

# Open vs. Percutaneous Cricothyrotomy

*A large cadaver study shows that inexperienced operators do better with open than with percutaneous technique.*

The dreaded "can't intubate, can't ventilate" scenario usually mandates cricothyrotomy, but which technique is best? A 2007 manikin study showed that cricothyrotomy, using the percutaneous Melker kit, took longer and had a higher failure rate than did open surgery or other percutaneous techniques ([JW Emerg Med Oct 24 2008](#)), whereas a 2008 cadaver study showed the Melker kit to be superior ([JW Emerg Med Feb 1 2000](#)). Now, authors compare four methods in the largest cricothyrotomy study to date using fresh cadavers.

Sixty-three German senior medical students were randomly assigned to perform cricothyrotomy (1 cadaver per student) by one of four methods: the traditional surgical technique, a surgical technique involving use of novel scissors sharpened on both sides of each blade, a catheter-over-needle technique (QuickTrach kit), or a wire-guided technique (Melker kit). Participants received 20 minutes of instruction on airway anatomy, tools, and techniques. The airway was not secured in 1 of 18 cases with the traditional surgical technique, in 0 of 14 cases with the novel-scissors technique, in 3 of 17 cases with the catheter-over-needle technique, and in 4 of 14 cases with the wire-guided technique. Complications (e.g., posterior tracheal wall injury) occurred in 0%, 36%, 71%, and 64% of the groups, respectively. The surgical techniques were faster than the percutaneous techniques, and the novel-scissors technique was the fastest.

**Comment:** Two aspects of this study limit its generalizability to the real world: Cadavers don't bleed much, and the surgical techniques were performed without use of the standard tracheal hook. Even so, the findings of this large cadaver study cast doubt on the superiority of commercial percutaneous kits. Conducting research on cricothyrotomy tools is difficult because the procedure is rarely performed. As we'll likely never know which is the "best" approach, each of us should learn one method and learn it well.

— *Daniel J. Pallin, MD, MPH*

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