

USING CADAVERS TO ENHANCE SURGICAL TRAINING

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CONFLICTS OF INTEREST

- None
- A Special thanks to Dr. Summer Youker for initiating the cadaver lab at UC Davis and continuing to support resident education

ADDRESSING RESIDENT CONCERNS

- **More Cosmetics**
- **More Elective Time**
- **More Surgery training**
 - **8 weeks of Surgery rotations per year**
 - **Toe nail surgery every other week at VA with podiatry**
 - **Toe nail surgery/procedures are primarily done by podiatry**

DO CADAVERS HELP EDUCATE?

Intern Emerg Med
DOI 10.1007/s11739-015-1292-7



EM - ORIGINAL

Ultrasound-guided procedures in medical education: a fresh look at cadavers

Riley Hoyer² · Russel Means² · Jeffrey Robertson² · Douglas Rappaport² · Charles Schmier¹ · Travis Jones¹ · Lori Ann Stolz¹ · Stephen Jerome Kaplan² · William Joaquin Adamas-Rappaport³ · Richard Amini¹

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Abstract Demand for bedside ultrasound in medicine has created a need for earlier exposure to ultrasound education during the clinical years of undergraduate medical education. Although bedside ultrasound is often used for invasive medical procedures, there is no standardized educational model for procedural skills that can provide the learner a real-life simulated experience. The objective of our study was to describe a unique fresh cadaver preparation model, and to determine the impact of a procedure-focused ultrasound training session. This study was a cross-sectional

of learning ultrasound-based anatomy in addition to traditional methods. Student confidence was self-rated on a five-point Likert scale. Student confidence increased with statistical significance in all of the skills taught. The most dramatic increase was noted in central venous line placement, which improved from 1.95 (SD = 0.11) to 4.2 (SD = 0.09) ($p < 0.001$). The use of fresh cadavers for procedure-focused US education is a realistic method that improves the confidence of third year medical students in performing complex but critical procedures.

Fresh cadavers improve the confidence of third year medical students in performing complex procedures

DO CADAVERS HELP EDUCATE?

Turk J Urol. 2015 Jun; 41(2): 83–87.
doi: [10.5152/tud.2015.87422](https://doi.org/10.5152/tud.2015.87422)

PMCID: PMC4548662

Impact of cadaveric surgical anatomy training on urology residents knowledge: a preliminary study

[Serkan Özcan](#),¹ [Emre Huri](#),² [İlkan Tatar](#),³ [Mustafa Sarğın](#),³ [Tolga Karakan](#),² [Ömer Faruk Yağlı](#),¹ [Murat Bağcıoğlu](#),⁴ and [Stéphane Larre](#)⁵

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Abstract

Go to:

Objective:

Cadaveric dissection is used as a major tool for anatomy education at the medical school. In this study we aimed to determine how a uro-anatomy cadaveric dissection course would impact urology residents knowledge.

Materials and methods:

A three days course was given to 50 urology residents by experienced trainers in 1–3 June 2012 at Ege University Medical School's Anatomy Department, İzmir, Turkey. Efficacy of the course was assessed using a multiple choice questionnaire of 20 questions given before and after the course.

Results:

Completed questionnaires before and after the course were available for 25 residents (50%) that were included. Residents answered correctly to 11.7 out of 20 questions (59%) before the course and 13.0 out of 20 (65%) after ($p < 0.05$). In individuals analysis, 16 residents (64%) increased their scores, 4 (16%) had similar scores and 5 (20%) had lower scores. The number of correct answers for 6 out of the 20 questions was lower following the course.

Cadaveric surgical anatomy course helped improve resident knowledge

DO CADAVERS HELP EDUCATE?

[J Trauma Acute Care Surg.](#) 2013 Feb;74(2):664-70. doi: 10.1097/TA.0b013e31827d5e20.

Advanced surgical skills for exposure in trauma: a new surgical skills cadaver course for surgery residents and fellows.

[Kuhls DA](#)¹, [Risucci DA](#), [Bowyer MW](#), [Luchette FA](#).

⊕ Author information

Abstract

BACKGROUND: Surgical education is changing owing to workforce and economic demands. Simulation and other technical teaching methods are used to acquire skills transferable to the operating room. Operative management of traumatic injuries has declined, making it difficult to acquire and maintain competence. The ASSET course was developed by the Committee on Trauma's Surgical Skills Committee to fill a surgical skills need in resident and fellow education. Using a human cadaver, standardized rapid exposure of vital structures in the extremities, neck, thorax, abdomen, retroperitoneum, and pelvis is taught.

METHODS: A retrospective analysis of 79 participants in four ASSET courses was performed. Operative experience data were collected, and self-efficacy questionnaires (SEQs) were administered before and after the course. Course evaluations and instructor evaluation data were analyzed. Student's and paired samples t tests as well as analysis of variance and Spearman ρ correlation coefficient analysis were performed using α at $p < 0.05$. We hypothesized that the ASSET course would teach new surgical techniques and that learner self-assessed ability would improve.

RESULTS: Participants included 27 PGY-4, 20 PGY-5, 24 PGY-6 or PGY-7 and PGY-8 at other levels of training. Self-assessed confidence improved in all body regions ($p < 0.001$), with the greatest increase in upper extremity and chest. Pre- and post-SEQ scores correlated with trauma operative experience. Precourse SEQ scores differed by level of training. Instructor evaluations correlated with previous experience on a trauma service. Program evaluations averaged 4.73 on a 5-point scale, with gaining new knowledge rated at 4.8 and learning new techniques at 4.72.

CONCLUSION: A standardized cadaver-based surgical exposures course offered to senior surgical residents adds new surgical skills and improves participant self-assessed ability to perform emergent surgical exposure of vital structures.

Adds new surgical skills and improved self-assessed ability to perform procedures

HOW DO I SET UP A CADAVER LAB?

- Contact local body donation program and fill out paperwork
- Request participation from as many skilled surgical faculty as possible
- Collect expiring surgical materials
- 2 hour pre-cadaver lab surgical skills training session
- 4 hour hands-on cadaver session

Body Donation Program
4800 Broadway, Suite 100
Sacramento, California 95820

UCDAVIS
SCHOOL of MEDICINE

Telephone (916) 734-9560
Fax (916) 734-9563

ANATOMICAL MATERIALS REQUEST APPLICATION

Requestor: (must be physician, faculty, or professional scientist)

Name: _____ Title: _____

Organization: _____

Address: _____

City: _____ State: _____ Zip: _____

Telephone: _____ Fax: _____

Email: _____

Requestors' Supervisor or Chair: (must have supervisory duties of requestor)

Name: _____ Title: _____

Organization: _____

Address: _____

PROCEDURES

- Complete and partial nail avulsions
- Nail bed and matrix biopsies
- Punch biopsies
- Excisions
- Flaps
- Grafts

OUTCOME

Answer

▼ 1st

▼ 2nd

▼ 3rd

Total

The cadaver lab has helped me feel more comfortable performing basic skin surgery techniques

3

The cadaver lab has helped me with my surgical skills in clinical practice

3

2

8

The cadaver lab has helped me feel comfortable in performing nail avulsions

Answered: 8 Skipped: 0

The cadaver lab has helped me feel comfortable in performing nail biopsies

Answered: 8 Skipped: 0

	Disagree	Somewhat Disagree	Neutral	Somewhat Agree	Agree	Total	Weighted Average
(no label)	0.00% 0	0.00% 0	0.00% 0	0.00% 0	100.00% 8	8	5.00

OUTCOME

“Valuable in increasing hands on experience with surgical techniques and learning new techniques”

The cadaver lab session was very valuable in increasing hands on experience with surgical techniques and learning new techniques. It was so helpful to have surgical faculty present to provide teaching and guidance. I really appreciated having this session!

Fantastic experience.

Great lab!

This is an incredible opportunity for resident training on nail procedures as well as general surgical technique.

Thanks all the attending involved in organizing and teaching.

This was very helpful. I think, if possible, this would be a great addition to our yearly curriculum.

“Incredible...training on nail procedures”

“Would be a great addition to our yearly curriculum”

COST

[Am J Surg](#). 2014 Feb;207(2):201-8. doi: 10.1016/j.amjsurg.2013.08.025. Epub 2013 Oct 23.

Cost and logistics of implementing a tissue-based American College of Surgeons/Association of Program Directors in Surgery surgical skills curriculum for general surgery residents of all clinical years.

[Henry B](#)¹, [Clark P](#)¹, [Sudan R](#)².

Author information

Abstract

BACKGROUND: The cost and logistics of deploying the American College of Surgeons (ACS)/Association of Program Directors in Surgery (APDS) National Technical Skills Curriculum across all training years are not known. This information is essential for residency programs choosing to adopt similar curricula.

METHODS: A task force evaluated the authors' institution's existing simulation curriculum and enhanced it by implementing the ACS/APDS modules. A 35-module curriculum was administered to 35 general surgery residents across all 5 clinical years. The costs and logistics were noted, and resident satisfaction was assessed.

RESULTS: The annual operational cost was \$110,300 (\$3,150 per resident). Cost per module, per resident was \$940 for the cadaveric module compared with \$220 and \$240 for dry simulation and animal tissue-based modules, respectively. Resident satisfaction improved from 2.45 to 4.78 on a 5-point, Likert-type scale after implementing the ACS/APDS modules.

CONCLUSIONS: The ACS/APDS skills curriculum was implemented successfully across all clinical years. Cadaveric modules were the most expensive. Animal and dry simulation modules were equivalent in cost. The addition of tissue-based modules was associated with high satisfaction.

Cadaveric Models Were MOST EXPENSIVE

COST

■ Supplies

■ For 15 residents

- box of scalpels
- box of small/med/large gloves
- 5 3cc syringes with large needles and 5 30gauge needles
- 15 scalpel handles vs disposable scalpels
- 15 suture kits (needle driver, scissor, forceps)
- 7 suture scissors
- 7 heavy gauge hemostats
- Nail spatulas and Freer (periosteal) elevators
- Nail splitters (anvil splitter)
- Suture of all types (look for any that are expired or soon to expire)

■ Cost of Cadavers

- **Pricing for 4 upper extremities, 1 head= \$5,220**

CONCLUSIONS

- If a program can afford the cost, cadaver labs can serve as a valuable procedural teaching tool

THANK YOU