

INTRODUCTION

Orthopaedic residency training is currently undergoing a paradigm shift. Surgical educators are increasingly utilizing simulation and other non-clinical teaching adjuncts in the surgical education of trainees. This study aim to evaluate an orthopaedic trauma surgery module provided by TouchSurgery™, a free, tablet-based application (app), in an effort to evaluate its usefulness in training across varied levels of surgical experience.

MATERIALS & METHODS

Subjects were divided into three cohorts: fellowship-trained upper extremity surgeons, orthopaedic surgery residents, and medical students. All subjects were trained in the use of the TouchSurgery™ app. Each subject completed the "Tension Band Wire for Olecranon Fracture" module three times and subject score on the module was recorded for each trial. Each subject also completed a customized Likert survey regarding their opinions on the usefulness and accuracy of the application module. Statistical analysis using a 2-tailed t-test and ANOVA was performed to evaluate for performance within and between cohorts.

TABLE & FIGURE

	TBW 1	TBW 2	TBW 3	P-Value for differences within cohort performance
NOVICE Performance	73.1	88.2	92.3	<0.001
INTERMEDIATE Performance	79.8	89.4	94.1	<0.001
EXPERT Performance	83.9	92.5	98.0	<0.001
P-VALUE for Differences between Cohort Performance	< 0.05	0.33	< 0.05	

Table 1. Performance scores for Olecranon TBW.

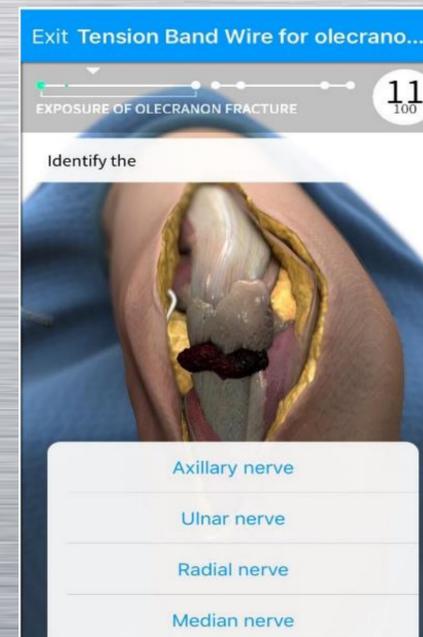


Figure 1. The TouchSurgery™ Application: A screenshot of the Olecranon Tension Band Wiring module analyzed in this study

RESULTS

All cohorts performed better on average with each subsequent simulation attempt. For all attempts, the experts outperformed the novice and intermediate participants, while the intermediate cohort outperformed the novice cohort in all attempts. Novice users consistently gave the app better scores for usefulness as a training tool, and demonstrated more willingness to use the product. These differences were all statistically significant ($p < 0.05$).

DISCUSSION

The Touch Surgery™ app for an olecranon fracture tension band wiring module demonstrated construct validity as well as promising training potential that could aid in creating a more efficient learning curve for orthopaedic operative techniques. Importantly, this training platform was well received by both medical students and orthopaedic residents. These are important early indicators of the app's validity and utility as a training tool.