



# VALIDATION OF THE PASSPORT V2 TRAINING ENVIRONMENT FOR ARTHROSCOPIC SKILLS

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## Introduction

Virtual reality simulators used in the education of orthopaedic residents often lack realistic haptic feedback. To solve this, the (Practice Arthroscopic Surgical Skills for Perfect Operative Real-life Treatment) PASSPORT simulator was developed, which was subjected to fundamental changes: improved realism and user interface (Figure). The purpose was to demonstrate its face and construct validity.

## Method

Thirty-one participants were divided into three groups having different levels of arthroscopic experience. Participants answered questions regarding general information and the outer appearance of the simulator for face validity. Construct validity was assessed with one standardized navigation task, which was timed. Face validity, educational value and user-friendliness were determined with two representative exercises and by asking participants to fill out the questionnaire. A value of 7 or greater was considered sufficient.

## Results

Construct validity was demonstrated between experts and novices. Median task time for the fifth trial was 55 s (range 17–139 s) for the novices, 33 s (range 17–59 s) for the intermediates, and 26 s (range 14–52 s) for the experts. Median task times of three trials were not significantly different between the novices and intermediates, and none of the trials between intermediates and experts. Face validity, educational value and user-friendliness were perceived as sufficient (median >7). The presence of realistic tactile feedback was considered the biggest asset of the simulator.

## Discussion/Conclusion

Proper preparation for arthroscopic operations will increase the quality of real-life surgery and patients' safety. The PASSPORT simulator can assist in achieving this, as it showed construct



and face validity, and its physical nature offered adequate haptic feedback during training. This indicates that PASSPORT has potential to evolve as a valuable training modality.



*Figure. Picture of PASSPORT V2 simulator*