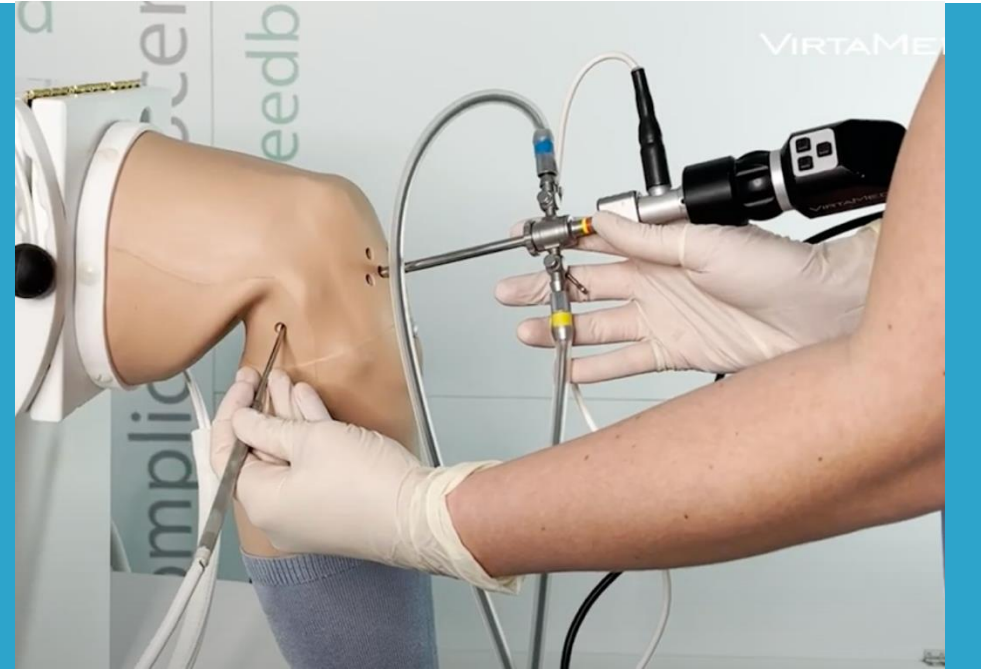


Knee Arthroscopic Virtual Simulation A Solution to Assess Arthroscopic Skills



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Disclosures

- No disclosures

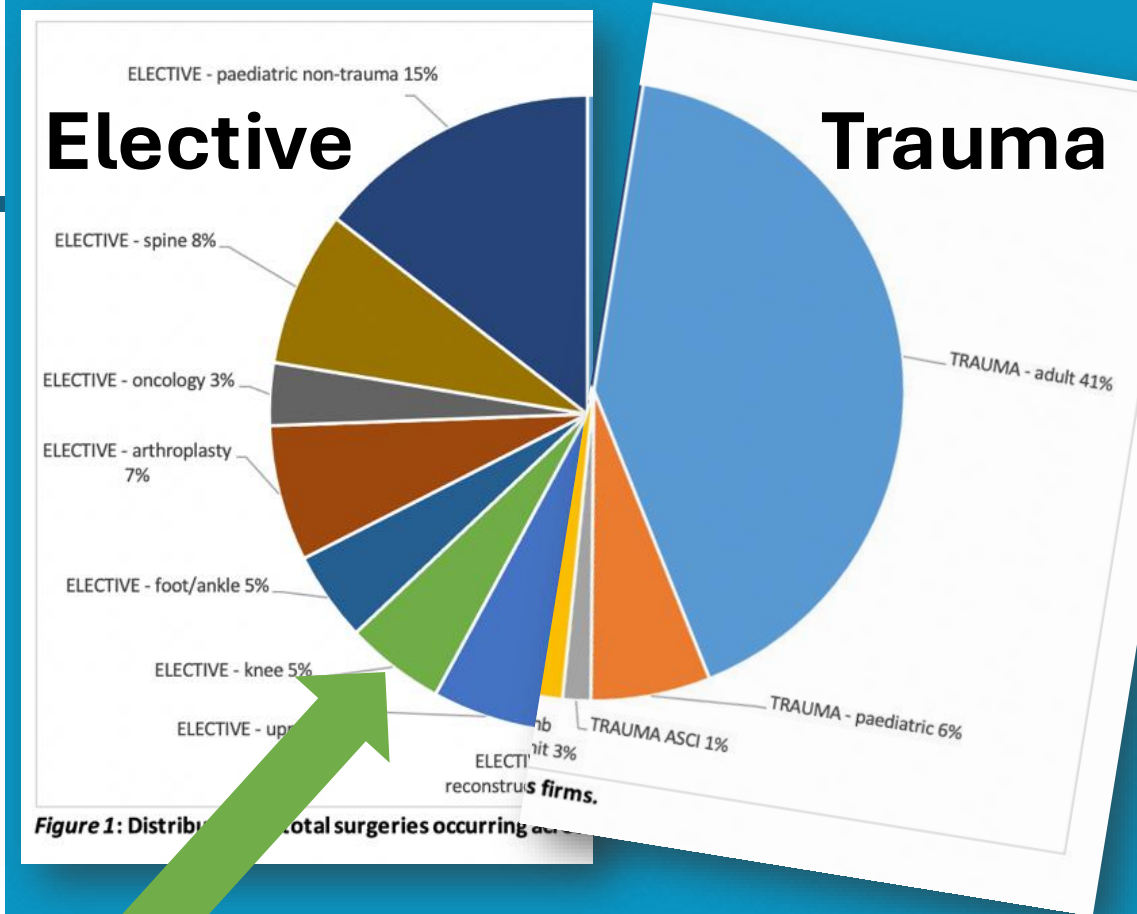
Introduction

Knee Arthroscopy : Top 10 procedure globally

Decreased training in elective procedures
Southern Africa due to trauma burden

Virtual simulation improve access
arthroscopic training

No studies done in South Africa to assess
knee arthroscopy skills



5% Knee Surgery only

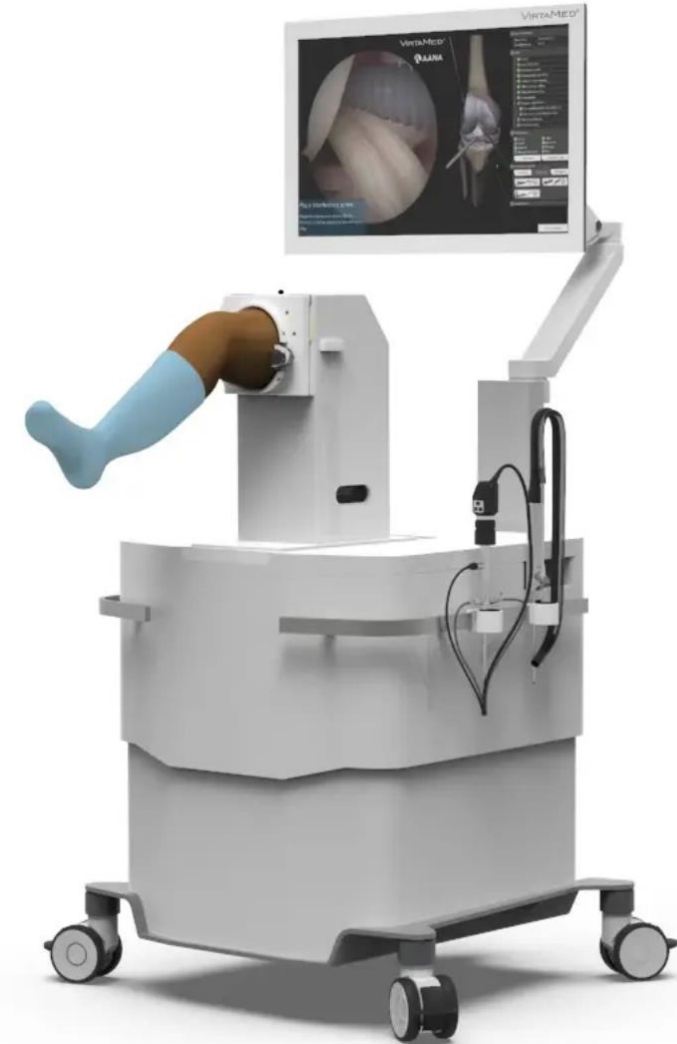
Training at Southern Africa Institute

Cara Dunn et al. SAMJ 2022

Aims

Evaluate knee arthroscopy skills with virtual simulation (Virtamed ArthroS)

Assess perceived realism and educational value



Methodology

Prospective observational cohort

Inclusion: Orthopaedic trainees: Junior & senior

Exclusion: Missing data, incomplete scores

Virtual simulation
diagnostic knee
Arthroscopy

Practice
task
Final task

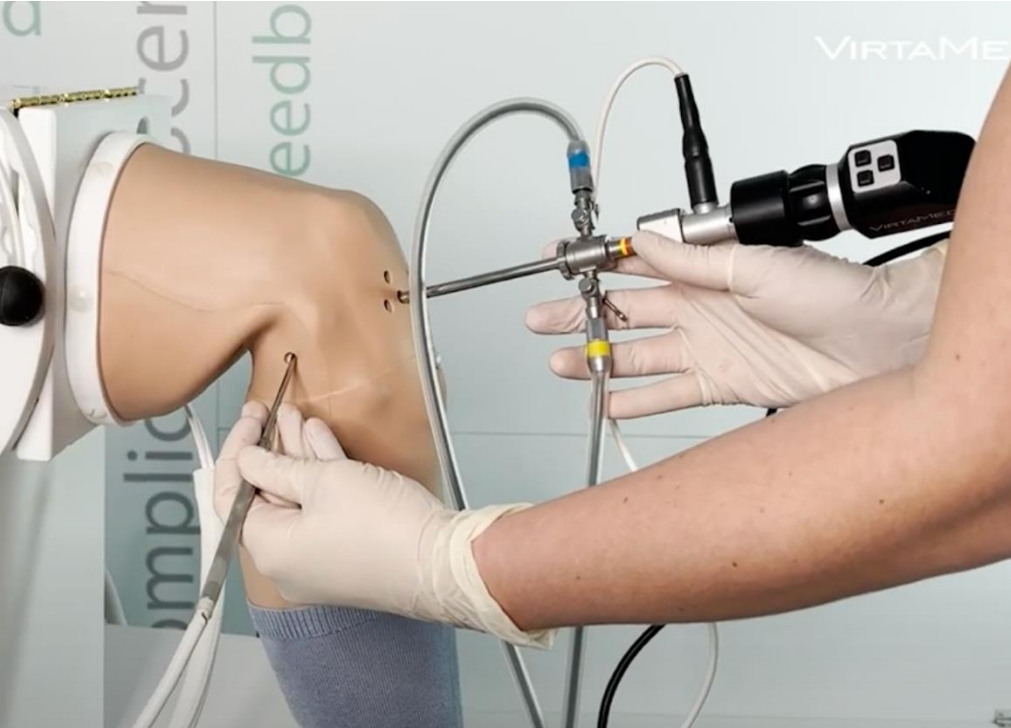
Validated Questionnaire
Educational value

Composite Score		Total Score 50
Procedure time	Seconds	20
Safety	% scratch	20
Economy	Centimeters	10

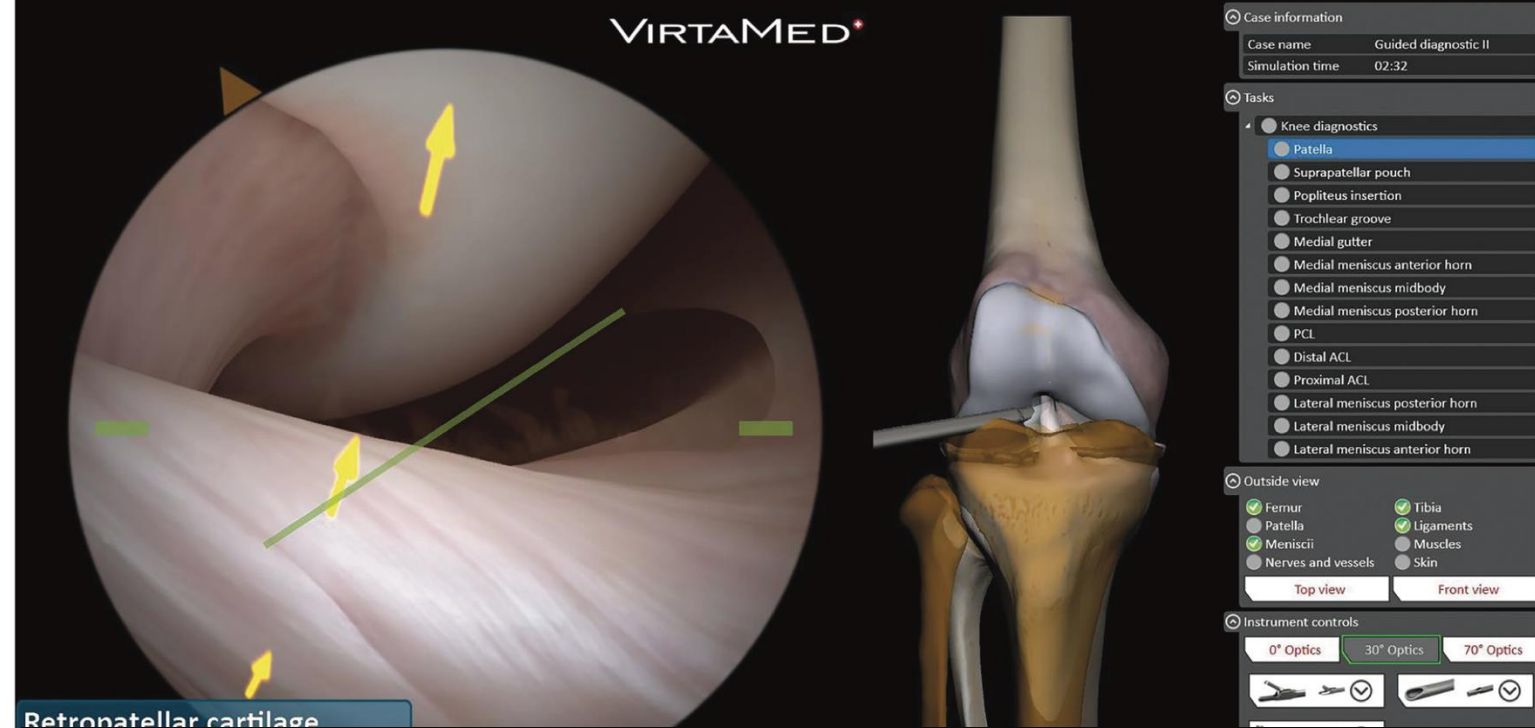
Questions addressing educational value and user-friendliness

Parameter	Question
Educational value I	The simulator allows training of joint inspection*
	The simulator allows training of therapeutic intervention*
	The simulator allows training of joint irrigation*
	The variation of exercises offered by the simulator is adequate*
	Difference in required skill level between exercises is adequate*
Educational value II	The simulator is a good way to prepare for a real-life arthroscopic operation*

Virtual Simulation Setup



Knee replica model



Camera view

Results - Demographics

25 trainees (median 33.5 years, 32-34.5)

13 Medical Officers, 12 registrars

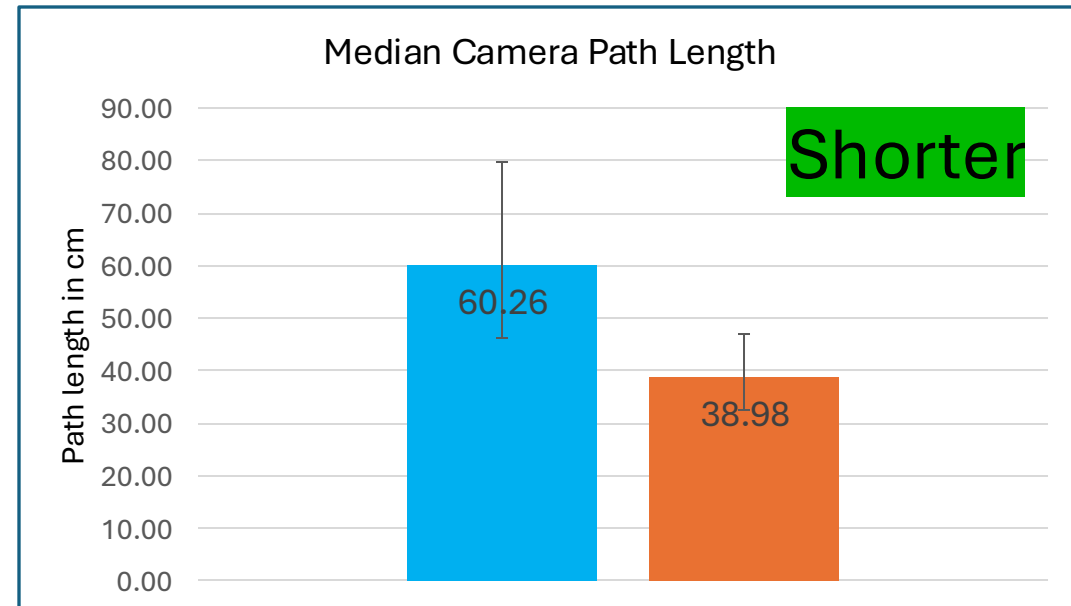
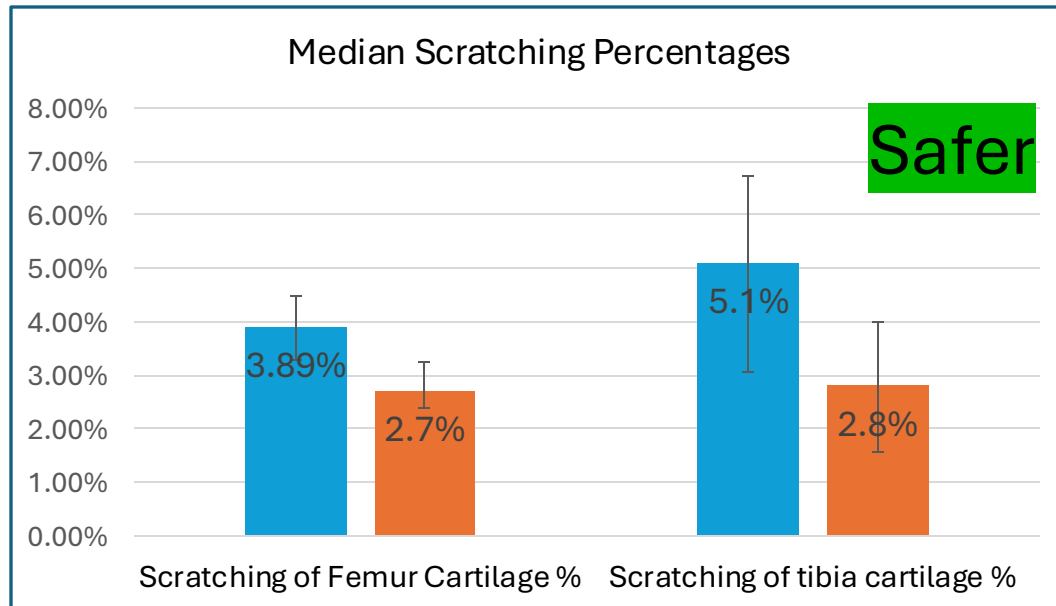
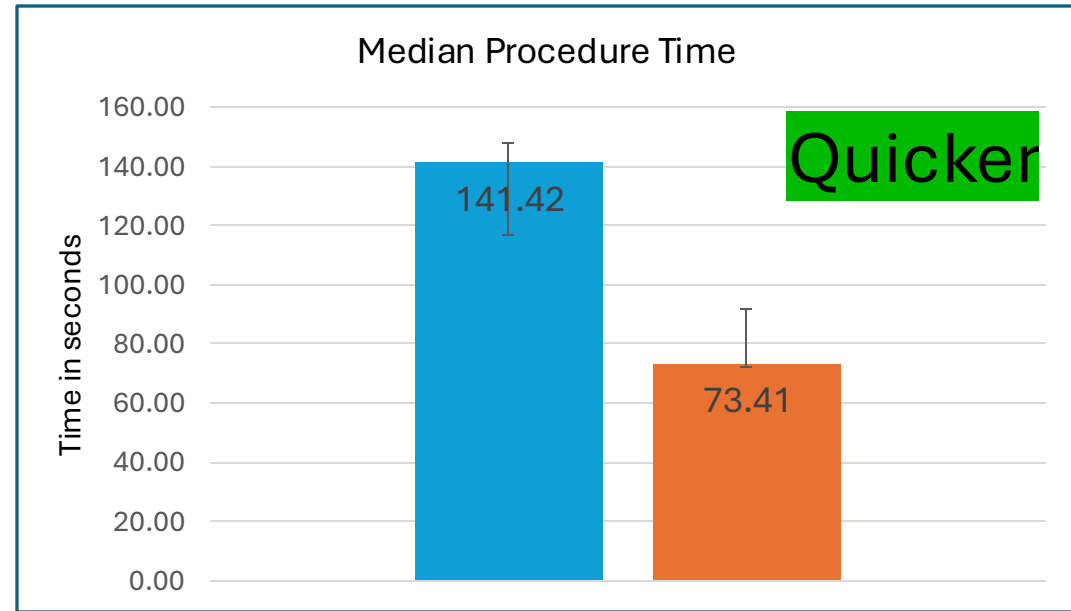
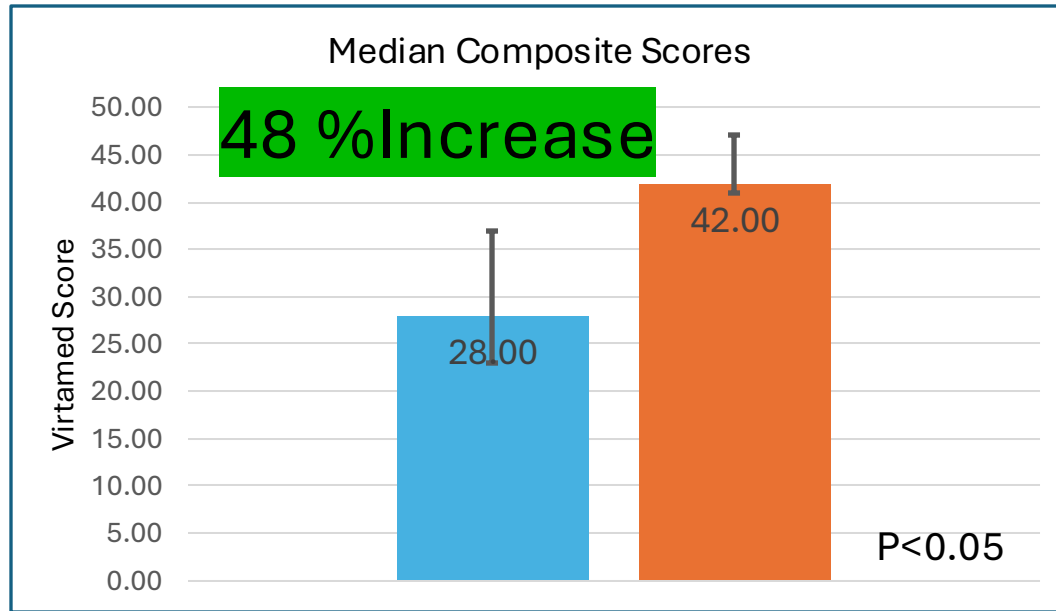
Median number cases as primary surgeon: 1 (range 0-5)

80% of cohort interested in future knee surgery

Results - Median Virtual Score Final task



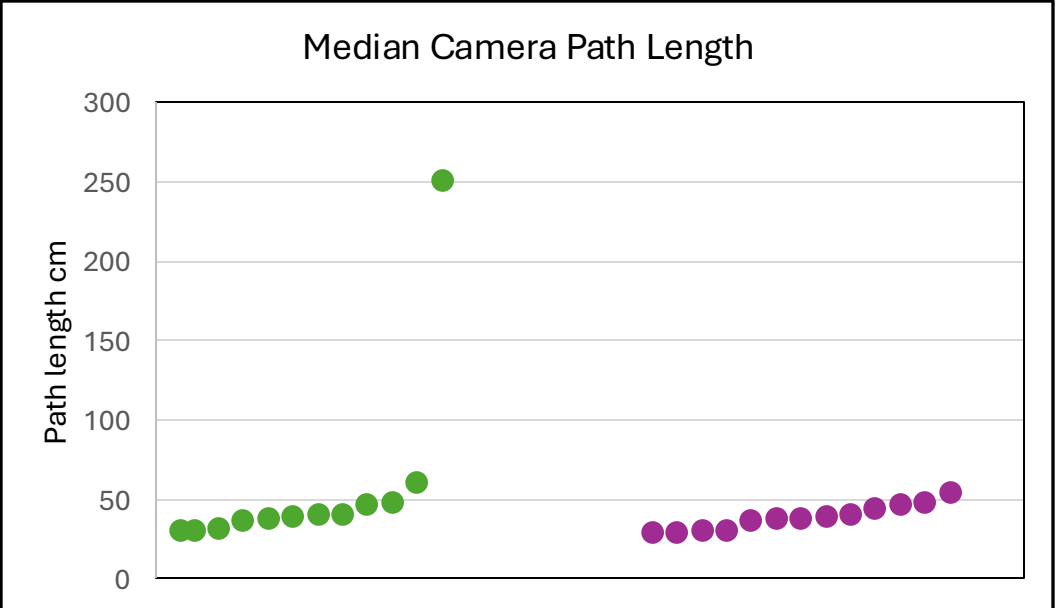
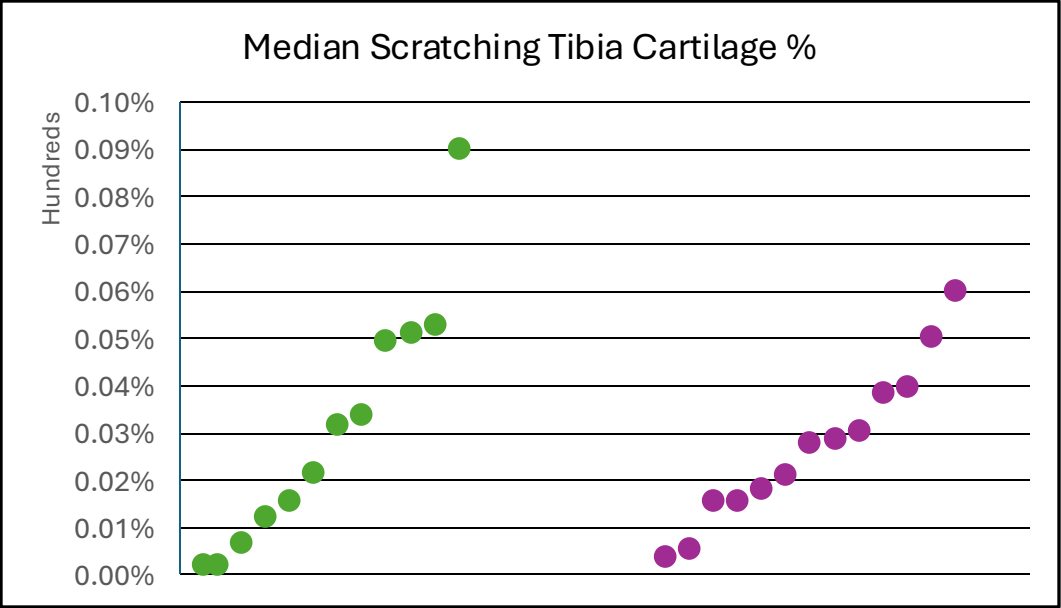
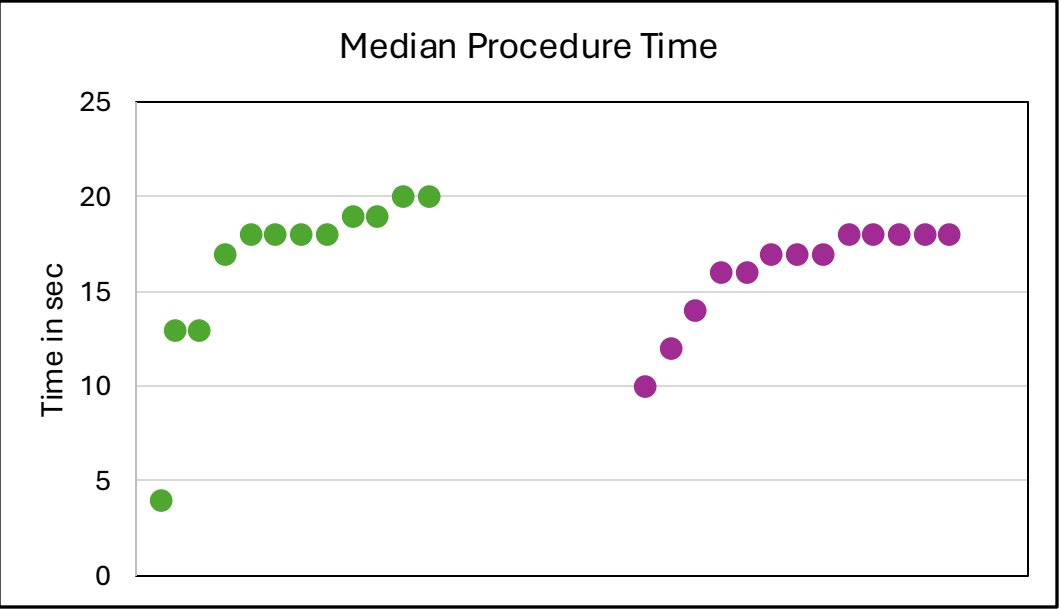
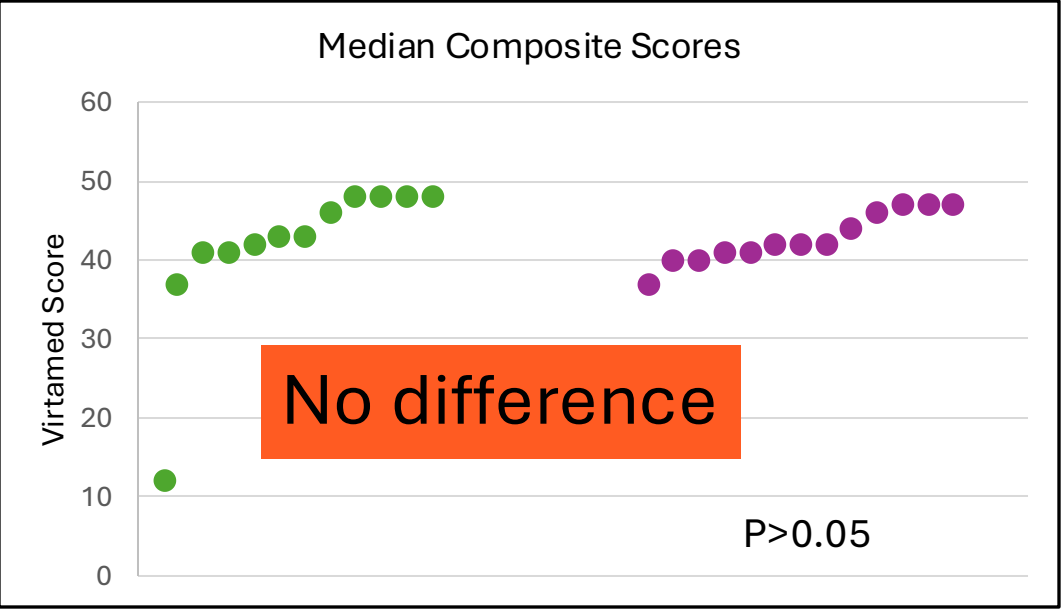
Results – Practice vs Final Score



Practice Attempt

Final Score

Results - Level of Training and Scores



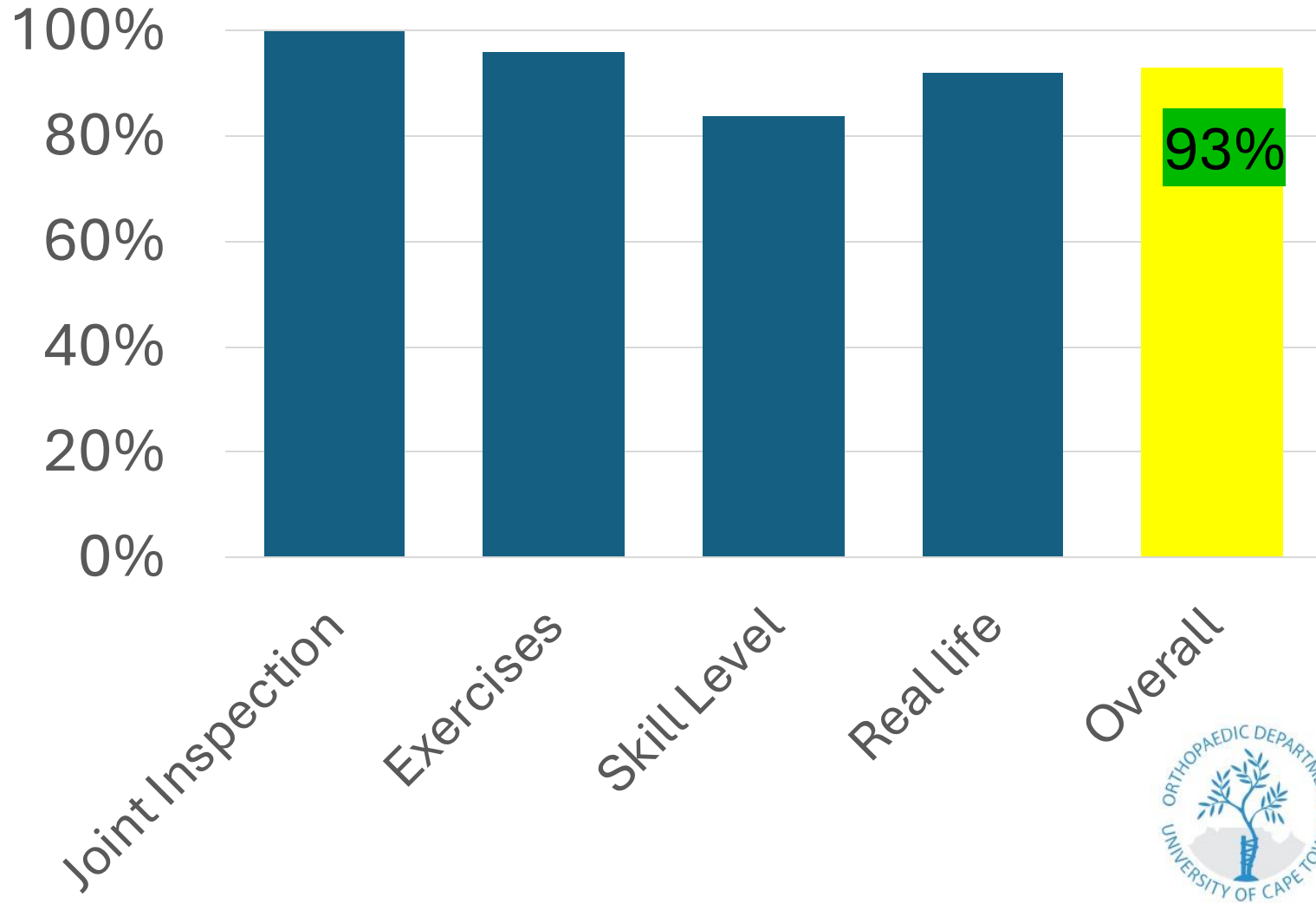
Reg

MO

Face Validity

Face Validity Outer appearance	Median (IQR) Scale 1-10
Overall Outer Appearance	10 (8-10)
Overall Intra- articular Appearance	8 (8-9)

Educational Value



Conclusion

Assessed knee arthroscopic skills using virtual simulation

Level of training did not correlate to scores

Repeated utilization contributed to enhanced scores

The VirtaMed ArthoS had high perceived educational value

Limitations:

Questionnaire subjective based on experience

Comparison to standard work based assessment tool

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