

St. Louis University School of Medicine
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Dear Dr. Monteleone,

I respectfully ask St. Louis University School of Medicine to terminate old-fashioned pig labs in which students inject pharmaceuticals into anesthetized pigs who are killed after the drill.

The way in which a pig's vessels constrict or dilate in response to a drug varies significantly from the same response in a human. According to *Science Journal*, a digesting drug is exposed to various body functions that deviate from one species to another. By the time a drug is excreted from a pig, monkey or mouse, it doesn't look anything like the same drug voided from a human. The *Science Journal* report concludes that drug studies in animals produce results that are unreliable in humans.

Indeed, everything from incision pressure to size, location, texture and elasticity of internal organs varies between pigs and people.

In addition, student researchers cannot separate the effects of stress hormones in animals from the process under analysis. Findings published in *Contemporary Topics in Laboratory Animal Science* (Autumn 2004) reveal animals display quantifiable stress reactions to routine laboratory practices. These stress effects can influence the researcher's understanding of scientific discovery.

Fortunately, most schools have eliminated live animals from their curricula altogether. Innovations in medical simulation technology, computerized programs, manikins and other cost-effective alternatives, increased awareness of ethical concerns, and a growing acknowledgement that medical training must be human-focused have all facilitated this shift.

At Harvard, students accompany surgeons inside operating rooms to obtain firsthand knowledge about *human* patients. Over 80% of U.S. medical schools have replaced animal experiments with non-animal teaching tools. I urge St. Louis University to join Harvard, Yale, Stanford, Johns Hopkins, and hundreds of schools that no longer use outmoded animal experiments to train medical students.

Thank you for your valuable time and consideration,

SLU med school is criticized for use of pigs in lab class

By Tina Hesman Saey * ST. LOUIS POST-DISPATCH * 6/17/2006

<http://www.stltoday.com/stltoday/news/stories.nsf/sciencemedicine/story/E3A690B47C0E1357862571900081A57F?OpenDocument>

FYI, This letter was printed in the St. Louis Post Dispatch on Saturday, June 24, 2006

Letters to the editor
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**RE: "Should pigs be used to help SLU med students learn?"
By Tina Hesman Saey, 6/18/06 Newswatch**

I am compelled to respond to the inaccurate reporting in "Should pigs be used to help SLU med students learn?" In SLU's optional pig lab, students inject drugs into pigs who are killed after the drill. According to instructor Mark Knuepfer, students "walk away never, ever forgetting what this (drug) can do if they give it to a patient."

Yea, if the patient is a pig. Watching a pig's vessels constrict or dilate in response to a drug is a lot different than observing the same response in a human. Everything from incision pressure to size, location, texture and elasticity of internal organs varies between pigs and people.

Growing recognition of the inability to extrapolate data from animals to humans has prompted the use of non-animal systems that are more relevant to human health.

U.S. Secretary of Health and Human Services Mike Leavitt says nine out of ten experimental drugs fail in clinical studies because "we cannot accurately predict how they will behave in people based on animal studies."

Fen-phen, Premarin, Vioxx, Celebrax, Bextra... It's hard to stay current with the escalating list of drugs pulled from the market or slapped with restrictions after animal experiments determined they were "safe" for human use.

The Post tried to make this into an "animal rights" issue. But it is both a taxpayer and human rights issue. If our tax dollars fund government research grants to universities such as SLU, they should pay for labs that teach *human-focused* skills. After all, I'd hate to be stuck in an operating room with a young physician whose last patient was a pig.

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Mark Knuepfer teaches a popular second-year medical school course on the cardiovascular system at St. Louis University.

An optional laboratory with his course demonstrates how a drug interacts with certain natural chemicals in the body to affect blood pressure and blood flow to organs. Everybody agrees that doctors need to know that. But just how they should learn it has become controversial.

St. Louis University uses two or three pigs each year to demonstrate the concept.

Now, a group of animal rights activists is saying that those teaching methods are illegal. It has called on the U.S. Department of Agriculture to investigate the school and shut down its use of animals in the course.

The group, called the Physicians Committee for Responsible Medicine, filed a complaint recently with the agriculture department. It says the Animal Welfare Act mandates that schools stop using animals when alternatives are available. Human simulators, lectures, videos and shadowing surgeons are all viable alternatives to the use of animals, says the Physicians Committee for Responsible Medicine, a group dedicated to ending the use of animals in research and teaching.

"We are now so far down that road to superior alternatives that it's extremely puzzling why any medical school would continue using animals," said Dr. John J. Pippin, the senior medical and research adviser for the Physicians Committee for Responsible Medicine.

St. Louis University also uses human simulators in its teaching. The mannequin-like simulators give readouts of heart rate and blood pressure. But they have no blood, so students can't see how vessels constrict or dilate.

SLU's medical students are introduced to the cardiovascular concepts using simulators in their first year. They encounter the material in lectures again in the second year, but only five months before they lay their hands on human patients, many of the students are still fuzzy about the concept, instructor Knuepfer said. So they enroll in his optional lab.

By the end of the pig demonstration, the concept has crystallized in the future doctors' minds.

"The students walk away from there never, ever forgetting what this (drug) can do if they give it to a patient," Knuepfer said.

No letter for WU

The physicians committee is made up of doctors and lay people concerned about animal welfare. Critics say that less than 5 percent of the group's membership is physicians. The activist group says concerned medical students often alert the group to the use of animals, but it also surveys deans to determine which schools use animals in the classroom.

But the surveys leave room for error. For example, St. Louis University was one of a dozen schools to get a letter of complaint from the PCRM. Washington University's medical school also demonstrates physiology principles in a popular elective course that uses two pigs each year. Yet Washington University did not receive a letter from the PCRM, because the university is not on the

group's list as using animals since it stopped using dogs in a student laboratory. The group said it was unaware that Washington University used pigs.

Many schools teach students using animals, but do so in ways that don't fit the criteria in the activist group's questions, said Robert G. Carroll, chairman of the American Physiological Society's education committee. His school, Brody School of Medicine at East Carolina University, is not on the PCRM's list of schools that use animals. The school does not use animals exclusively for medical education, but medical students do experiments on animals that were originally used in other research at the university, he said.

Carroll estimates that at least half of medical schools incorporate animals into the learning experience.

The USDA regularly inspects schools that use animals to see that they meet the requirements of the Animal Welfare Act.

At SLU, the physiology course using pigs was limited to two sections admitting 30 students each. But so many more students wanted in that the instructors added a third session last year.

"I think some schools tell PCRM whatever they think will shut them up," said Dr. Richard Doyle, the head of the department of comparative medicine at St. Louis University. "We don't think that educational objectives are best served by surveying other schools to see what they're doing."

The school's animal care committee recently reviewed the activist group's complaints and chose not to respond, Doyle said.

"We agreed that much of what was in the letter was a heavy-handed threat to the university and much of it was inaccurate. We sustained our support for the project," Doyle said.

Outside groups are in no position to judge the curriculum and learning requirements of students at any medical school, said Tony Mazzaschi, senior associated vice president for research at the Association of American Medical Colleges.

The picture the animal rights organization paints is that medical schools are abandoning animal laboratories in favor of better teaching tools, Mazzaschi said.

"This is an easy one to take a snap-shot of and find a misleading angle," he said.

Even if most medical schools choose to forgo using animals, the decision is more often based on economics, lack of space, equipment and qualified instructors than educational considerations, said Alice Ra'anan, the director of government relations and public policy for the American Physiological Society.

The animal activist group is not qualified to make assessments of the academic viability of simulators and other alternatives to animals, Ra'anan said.

Pippin says that human simulators offer a better learning experience for students and that schools must switch to alternatives to comply with animal welfare laws.

"It's past time to catch up to where medical education is now. It's time to get over the inertia and the idea that you have to put your hands inside a living body that's not a human body," Pippin said.

Changes at SLU

St. Louis University has reduced its use of animals from numerous dog laboratories and a dozen pigs each year to only two or three pigs per year, Knuepfer said. A few students balk at the use of even a small number of animals. Knuepfer says he urges those students and others who prefer to learn in a different manner not to take slots that could be valuable for hands-on learners.

Many of the simulators used in medical education were developed by the physiological society's members, Ra'anan said. But even the developers acknowledge that the simulators are not always adequate to teach concepts future doctors must grasp to treat patients.

"These are future physicians. They're going to be working with flesh and blood human beings, not computer screens," Ra'anan said.

In a letter to the agriculture department, the physiological society refuted the PCRMs' assertions that alternative teaching methods can completely replace animals in the classroom.

"The American Physiological Society believes that animal laboratories remain valid teaching tools in medical and veterinary education. The PCRMs' assertions are baseless and should be ignored," the letter said.

Meanwhile, for Knuepfer and his colleagues at St. Louis University, the activist group's efforts constitute an effort to deny students a complete learning experience.

"This is a matter of freedom of curriculum for us," Knuepfer said. "I feel very strongly that the education of these students is of the utmost importance."

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