

Synthetic training models provide equivalent physiologic stress response in learners

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A study from the University of Minnesota Combat Casualty Training Consortium shows no significant differences between the use of live tissue models and synthetic training models in the learners' stress level. The study being presented at the CHEST Annual Meeting 2018 in San Antonio shows that similar stress levels can be reached in the learner while learning critical medical procedures with synthetic models. This type of simulation may be able to reduce the use of live animals for training without sacrificing educational quality.

Researchers performed a [randomized controlled study](#) of 277 learners undergoing army combat simulation [training](#) and compared procedural training and assessment on a live tissue goat model versus the best-in-class synthetic training models. Participants were randomized twice, first to train on live or synthetic models, then to determine whether final assessment would be performed on live or synthetic models. Simulated procedures included hemorrhage control, needle thoracostomy, tube thoracostomy and cricothyrotomy. Physiologic stress responses of the medics were evaluated during the final assessment. Salivary amylase and cortisol levels were also used to assess stress response and were measured at baseline, t+5, 15, 25, 35, and 45 minutes post event start.

No significant differences were seen for peak stress response of salivary cortisol or amylase, regardless of LT or STM method for training or assessment. In addition, the stress response did not correlate significantly with total performance score.

"High-fidelity simulation offers many advantages, including broad exposure to procedures, their complications and the opportunity for repetitious learning in a nonclinical setting," says lead researcher Dr. Jonathan Keller. "The stress of learners undergoing simulation events is a growing field of interest. This study shows that synthetic models can produce a [stress response](#) equivalent to that of live tissue during simulation training."

More information: JONATHAN KELLER et al, THE PHYSIOLOGIC STRESS RESPONSE OF LEARNERS DURING CRITICAL CARE PROCEDURES: LIVE TISSUE VS SYNTHETIC MODELS, *Chest* (2018). [DOI: 10.1016/j.chest.2018.08.206](https://doi.org/10.1016/j.chest.2018.08.206)

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