

SOUTHWESTERN NEWS

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UT SOUTHWESTERN'S ONE-OF-A-KIND VIDEO-LAPAROSCOPIC LAB MAY CHANGE THE WAY SURGERY IS TAUGHT

DALLAS – September 23, 1998 – Darren Pollock, a third-year surgery resident, frowns with concentration as he tries to keep his eyes on the video screen and off his hands while suturing a foam sponge; finally, all of those youthful hours spent clutching the Nintendo joystick are paying off.

UT Southwestern Medical Center at Dallas is making a revolutionary change in its surgery-education technical-skills curriculum with the introduction of a unique video-laparoscopic training program. In a scenario akin to pilot training on flight simulators, surgery residents and third- and fourth-year medical students are undergoing intense laparoscopic- and basic-surgery skills training on an inanimate model. The technology used in the lab was donated by Storz Endoscopy and is valued at \$250,000.

"I've improved in these skills since my pre-test," Pollock said. "I'm certainly faster, I've cut my time in half."

In this new teaching lab, residents learn video eye-hand skills and acquire basic skills such as suturing, knot tying and forcep handling in a virtual, "patientless" setting.

"This teaching model allows the students and residents to gain knowledge and confidence prior to performing procedures on patients," said Dr. William Thompson, assistant professor of surgery. "And that of course is far better for both the patients and residents. We're emphasizing that they spend time practicing as much as they can for increased confidence."

At the six video-skills stations, participants have access to three devices. The movable,

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wand-like laparoscopic camera rests in the center guarded by endoshears and endostitch forceps on either side. Each of the six stations offers programs for developing different skills: "The Cobra Rope Drill," for example, develops agility with filamentous objects. Technical-skills rooms nearby provide adjunct training support. The rooms contain mock setups that help finesse difficult-to-master skills such as forcep manipulation and knot construction.

"Clearly, it's far better to practice on instrumentation than on a patient," said Dr. R. James Valentine, associate professor of vascular surgery and director of the surgery residency program. "This technology has made us rethink the way we teach surgery. It's a way for future surgeons to obtain necessary skills relatively quickly; it'll enhance patient care; and it'll enable surgeons to monitor the students' training."

The Guided Endoscopic Module (GEM) allows the surgeon to become familiar and subsequently more agile at performing procedures on a two- rather than the traditional three-dimensional plane; a vital skill in laparoscopic surgery. As laparoscopic surgery is a minimally invasive procedure, the surgeon only sees a small part of the body's interior; instead the video screen becomes the viewing surface.

"You lose your natural binocular depth perception when you're looking at the screen, and it takes a while to become accustomed to visual clues," said Dr. Daniel Jones, assistant professor of surgery and director of the Southwestern Center for Minimally Invasive Surgery. "But some of the residents are very good at this as they grew up playing video games."

UT Southwestern surgery educators have designed a study to assess the effectiveness of the new training system. One group of residents is required to practice on the equipment after the pre-test, conducted in the first week of the rotation, the remainder are not.

During the pre-test, a stopwatch times them on five skill drills, including dropping a bean

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in a dish and moving a small wood block by hooking a metal loop on top of the block. For two weeks after that, the practicing group spends 30 minutes daily, five days a week, on the trainer. In week four, all of the residents are post-tested on the five skills. Finally, a faculty member who isn't told which students had intense laparoscopic skills training and which did not, observes the residents as they perform surgery in the operating room.

"I'm getting more consistent in improving my times," said Elaine Tanaka, a second-year surgery resident who has just finished her post-test. "Before, my times would fluctuate in relation to the task. It took me a while to learn how to use the endostitch, so my times on the suture foam were slower." Both residents said that the checkerboard drill - in which lead letters are picked up with tweezer-like tongs and placed on a flat-surface grid - is the most difficult drill. It's a much-needed skill that translates to gall bladder and other surgeries, they said.

"If video eye-hand skills can be learned in a training model over a brief period of time, and acquisition of basic skills correlate with improved surgeon performance in the operating room, other medical schools will start to offer a skills curriculum," Jones said.

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