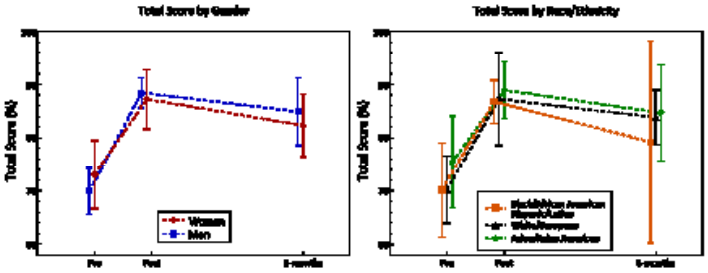
p<.001), post-training mean 81 (95%CI 5–14, p<.001), and 6-months mean 81 (95%CI -10 to– -2, p=.007). No significant differences were observed by gender or race.

Conclusion: Our stakeholder-driven intervention improved comfort addressing microaggressions and discrimination in the emergency department, with sustained effects at 6 months. This model highlights the value of participatory design and targeted training to foster equity in emergency medicine.



76 A Free Smartphone Application Teaches the Motor Skills of the Head Impulse Test

Jacob Lenning, Samuel Westendorf, Ryan Luedtke, Jeffrey Kline, Anne Messman

Background: The accuracy of the HINTS (head impulse test, nystagmus, and test of skew) exam is limited by the difficult head impulse test (HIT), which requires head turns of 10-15 degrees at >100 degrees/second. Feedback training with expensive video-oculography (VOG) devices and virtual simulators has been used for motor skill development.

Objective: Determine if visual feedback from the free PhyPhox smartphone application displaying rotational velocity can teach the motor skills of the HIT.

Methods: A convenience sample of twenty inexperienced medical students performed 20 HITs on a mannequin model before, immediately after, and 2-weeks following a training session. A VOG device without feedback recorded successful head turns (Figure 1). Participants were randomly assigned to perform 100 training attempts with VOG auditory feedback (n=10) or smartphone application visual feedback (n=10; Figure 1). Aggregate learning curves were constructed from the training sessions (Figure 2). Plateaus were determined by linear regression. Group success rates (total successes per attempts) were compared with Pearson's chi-square tests (df=1, n=400).

Results: Learning curves plateaued at 43 attempts for the smartphone group and 60 for the VOG group with no statistical differences in the success rates at any number of attempts (Figure 2). Success rates improved from before to immediately after training for the smartphone (0.14 [0.10, 0.20]; 0.47 [0.40, 0.54]; p<0.01) and VOG (0.06 [0.03, 0.10]; 0.38 [0.40, 0.54]; p<0.01) groups. Success rates between groups differed before and after training (p<0.01), though absolute differences were small in this limited sample size. The success rate was worse at the 2-week follow-up (0.25 [0.20, 0.31]) than immediately after training (0.47 [0.40, 0.54]; p<0.01) for the smartphone group, but unchanged for the VOG group (0.40 [0.33, 0.47]; 0.38 [0.32, 0.45]; p=0.68).

Conclusion: Students learned the motor skills of the HIT with similar speed and proficiency using either a smartphone application or VOG, but had better skill retention with video-oculography. The results demonstrate teaching potential for a low cost, specialized smartphone application that can provide rotational velocity feedback to support development of the motor skills needed to perform the head impulse test.

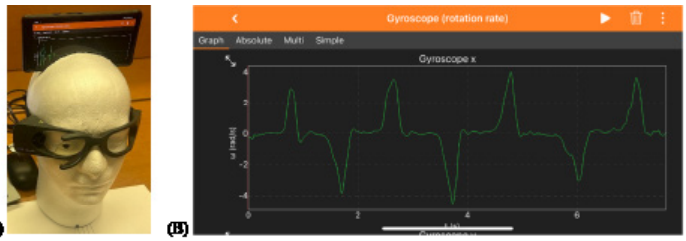


Figure 1. (A) Training model with video-oculography (VOG) device and smartphone placement. (B) Interface of the smartphone application displaying rotational velocity.

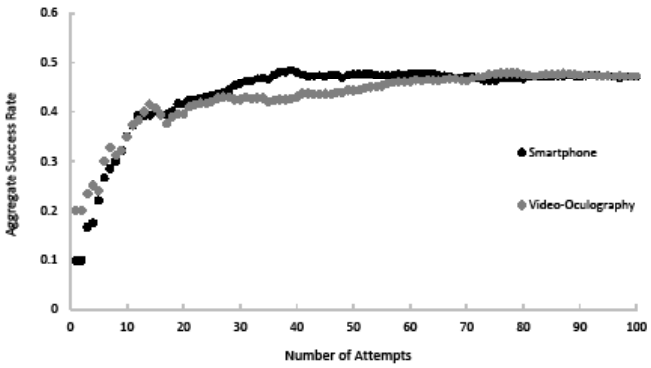


Figure 2. Aggregate head impulse test learning curve for the free PhyPhox smartphone application group (n = 10) and the video-oculography (VOG) group (n = 10).

77 Reimagining Resident Research: A Qualitative Study of Residents who Struggled to Complete Their Scholarly Project

Ridhima Ghei, Jeremy Shin, Lynn Jiang, Jaime Jordan, Keith Willner

Background: The scholarly activity requirement by the ACGME is broad and variably applied by residency programs. Guidance in the literature includes a systematic review that encapsulates the initiatives used by GME programs to increase scholarly activity. Additionally, a qualitative study interviewed EM residents who excelled in scholarship to discern the factors leading to success. To date, no qualitative studies have explored the perspectives of residents who struggle to meet this requirement.