modules by an expert, a period of simulation familiarisation, one-to-one training by a supervising expert, task repetition, and combination of different simulation types. Features that did not show improvement included pre-assessment teaching delivered by video or PowerPoint and the use of virtual reality simulation rather than physical models.

Conclusions: It is clear that simulation is an effective teaching adjunct in orthopaedic education, and that there are certain features that influence the magnitude of its effect. Further study is required to understand its expanding role in orthopaedic education, particularly in the transferability of the skills it teaches to real practice.

Biography

Houlden is on an orthopaedic-themed Core Surgical Training post at East & North Hertfordshire NHS Trust. He has a particular interest in paediatric orthopaedics and in medical education.

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