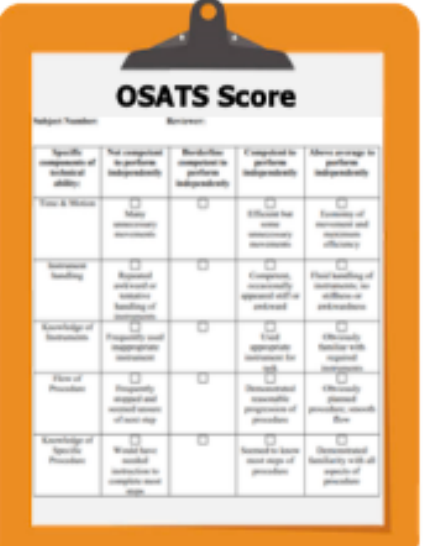


INTRODUCTION

- Arterial line placement is a core skill for anesthesiologists, and technical inefficiencies contribute to complications (1).
- Traditional evaluations of procedural skill rely on subjective assessments.
- Eye-tracking provides objective gaze metrics that can characterize visual focus and may complement traditional assessment methods (2).
- Saccades (rapid eye movements) and fixations (stationary gaze) may offer insight into cognitive load and attentional allocation during arterial line procedures (3).
- We compare adjusted saccade and fixation counts between CA-2 and CA-3's during arterial line placement to detect experience-related differences in gaze behavior and inform efforts to enhance procedural safety and performance.

METHODS



1

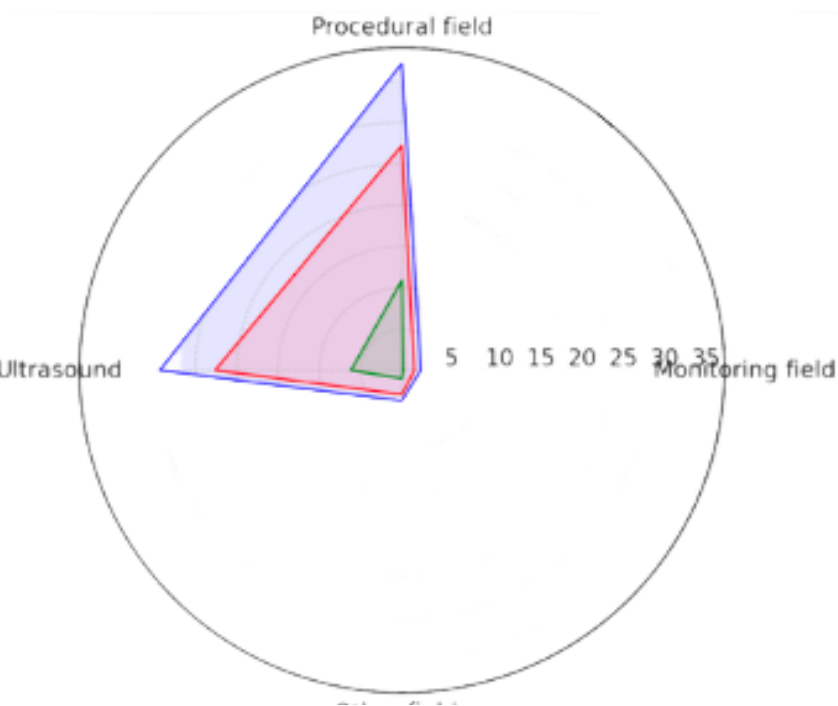
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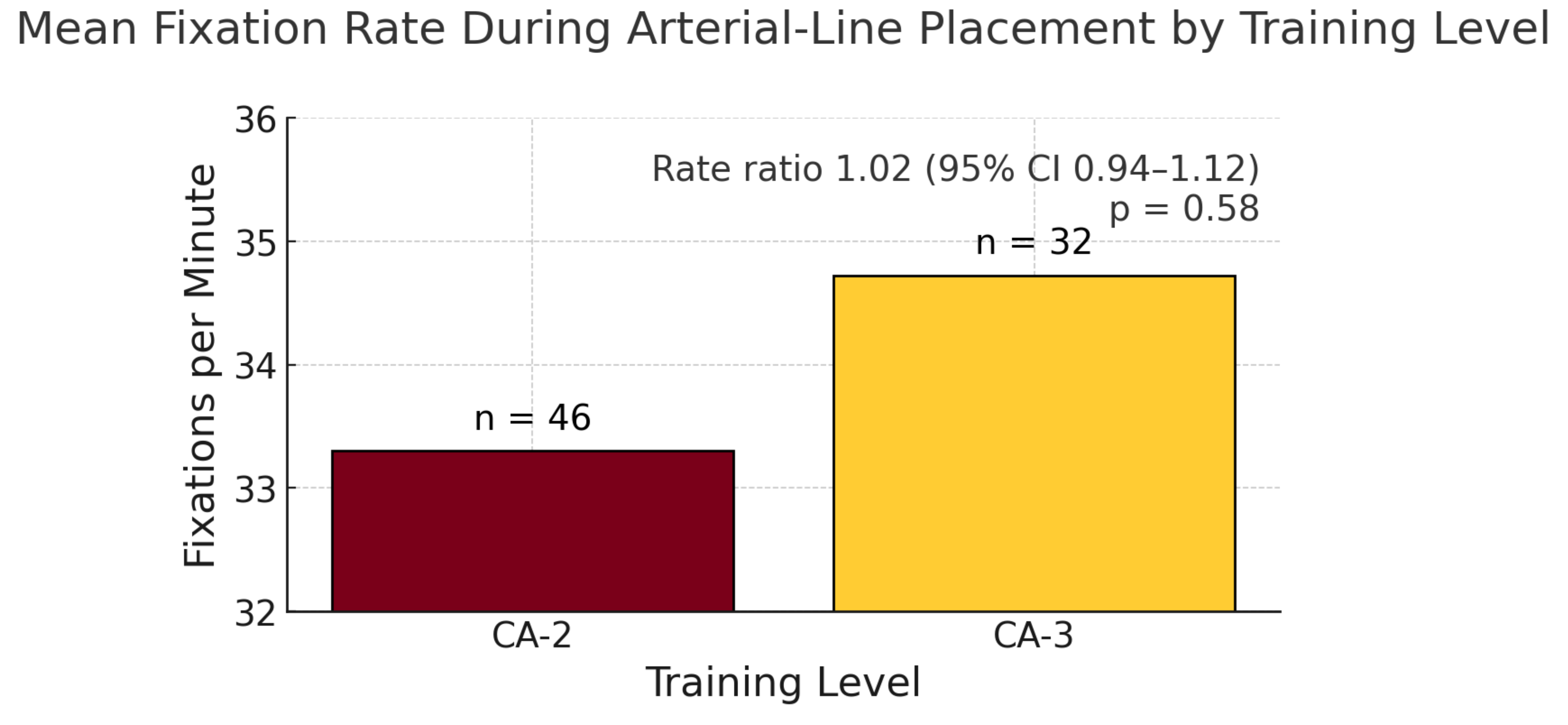
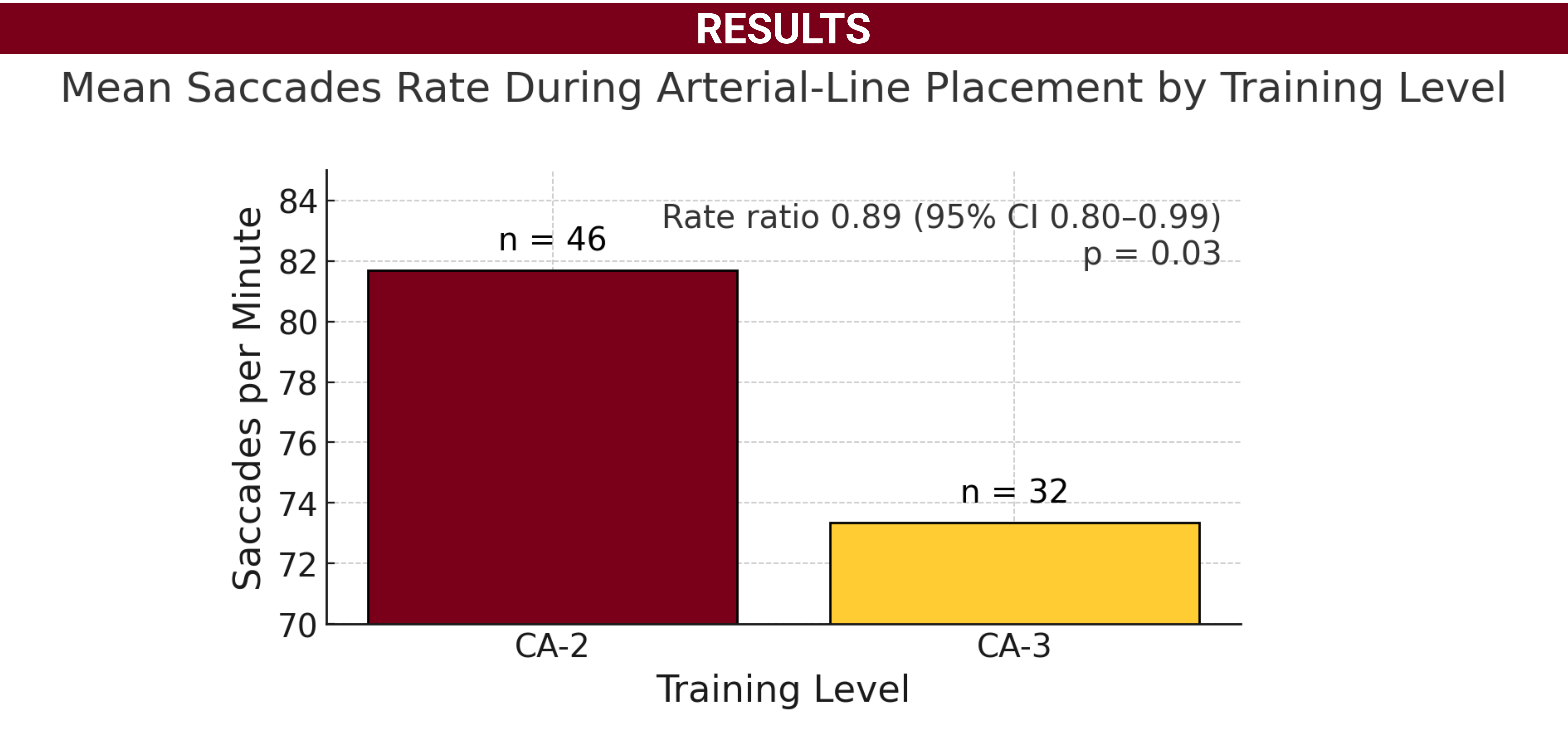
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CONCLUSION

- Eye-tracking captured meaningful differences in visual behavior during arterial line placement across training levels.
- Compared with CA-2 residents, CA-3 residents demonstrated a statistically significant **11% lower saccade rate**, suggesting more efficient visual scanning and fewer gaze transitions.
- Fixation rates were higher in CA-3s, though not statistically significant. This pattern may be suggestive of more deliberate attentional allocation
- These findings support the construct validity of gaze metrics as markers of procedural expertise and highlight the feasibility of integrating eye-tracking into procedural training.
- Incorporating gaze feedback could help identify learners who deviate from expert patterns, target coaching, and potentially enhance patient safety.

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