

Laboratory Evaluates Animals in Motion

The Claire Giannini Hoffman Equine Athletic Performance Laboratory (EAPL) is dedicated to developing new tools and techniques for research and clinical applications.

The laboratory is directed by James H. Jones, professor of comparative respiratory and exercise physiology. The new facility completed in May 2005 comprises a research laboratory, an equine exercise laboratory with a specialized research treadmill, and an equine exercise clinic with a treadmill for Veterinary Medical Teaching Hospital patient examinations.

“The treadmill allows an animal to be evaluated with the diagnostic equipment during exercise,” says Dr. Jones. Performance questions may involve orthopedic, cardiologic, respiratory, muscle, airway disease or even pharmacological issues in the horse, and some problems may be difficult to observe at rest.

“While a horse is running on the treadmill, we can take direct measurements in the blood vessels and chest and study how the animal obtains or uses energy, or how diseases develop,” says Dr. Jones.

The EAPL is set up primarily for horses, but the treadmills, which can operate at racing speeds, can be slowed for small animals.

The treadmills have built-in cutouts for force plates to measure the weight distribution on an animal’s feet while it is running. Video cameras at different angles allow investigators to construct 3-D images of animals in motion.

Dr. Jones has studied physiological questions pertaining to a diverse group of animals including emus, ostriches, capybaras, pronghorn antelope, and chimpanzees. When looking at questions of metabolism, respiration and cardiovascular function, he says, “What makes an animal ‘special’ is based in part on its size, and horses are big, highly selected athletes.”

The EAPL fosters a collaborative “task force” approach. Experts in biomechanics, bone, imaging and surgery may convene to evaluate a lame horse in the clinic.

“The school has a large faculty with a range of overlapping interests and expertise, and the school’s imaging capabilities are the envy of most other veterinary schools,” says Dr. Jones.

“What we can do with the facility is almost limitless,” he says. “We’re pushing the envelope in developing new clinical and research tools and understanding—and often, when you answer one question, you generate far more.”

