

European Anterior Hip Meeting (EAHM)

Virtual Reality Simulation Enhances Technical Performance and Skill Transfer in Novice Learners for Direct Anterior Approach Hemiarthroplasty

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Introduction

70,000

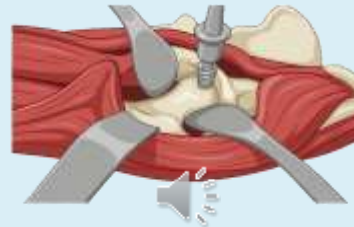
Hip fractures every year in the UK
The majority require hemiarthroplasty



4%



Direct anterior approach



Muscle sparing
Earlier mobilisation, fewer complications

The solution: VR

DAA has a steep learning curve
There is no current training pathway

Safe and repeatable
Evidence of skill transfer
Scalable



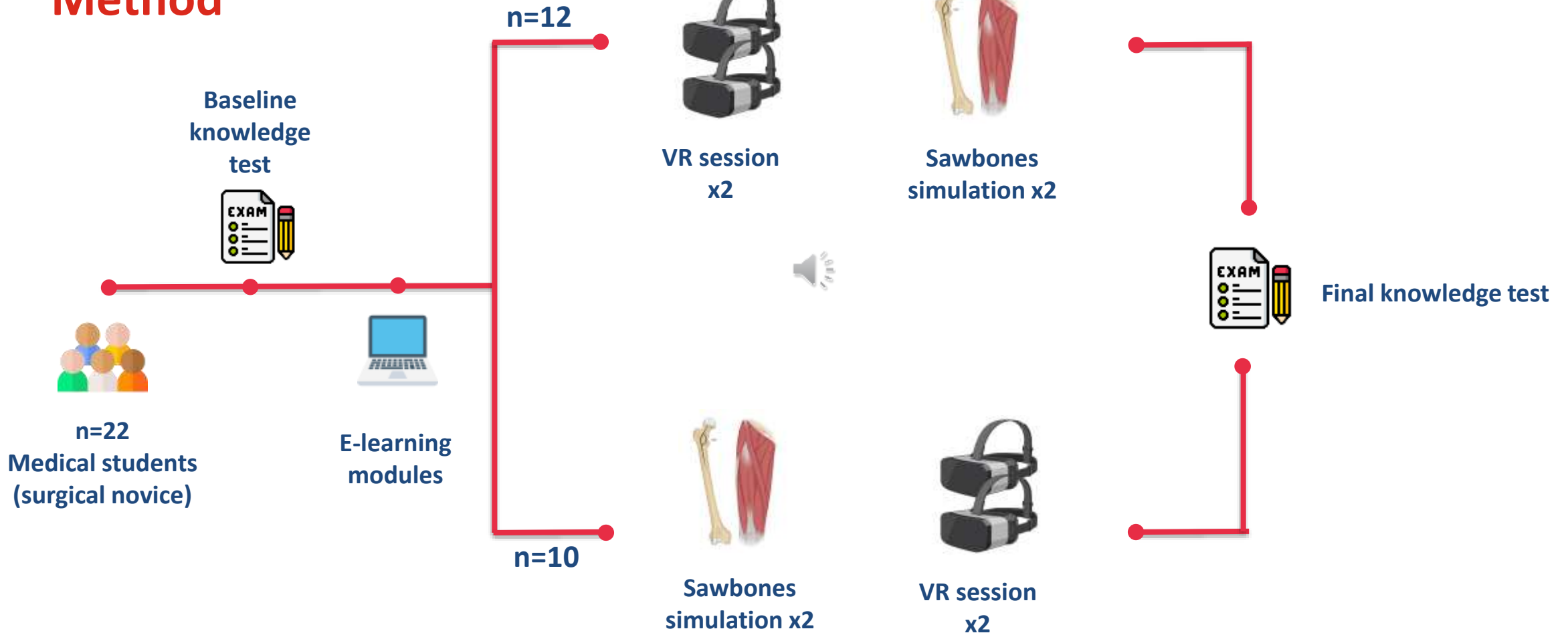
Aim: To evaluate the educational effectiveness of structured VR simulation for DAA hemiarthroplasty in novice medical students

H1: Transfer to sawbones

H2: VR skill acquisition

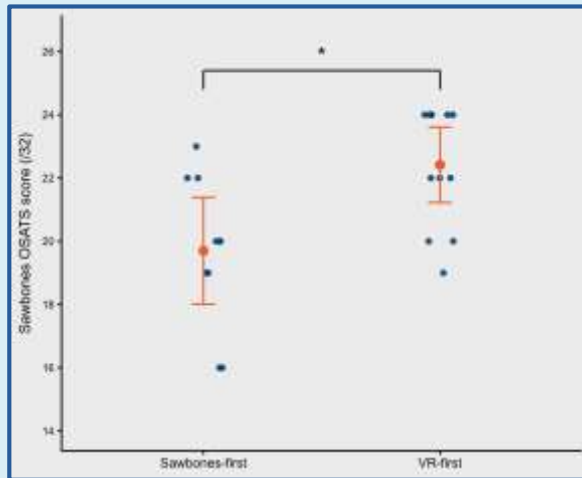
H3: Knowledge acquisition

Method



Results

Sawbones transfer (OSATS)



Sawbones-first

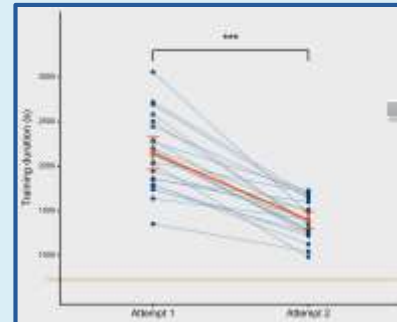
19.7

VR-first

22.4

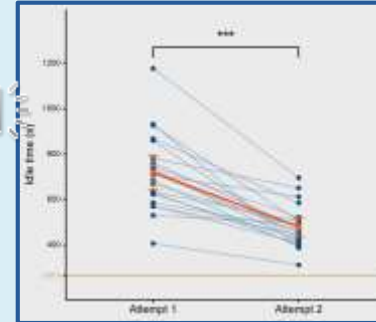
VR skill acquisition

Training duration



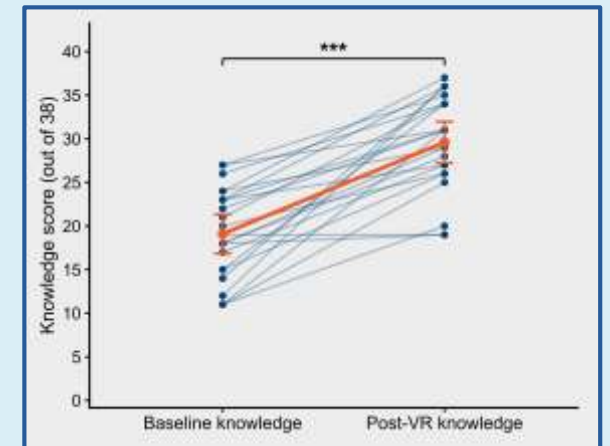
12 minutes
faster

Idle time



Reduced by 4
minutes

Procedural knowledge



50% → 74%

Conclusion

VR showed evidence of transfer beyond the headset

Higher sawbones OSATS scores in the VR-first group suggest that learning in VR translated into improved physical simulation performance

VR supports early technical skills development

Within-session improvements in training duration and idle time suggest that trainees became more efficient with the procedure after repeated VR practice

Curriculum improves procedural knowledge

Novices showed improved knowledge of the key steps of DAA hemiarthroplasty after completing the learning pathway

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