



The objective of this study was to validate the transfer of ultrasound-guided Internal Jugular Central Venous Catheterization (US-IJCV) placement skills from training on a Dynamic Haptic Robotic Trainer (DHRT), to placing US-IJCVs in clinical environments” Chen et al (2019).

Abstract:

**BACKGROUND:** The objective of this study was to validate the transfer of ultrasound-guided Internal Jugular Central Venous Catheterization (US-IJCV) placement skills from training on a Dynamic Haptic Robotic Trainer (DHRT), to placing US-IJCVs in clinical environments. DHRT training greatly reduces preceptor time by providing automated feedback, standardizes learning experiences, and quantifies skill improvements.

**METHODS:** Expert observers evaluated DHRT-trained (N = 21) and manikin-trained (N = 36) surgical residents on US-IJCV placement in the operating suite using a US-IJCV evaluation form. Performance and errors by DHRT-trained residents were compared to traditional manikin-trained residents.

**RESULTS:** There were no significant training group differences between unsuccessful insertions (p = 0.404), assistance on procedure (p = 0.102), arterial puncture (p = 0.998), and average number of insertion attempts (p = 0.878). Regardless of training group, previous

central line experience significantly predicted whether residents needed assistance on the procedure ( $p = 0.033$ ).

**CONCLUSION:** The results failed to show a statistical difference between DHRT- and manikin-trained residents. This study validates the transfer of skills from training on the DHRT system to performing US-IJCV in clinical environments.

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### Reference:

Chen, H.E., Sonntag, C.C., Mirkin, K.A., Pepley, D.F., Han, D.C., Moore, J.Z. and Miller, S.R. (2019) From the simulation center to the bedside: Validating the efficacy of a dynamic haptic robotic trainer in internal jugular central venous catheter placement. *American Journal of Surgery*. October 21st. doi: 10.1016/j.amjsurg.2019.10.026. .

