

## Using innovation to teach veterinary students

### Project Leads:

- Mary Ann McLoughlin, D.V.M.,  
The Ohio State University
- Don Stredney,  
Ohio Supercomputer Center

### Research Title:

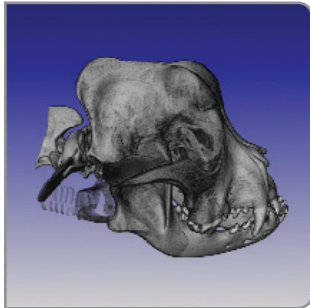
Employing Simulation Technologies for Veterinary Surgical Training to Support the Effort to Reduce Animal Use: Accelerating Adoption

### Funding Source:

The Alternatives Research & Development Foundation

### For more information:

[www.osc.edu/research/Biomed/projects/animals](http://www.osc.edu/research/Biomed/projects/animals)



Veterinary schools nationwide are continually seeking new methods to reduce the use of live animals in surgical training. Yet, the question remains whether this reduction negatively affects the surgical proficiency of veterinary students and residents require prior to graduation.

The Ohio State University College of Veterinary Medicine is collaborating with the Ohio Supercomputer Center to address both issues.

OSC researchers are applying technologies employed for human medical training to veterinary medicine. Working in coordination, OSC and the College of Veterinary Medicine have created computer models of a dog's head, pelvis and spine, using non-invasive imaging techniques such as computed tomography and magnetic resonance imaging.

The computer models will be used in simulations for teaching regional anatomy and procedural surgical techniques—without harming any animals. For example, in the study's first year they integrated the spine data with software that provides interactive drilling, developed from human temporal bones simulation (see story on page 17), to emulate laminectomies, a surgical procedure for dogs with intervertebral disc disease.

After the simulations are incorporated into the veterinary surgical curriculum, the team will conduct studies to validate their usefulness and effectiveness in the veterinarian curriculum.

"The implications for teaching anatomy through computational modeling extends far beyond medical or veterinarian colleges," said Don Stredney, director of OSC's Interface Lab and research scientist for biomedical applications. "In the near future, I think all levels of education will use computational modeling, especially in middle and high school. Instead of dissecting frogs in biology class, there could be a standardized curriculum incorporating computational models and simulations that all schools use, thereby reducing the need for purchased, expensive, and dwindling physical specimens."

