

# Improving Tracheostomy Training with Avtrach® Wearable Simulator

*A Multi-Institutional, Randomized Controlled Trial*

## Overview

This research compared two simulation modalities for teaching tracheostomy suctioning: the **AvTrach® Wearable Artificial Airway Simulator (AWAS)** and a traditional High-Fidelity Manikin (HFM). The goal was to determine which method better improves competency, manages stress, and increases learner engagement in high-stakes airway management.

## Key Findings



**Higher Clinical Competency:** AWAS group scored significantly higher in real patient scenarios (median score 34 vs. 30,  $p < 0.001$ ).



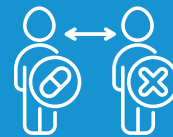
**Improved Stress Management:** AWAS participants showed more stable cortisol levels when transferring skills to bedside care during clinical practice, indicating improved stress management.



**Increased Engagement:** Participants found the wearable simulator more realistic and emotionally engaging, thanks to patient interaction and dynamic feedback.



**Comprehensive Fidelity:** AWAS provided physical fidelity (realistic anatomy), conceptual fidelity (clinical cues), and psychological fidelity (emotional immersion) — all crucial for effective simulation that is transferable.



## Study Design

- Multisite study conducted at Johns Hopkins University and Durham VA Hospital
- N = 69 healthcare students and novice professionals enrolled in study
- Participants were randomized into two groups: AWAS (experimental) and HFM (control)
- Measured outcomes included skill competency, salivary cortisol levels (stress) and engagement

## Conclusion

Training with Avkin's wearable simulator leads to superior performance, emotional regulation, and stress resilience when encountering similar patients at the bedside. The wearable simulator provides a more immersive and effective learning experience compared to traditional manikins.

[Click Here to Read the Full Article](#)