

Louisiana
State
University

School of
Veterinary
Medicine

Equine
Health
Studies
Program

*Dedicated to the
Health, Well-Being
and Performance of
Horses through
Veterinary Research,
Education and
Service*

Fall 2005

EHSP Helps with Equine Rescue and Shelter Efforts

The Equine Health Studies Program of the LSU School of Veterinary Medicine established the Horse Hurricane Helpline on Thursday September 1 and faculty, staff and students began fielding countless calls around the clock from people reporting horses in need of rescue. A "Central Command" was set up in conjunction with the Helpline, whereby areas were mapped out showing the location of horses in need, and a rescue strategy was quickly developed. The LSU Hurricane Equine Rescue Operations began assembling rescue teams comprised of veterinarians and staff from the LSU Equine Clinic, private equine veterinarians and numerous volunteers, often times consisting of a convoy of several trucks and trailers.

"We deployed between one and seven teams daily beginning on Friday, September 2, once we were granted access into the affected areas," said Dr. Rustin M. Moore, director of the EHSP. "Some days we rescued 60 or 70 horses from a given area and other times we rescued only one or two. This was an extremely dynamic process." Some of the horses required rescue out of high water and others needed to be moved to an area where they could reliably and safely be provided with sufficient food and water.

Following Hurricane Katrina, nearly 400 horses were evacuated from seven parishes and transported to the Lamar-Dixon Expo Center, where a satellite veterinary clinic staffed by LSU Equine Clinic personnel and numerous volunteers was set up to provide veterinary medical care, shelter, food, water, and lots of compassionate tender loving care. The horses underwent careful identification and documentation upon arrival for purposes of reuniting them with their owners. Some horses required medical treatment in the field prior to transport, and all horses were thoroughly examined and evaluated by veterinary staff at the Lamar-Dixon facility and provided necessary treatment. Care was provided by veterinarians, veterinary students, and volunteers under the supervision and guidance of an LSU Equine Clinic staff veterinarian. A volunteer served as the coordinator of the equine facility at Lamar-Dixon and helped keep track of the horses and made sure sufficient food, water, supplies, and volunteers were available.



Volunteers work the LSU Horse Hurricane Helpline.

The primary goal was to care for these horses until they could be reunited with their owners. Several of the horses required some level of veterinary care while at Lamar-Dixon and approximately 10 of the horses required referral to the LSU Equine Clinic for more advanced veterinary medical care. The remaining 20 (out of the original 400 horses) housed at Lamar-Dixon were moved to nearby foster farms when the shelter closed on October 26. As of November 21, nine of these horses with identified owners are still being fostered and nine others with no known owners (five with microchips, two with tattoos, and two with no identifying marks) are being cared for at these facilities until their owners can be identified. "We still are hopeful that we will be able to identify the owners of the remaining horses," said Dr. Moore.

"The response of the numerous people involved in this rescue operation was nothing short of amazing considering the enormity and complexity of the problems resulting from Hurricane Katrina, and compounded by Hurricane Rita," continued Dr. Moore. "The most rewarding part of this operation has been to save the lives of these horses and to reunite horses and owners. It has been said that veterinarians are good for horses; and horses are good for people. It is our greatest reward to see that circle complete, to play a role in

(Continued on page 3)

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EHSP Faculty and Staff visit with horsemen at a hospitality breakfast prior to the Two-Year Old-in-Training Sale at the Fair Grounds Race Course in New Orleans on March 22.



Mark Your Calendars

Stallion Service Auction

October 14-December 16, 2005
See article on page 5.

Louisiana Veterinary Medical Association Equine Seminar

January 22-24, 2006
Bossier City, La.
Call Dr. James "Sonny" Corley
at 337-235-9945.

Equine Artificial Insemination Workshop for Owners and Breeders

January 28-29, 2006
See article on page 19.

Open House

February 4, 2006
Don't miss this opportunity to tour the School of Veterinary Medicine and see exhibits and demonstrations, including the equine treadmill and an equine parade of breeds. For more information call 225-578-9900.

"Horses leave hoof prints on your heart."

Anonymous

"It is the very difficult horses that have the most to give you."

Lendon Gray

Equine Health Studies Program



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Animals in Art Exhibit

March 19-April 16, 2006

Visit the School of Veterinary Medicine Library and view this annual art exhibit featuring artists from around the world. For more information call 225-578-9900.

Hill's Great Rover Road Run

Saturday, March 24, 2006

The School of Veterinary Medicine is hosting a 5K run and a 1 mile Fun Run/Walk with Rover. Leashed pets are welcome for this annual race benefitting the Student Chapter of the American Veterinary Medical Association. For more information, call 225-578-9900.

Hurricane Rescues . . .

(Continued from page 1)

protecting the bond between humans and animals, and to experience in the joy that so many of these owners have had in being reunited with their horses that they care so deeply for."

Many of the owners lost absolutely everything. Their barns were destroyed by wind, tidal surge and flooding. The only thing many of them have to hold onto is their horse; thus, these horses represent an extremely powerful emotional attachment to their lives. "We have witnessed numerous tearful reunions of horses with owners who thought their horses had perished subsequent to the storm," said Dr. Moore.

In addition, the LSU Hurricane Equine Rescue Operations teams rescued over 300 dogs, several cats and some birds, rabbits, goats, potbellied pigs, iguanas, and even several people. The group continued to haul feed and water for horses, livestock, dogs and cats into these areas for weeks after the storms. Numerous truckloads of food and supplies (including generators) were delivered to the people that remained behind in areas in St. Bernard and Plaquemines parishes to help care for the horses and other animals.

Just as the role of rescuers changed to that of situation monitors and supply providers, the state was hit yet again with another extremely dangerous storm. Hurricane Rita slammed into the Louisiana coast on September 23, causing additional flooding in some of the mid-eastern portions of the State, and brought hurricane winds, rain, and 15-foot tidal surges into the Southwestern region of Louisiana. Again, LSU was there. Reactivating the helpline 24 hours before the storm hit, the Equine Clinic again received calls for help. Immediately upon learning of the hardest hit areas, LSU was instrumental in coordinating efforts with local veterinary practitioners and parish officials. A new staging area, the SugArena in New Iberia, La., was identified as the most adequate and strategically located facility for housing displaced horses and other animals.

LSU personnel, along with area volunteers, and local practitioners again embraced the task of organizing rescue efforts as they were needed. While the storm experience was similar to that of Katrina, the aftermath was different in

that the marshlands of southwestern Louisiana are not bound by levees. The tidal surge swept seaward almost as quickly as it came ashore, but its impact was very similar. Homes and businesses were ripped from their foundations and shrimp boats and sea life were found displaced in the middle of sugar cane fields. Most livestock were left in open pasture, a lesson learned from Hurricane Katrina. And while many were able to find high ground, several were caught in fences and sadly drowned from the force of the flood.

Rescue teams were dispatched to Iberia, Vermillion, and Cameron Parishes. Others went further west to areas near Lake Charles and Sulphur. LSU teams brought 20 horses out of Sulphur and delivered needed veterinary supplies to SugArena to assist with the effort of the local practitioners who monitored the day to day health of the evacuated horses. Over 80 horses were evacuated or rescued and taken to SugArena for veterinary care, food, water, and shelter. Numerous other horses and cattle were rescued or evacuated by owners and ranchers.

LSU faculty and staff members surveyed the area via helicopter with the assistance of the U.S. Coast Guard. Numerous horses were identified and marked with GPS coordinates in preparation for future hay and feed distribution. LSU continues to work effectively and cooperatively with many organized groups, volunteers and donors to provide feed to affected producers throughout south Louisiana.

Nearly 50 faculty, staff, and students of the LSU EHSP, along with private equine practitioners and volunteers, completely refocused their priorities over eight weeks and worked tirelessly to assist the horses, horsemen and horsewomen, and other animals and owners in an attempt to restore some normalcy to the people whose lives and property have been so severely affected by the these storms.

"This entire experience taught those involved many valuable lessons regarding how to

assimilate and organize a team to respond to a disaster of this magnitude," said Dr. Moore. "Few if any of us were prepared for the enormity and complexity of this disaster and its aftermath, but everyone rose to the challenge and helped to make this operation successful and rewarding." There will be ongoing needs and challenges faced by many people, farms and businesses as the state's equine industry, which prior to the storm was ranked fifth nationally and worth an estimated \$2.5 billion, begins to recover from the effects of these two storms. "We continue to help coordinate delivery of hay, feed, and supplies to affected areas," said Dr. Moore.

While countless resources were expended during these rescue efforts, the LSU equine program directed all incoming donations intended to assist the Louisiana horse victims of Hurricane Katrina (e.g., rescue, recovery, veterinary care, sheltering, and rehabilitation) to the Equine Committee Foundation of the Louisiana Veterinary Medical Association. For those individuals wanting to help support the LSU EHSP, please make checks payable to the LSU Foundation, write Equine Health Studies Program on the memo line, and mail to Ky Mortensen, Director of Advancement, Equine Health Studies Program, School of Veterinary Medicine, Louisiana State University, Baton Rouge, LA 70803. For more information on the Hurricane Equine Rescue Operation or the EHSP, please visit www.LSUEquine.com.



Horse in flood water being rescued by a member of the LSU Hurricane Equine Rescue Operation. Photo courtesy of Dr. Neil Henderson, a private veterinary practitioner from Ruston, La., working with the LSU Hurricane Equine Rescue Operation.

Director's Message

Greetings from the LSU Equine Health Studies Program! I should begin by apologizing for the tardiness of this issue – we were in the process of assembling its contents in August when Hurricanes Katrina and Rita disrupted our plans along with many others in South Louisiana and Mississippi. Although we sustained no damage here at the LSU Equine Clinic (in fact we did not even lose electrical power), we were affected mainly because of the needs of horses and horse owners, breeders and trainers, and others involved in the diverse and vibrant Louisiana equine industry resulting from these two unprecedented and powerful storms. Like others, we completely refocused our energy and priorities from our regular activities to assist with equine rescue and recovery for over eight weeks.

I am extremely proud of the faculty, interns, residents, technicians, staff and students of the EHSP and the numerous volunteers from Louisiana and all over the United States for their unselfishness, dedication, and tireless work on behalf of all aspects of the Hurricane Equine Rescue Operation. These storms were forceful and destructive, and the complexity and enormity of the rescue of people and animals in its aftermath were equally unprecedented. However, the team of individuals rose to the challenges and overcame all obstacles to successfully rescue, treat and reunite nearly 500 horses from the two hurricanes. This would not and could not have happened without every single person that contributed their time and resources. We also have to extend our thanks to the numerous companies, organizations, groups and individuals who donated their time and much needed resources (e.g., hay, feed, bedding, buckets, halters, lead ropes, grooming utensils, stall cleaning equipment, medical supplies, truck and trailers, and money), without which our efforts would not have been nearly as successful.

Prior to the hurricanes coming ashore, we had established our EHSP Advancement and ESHP Veterinary Advisory Councils to help guide and assist us as we strive to meet our objectives. The damage the state's

equine industry may have sustained from these storms will not prevent us from moving forward with our initiatives to improve all aspects (clinical service, industry outreach, teaching/ instruction, scientific investigation) of our program. The effects of the storms will require us to re-think our strategies and our timelines, but we will succeed in becoming the elite equine biomedical program each and every constituent of the state's equine industry deserves and of which they can be confident and proud to be a part.

The faculty and staff of the EHSP recently updated our strategic plan to meet the programmatic needs for today and in the future to facilitate achieving our collective mission and vision. We are dedicated and committed to this plan. We always seek constructive ideas and comments from everyone to improve every facet of our program and its effect on the horses and horsemen and horsewomen of the industry.

Because of the tremendous impact the storms and their aftermath have had on individuals, companies, organizations and the state, our fundraising efforts will need to be focused more regionally and nationally in order to see some of our planned expansions and much needed new facilities and equipment become a reality, including construction of a new Equine Isolation Unit for hospitalizing critically ill and injured horses with infectious/contagious disease, a new Equine Reproduction Unit, enabling us to continue to provide routine and advanced reproductive services; an expanded reception area, medical records and client waiting area; and acquisition and installation of a standing MRI (magnetic resonance imaging) unit to improve our diagnostic capabilities for subtle soft tissue and bone injuries.

We have made some improvements to the facilities recently, including painting, installing new and expanded lighting, acquiring new furniture in the reception area, and a newly renovated client waiting area with new furnishings that provides a relaxing and soothing environment. Currently, we are proceeding with architectural plans to renovate the stalls in the Equine Clinic to make them more "equestrian-like," and we are confident we will meet our



Dr. Rustin M. Moore

customers' approval and provide an even greater level of comfort and safety to our hospitalized horses.

We have also recently acquired new technology that improves our diagnostic capabilities. We are now using digital radiography, which provides much greater detailed imaging of bones and joints than traditional radiography. We also acquired a portable, high quality ultrasound machine that enables us to perform echocardiography (ultrasound of the heart) more completely and comprehensively for horses with expected cardiac disease or as part of a comprehensive evaluation of athletic horses with poor performance.

We have initiated discussions with three well-known equine practice management consultants and have sought proposals from them to assist us in improving our customer care, business operations and marketing and technology acquisition. We have already utilized the services of one consultant to provide staff training, and we have developed and are in the process of implementing several operational changes that we hope will improve the efficiency and effectiveness of our business operations and customer care.

The recent establishment of the Louisiana Equine Council is a key priority for our program. We are intricately involved in the leadership of this newly formed organization and strongly support its cause. The work of this group is an industry effort and is something of which every horse owner should be aware and in which they should actively participate. Through a collaborative effort across many breeds and disciplines, this group will work

(Continued on page 5)

Fifth Annual Stallion Service Auction to Benefit New Equine Isolation Unit

The LSU School of Veterinary Medicine announces its fifth annual Stallion Service Auction October 14 – December 16, 2005. The event is a multiple-breed internet-based benefit auction for the LSU School of Veterinary Medicine's Equine Health Studies Program to expand and renovate the Equine Clinic, including the Equine Isolation Unit.

The Equine Clinic provides advanced veterinary care and state-of-the-art services for equine patients. "Due to the expanding Louisiana horse industry, the Equine Clinic case load increases each year. To continue to provide efficient, quality care, it is necessary to expand the School's facilities," said Dr. Rustin M. Moore, director of the EHSP.

Through an Internet Web site, www.LSUEquine.com, stallion owners donate a breeding session with their stud, either by live cover or by artificial insemination, to be bid on by mare owners locally, nationally and internationally for the upcoming 2006 breeding season. Auction bidding begins on the service at 50% of the standard stud fee so interested bidders have an opportunity for reduced-rate

breeding to top quality stallions. Donors of breeding services also benefit from extensive marketing and advertising of their stallions and farms via the internet and equestrian publications.

Bidding begins October 14, and the site is open for potential bidders and donors to view. The first round of bidding closed on October 28, and the final round will close on December 16. Donations are welcomed and invited. Donations, including donated breeding services, are tax deductible for the fair market value regardless of the winning bid price.

The event, now in its fifth year, has raised funds for expanding the EHSP. This year's proceeds will go toward the construction of a new Equine Isolation Unit, which will be used to hospitalize critically ill horses with infectious and potentially contagious disease. This new state-of-the-art facility will replace the current two-stall isolation unit, and will enable the School to more effectively and safely treat horses with these conditions. A portion of the funds will also go toward offsetting the costs associated with the rescue, treatment, shelter, feeding and rehabilitation of



High Cascade, a stallion that had a breeding service donated to the annual auction, is owned by Dr. Becky Bynum, who received her DVM from the LSU School of Veterinary Medicine in 2004.

nearly 500 horses rescued from Hurricanes Katrina and Rita.

Please visit
www.LSUEquine.com
for more information
about the Stallion Service
Auction and the
School of Veterinary
Medicine's Equine Health
Studies Program.

Director's Message . . . (Continued from page 4)

toward uniting our industry in many areas including industry economics, marketing, and legislative efforts. Interested persons should visit the Louisiana Equine Council website at www.laequinecouncil.com.

Recently, the American Horse Council published a report ranking the economic impact of the equine industry on states that participate actively in it; Louisiana ranked fifth. The industry is extremely diverse in terms of demographics and equestrian discipline and not only contributes approximately \$2.5 billion to the state's economy, but also provides cultural, social and recreational contributions to the citizens of Louisiana. Although South Louisiana's equine industry has been

hard hit by the storms (including damage to the Fair Grounds Race Course in New Orleans and Delta Downs Racetrack & Casino in Vinton, and subsequent displacement of their fall meets to Louisiana Downs in Bossier City and Evangeline Downs Racetrack & Casino in Opelousas, respectively), we cannot be sure at this time what long-term effect these storms have on our industry. However, I am confident that collectively we will pull through this setback and that the equine industry in Louisiana will once again flourish.

As always, I seek the advice and input from anyone interested in helping us to advance the mission, vision and goals of the LSU Equine Health Studies Program. I believe strongly that the EHSP is a program for the constituents of the state's equine industry and am confident and committed that our

program is vital to recovery, rebuilding and sustaining the state's equine industry. I invite you to contact me by telephone (225-578-9500) or e-mail (equine@vetmed.lsu.edu), or stop by in person to discuss ideas or opportunities to enhance our program and thus make a contribution to the recovery of our equine industry and its people. We wish you a safe and happy holiday season and a joyous new year.

Our Vision

The EHSP will be considered by our contemporaries and colleagues worldwide as an elite comprehensive equine biomedical program based on quality and productivity.

Laparoscopy – A Less Invasive Method to Facilitate Selected Equine Surgical Procedures

Jeremy D. Hubert, BVSc, MRCVS, MS,
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Assistant Professor, Equine Surgery

Historically, there have been some surgical techniques that have been extremely challenging and frustrating for the equine surgeon. The main reason for this challenge is that some of these procedures are performed deep within a body cavity with little or no ability to directly observe the organs/tissues that are involved. Therefore, in order to adequately observe or expose the affected tissue, more invasive procedures or approaches have been required. Although the patient can tolerate this, the invasiveness can increase the chances of complications, prolong hospitalization, and increase the associated costs. However, with the advent of camera systems that can be inserted into a body cavity and minimize trauma to the patient, the surgeon has adapted and applied these along with instruments and techniques to visualize organs/tissues that previously could not be observed. This has facilitated development and implementation of selected surgical techniques that historically were cumbersome and associated with a potentially high rate of complications. These techniques are collectively known as endoscopic

techniques or more commonly referred to as laparoscopy or arthroscopy.

Arthroscopy involves insertion of a small camera (arthroscope) into a joint such as a knee. In people, the knee is “scoped,” and the patient walks home with the damage repaired; a nice short procedure with minimal discomfort and lay up time – far better than the more traditional methods of opening up the knee joint to do the same procedure. This technique has been applied to horses successfully for many years. Arthroscopic surgery provides excellent visualization of the inside of many joints in the horse, some of which were not really amenable to successful surgery prior to the advent and use of the equipment and techniques. The incisions are much smaller and thus the complications (such as damage to the joint capsule and complications with the incisions such as joint infection) are much reduced, and the duration of hospitalization and convalescence time are shorter; thus the cost(s) are typically lower.

Laparoscopy is an endoscopic surgical technique similar to arthroscopy but performed within the abdominal or thoracic (chest) cavity. It applies the same principles of triangulation as in arthroscopic surgery using a rigid fiberoptic telescope and specialized instrumentation for surgical

manipulation. Studies have documented that the advantages of laparoscopic surgery in humans include improved visualization of the abdominal cavity, shorter hospitalization time, decreased incisional complications, and a shorter post-operative return to normal physical activity. Some specific surgical techniques developed and adapted for use in humans include gall bladder removal, hernia repair, appendectomy, ovariectomy, surgical biopsies, gastrointestinal surgery, and lung lobe resections.

These endoscopic surgical techniques have been well adapted for use in horses. They improve visualization of the abdominal and thoracic cavities. The smaller incision results in less soft tissue trauma at surgery, which decreases convalescent time, pain, and incisional complications, thus allowing horses a quicker return to athletic activity. The technique requires a 55-cm long rigid telescope, which is inserted carefully into the abdomen. Then the abdomen is distended with an insufflator (a regulated pump) with carbon dioxide to improve visualization by gently expanding the cavity to allow more space so that the organs can be effectively examined. Long, specialized instruments which permit organ manipulation and stapling or suturing from the outside of the abdominal cavity have been designed specifically for use in the horse. These manipulations require some practice as the field is magnified and the surgeon is essentially handling the instruments from half a meter away. The procedures are performed with either the horse awake and sedated or under general anesthesia depending upon the procedure to be performed and the horse's demeanor. If general anesthesia is indicated, a special table that permits firm positioning of the horse at a 30° angle with the head down, (Trendelenberg position) so that the abdominal contents are allowed to shift forward to increase visualization of organs in the rear portion of the abdomen (such as the urinary bladder, ovaries, and cryptorchid testicles).

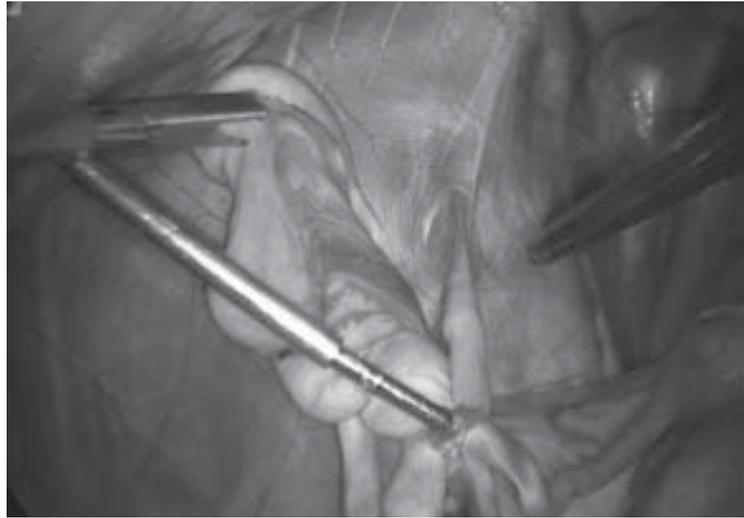


A horse undergoing standing laparoscopic surgery. Both ovaries and cryptorchid (retained) testicles are commonly removed using this technique

There are a few disadvantages including expensive instrumentation and practice and experience in learning and mastering the techniques. However, the benefits include less invasive nature of the procedure with a reduction of patient discomfort, hospitalization, complication rate, convalescent time, and associated costs.

The LSU Equine Clinic has had laparoscopic equipment for several years and surgeons have been using it successfully for selected diagnostic and surgical procedures. Some of the most common laparoscopic techniques performed in horses include removing retained abdominal testicles (cryptorchid testicles), removal of ovaries for behavior modification or for recipient mares used for embryo transfer, removal of granulosa cell tumors (ovarian tumors), ablation (closure) of the nephrosplenic space for preventing recurrence of a specific type of large intestinal displacement that causes colic, organ biopsy, and diagnostically for horses with non-specific abdominal or thoracic cavity disease. Most of these procedures are routinely performed in the standing sedated horse and require a much shorter hospitalization time. The main advantage of performing these procedures in the standing horse is that the recovery time is greatly reduced and anecdotally it is believed that these animals experience less discomfort, do better and recuperate more quickly. Additionally, the risks (although minimal) and costs of general anesthesia are avoided. Most of these procedures historically have involved general anesthesia and a larger incision either in along the ventral abdomen similar to that used for colic surgery or in the flank or inguinal (groin) areas; the surgeon was challenged to expose the ovary and to visualize and ensure that the blood supply had been effectively ligated to prevent postoperative hemorrhage (bleeding). Greater exposure could be gained by performing a large incision in the flank of the horse; again this is significantly invasive compared with laparoscopy.

Laparoscopy has also been used to repair ruptured bladders in foals, remove uroliths (bladder stones) in geldings, inguinal hernia repair (inguinal herniorrhaphy) and left ventral colon colopexy in brood mares that



A cryptorchid (retained) testicle being removed laparoscopically while viewed on a monitor by the surgeon.

have recurrent colon displacements. Furthermore, closure of the nephrosplenic space in the standing horse has been achieved successfully for those horses that have recurrent entrapment of the colon in the space between the kidney and the spleen. Many of these procedures are also performed in the standing sedated horse minimizing some of the concerns and costs of general anesthesia.

As surgeons become more familiar with laparoscopic techniques and it has become more accepted, newer equipment to assist the surgeon are continuing to be developed. Instruments to aid hemostasis (controlling hemorrhage or bleeding) have been developed and shown to be extremely successful. The LSU Equine Clinic purchased a LigaSure® instrument a couple of years ago, which facilitates the effective, rapid and safe sealing of blood vessels. Previously, the surgeon was technically challenged to tie a knot deep within the abdominal cavity or apply stapling instruments to ligate the vessels. Use of the LigaSure® device has facilitated laparoscopic removal of large ovarian tumors, which usually have large blood vessels supplying the tumor and it could be quite challenging to access the ovarian pedicle (which contains the blood vessels) and adequately visualize this area as the blood vessels were ligated.

Laparoscopy has been used successfully in North America for many years to manipulate and monitor reproductive events in camels, llamas

and alpacas. Research and development may allow techniques to be adapted in mares for specific reproductive techniques such as intra-fallopian tube transfer of oocytes or in vitro derived embryos. It may be of benefit in confirming the presence of a uterine torsion before surgery, or determine the definitive source of post-partum hemorrhage, or the cause of colic in peri-partum mares. It may also be useful for determining if a lack of ovarian duct patency (opening) or if ovarian adhesions is the cause for infertility in mares.

The LSU Equine Clinic has the equipment necessary to perform laparoscopic surgery in horses, which permits us to perform techniques that have been proven successful and to conduct research to develop and investigate other techniques that may improve the health and reproductive efficiency in horses.

Please feel free to contact the LSU Equine Clinic at 225-578-9500 for more information regarding laparoscopic surgery or for other questions or inquiries.

Breeding For Early Foals

Sara K. Lyle, DVM, MS, Diplomate
American College of Theriogenology
Clinical Instructor, Theriogenology

One of the greatest problems limiting the production of foals is man. Despite what we know about the anatomy and reproductive physiology of horses, many breed organizations have arbitrarily assigned January 1 as the birth date of foals. Therefore, breeders strive to get their mares to foal close to the first of the year in order to give the foal the maximum number of days to grow before becoming a year of age the following January 1. This yields the largest weanlings for the halter ring, the largest yearlings for the sales, and the most mature two-year-olds at the racetrack.

Mares are photosensitive breeders. Their season is initiated by increasing amounts of daylight, and thus we call them *long day breeders*. In addition to light, mares are also somewhat sensitive to ambient temperature. Adequate nutrition, especially energy, is necessary to overcome the stress of winter and the low temperatures of early spring. Mares need to be in good condition or a positive energy balance before they will begin to cycle properly.

Mares may have one of three cycle patterns during the year. *Seasonally polyestrous* mares have a definite physiological or ovulatory breeding season and periods of anestrus where they have no ovarian activity (follicular development and ovulation). This type

of mare enters and exits the breeding season with irregular cycles. These irregular periods are termed "transition periods." During these transition periods, mares can show variable cyclic irregularities. The average first ovulation was April 7 on a large broodmare farm in north central Florida. Latitudes north of this region will experience ovulations later in the year, whereas latitudes south of this region will experience ovulations earlier in the year. This is the most common pattern of cyclicity with approximately 80% of mares displaying this pattern.

Polyestrous mares cycle regularly throughout the year and seem to be less responsive to ambient light. The closer that one gets to the equator, the greater the number of mares that are polyestrous because day length is less variable throughout the year. These mares will have an occasional period of anestrus that doesn't seem to have any relationship to the time of year.

Irregularly polyestrous mares cycle regularly during the breeding season similar to the seasonal mare, and they have irregular cycles during the transition season. But unlike the seasonal mare, these mares never really enter a true anestrus period. They cycle year-round like the true polyestrous mare, but the cycles during the winter months of these mares are very irregular, thus the name irregularly polyestrous.

Although the cycle pattern may be confusing, mares tend to fit one pattern throughout most of their lives and only occasionally deviate from their usual pattern. Thus a reproductive history of the previous season(s) can be quite helpful in managing the mare during subsequent breeding seasons.

The next major problem in equine reproduction arising from people is confusion about what constitutes estrous behavior.

Owners frequently confuse behavioral problems or urinary tract problems for heat. Unlike cows, homosexual riding is not seen in normal mares. Since mares do not ride each other, we are forced to resort to observing the mare's response to a "teaser" male. Teasing is extremely beneficial for efficient breeding and allows more accurate identification of mares that are truly exhibiting estrous behavior and thus receptive to breeding.

The estrous cycle of the mare averages about 20-21 days. She usually remains in heat (estrus) approximately four to seven days, but this varies with the mare and the season. The period of estrus is often longer during the transition periods, and early or late during the physiologic breeding season. Signs of heat are typically not displayed during diestrus, which lasts 14-16 days. Thus, the cycle length (estrus + diestrus) averages approximately 20-21 days in most mares. Occasionally mares ovulate during diestrus which lengthens the number of days that she is out of heat ("prolonged diestrus"). In the normal cycling mare, variations in the length of the cycle are usually due to variations in the length of estrus. Regardless of the length of estrus, most mares ovulate 24 to 48 hours before the end of heat and most mares are often bred on the second and fourth days of a five-day heat.

Determining the stage of the mare's reproductive cycle based on clinical signs and response to a teaser male are useful in breeding management of the mare. *Estrus*: The mare in heat raises her tail, squats, urinates frequently in the male's presence, winks (everts the clitoris), and does not kick or strike at the male. Most mares wink a few times after urination but the estrous mare shows exaggerated winking even before urinating. Some mares may be resentful initially when teased (especially maiden and dominant mares, or those recently introduced to the herd), but then they "break down" and become receptive to the stallion with continued teasing. Therefore, the handler and observer must be patient with these mares. *Diestrus*: Mares not in heat squeal, pin their ears, and strike and/or kick when the male approaches. *Passive*: The



Mare in estrus. Note the ears are forward, the tail raised, and she is urinating

passive mare shows little or no positive or negative signs. A mare will usually not be passive the entire estrous cycle, but will either display negative signs during diestrus and be passive during estrus, or, display positive signs during estrus and be passive during diestrus. Thus, close observation and obtaining an accurate history regarding past cycles is important in managing these mares.

Understanding an individual mare's behavioral pattern is valuable in assessing her response to the male, which helps determine the stage of her cycle. A good record keeping system records the reproductive tract findings and the teasing results, and can be useful to predict the onset of the next heat.

Now that we understand the different patterns of the mare's reproductive cycle and how to detect estrus, we need to compare events in the natural breeding season with events in the arbitrarily defined stud season. The percentage of mares showing estrus in any month doesn't reach 70% until the middle of March. Some of the mare's early displays of heat are associated with follicular development that does not result in ovulation and formation of a corpus luteum (CL); this typically occurs during the transitional period. The percentage of mares that have ovulated as assumed by the presence of a CL on the ovary may not reach 70% until mid-to-late April, and the peak of ovulation activity occurs from the middle of July to August. On farms where nutrition is suboptimal, these activities are usually delayed – the majority of mares will not be cycling until mid-May. Thus, normal reproductive physiology is working against us in getting conception in February, March and April.

Comparing the most fertile periods of the mare and the stallion, with the traditional breeding season for a breed having a January 1 birth date, it is evident that the peak of equine fertility occurs at the end of the stud season. In fact, fertility of the male and female is much reduced in the first half of the season. The normal gestational (pregnancy) length of the mare is approximately 11 months with a range of 320-360 days. So if we add a month to the foaling date we can determine in which month most mares conceived the

previous year. Even though most breeders attempt to get January, February and March foals, most foals are born in April and May; therefore, conception occurred in May and June, respectively. What can we do to overcome or manipulate nature to make the mare's reproductive physiology capable of producing earlier foals?

When scientists discuss the role of light in initiating reproductive cycles they divide the day into the *photophase* (light) and the *scotophase* (dark). They have also been able to define an *inducible period* when light exposure can initiate the hormonal events that cause a mare to begin to cycle. Extending light into the inducible period over time causes initiation of cycles. In the mare, the inducible period occurs 8-10 hours after the onset of darkness (or the scotoperiod). The amount of light needed is 10 foot candles (1 lux) at the level of the mare's eye. This is usually equivalent to a 100 watt bulb for a 12 x 12 box stall or two 40 watt fluorescent bulbs per box stall. The light level can be tested by using a 35mm camera with the film speed set to 400 and the shutter speed at 1/4 second. Place a styrofoam cup diffuser over the lens and set the aperture for the correct exposure. The f stop should be about 10 or greater to ensure sufficient light.

Artificial light schemes have been used to induce cycling in mares for years. The length of the transition period is unchanged, but the anestrus period is either eliminated or greatly shortened. Three basic light methods have been used. They all begin about 60 to 75 days prior to the desired date to begin breeding. *Abrupt Method*: This method involves extending the duration of light to 16 hours with lights beginning about 60 to 75 days prior to the first day of the breeding season. Although this scheme is not as physiological as other methods, it is effective, but may result in higher electricity bills than some of the other methods. *Gradual Method*: This method begins 60 to 75 days prior to the onset of breeding, but in this case the day length is increased by one-half hour per day on a weekly basis. Add two



Mare in estrus. Note eversion of the clitoris commonly referred to as "winking."

to two and half hours of light after sunset to achieve this goal. By February 1, mares are receiving 16 hours of light per day. *Intermittent Method*: This method may be the most physiological and is also the most conservative of electricity, but it requires the purchase of a timer switch for the lights and is the most complicated to regulate. In this case, day length is lengthened to 10 hours, followed by eight hours of darkness, then two hours of light, and another 4 hours of darkness. The two hours of light in the middle of the night occurs during the inducible period. Alternatively, one hour of light 9½-10½ hours after the natural onset of darkness is also effective.

Once mares are on a lighting program they should be kept under the lights until the natural daylight reaches 16 hours. Otherwise they may react as if it were autumn and have irregular cycles as if they were in the fall transition period. Another consequence of a lighting program is that these mares shed their hair coats early and therefore may need to be protected from the cold in colder climates. Mares under lights will still have transitional cyclic irregularities, but these are moved up to earlier in the year, prior to the onset of the breeding season. The physiologic ovulatory season is moved up into February, and thus we get better breedings, earlier conceptions, and mares foaling closer to January 1.

Poncho, A Horse Out of Breath

*Lais R. R. Costa, MV, MS, PhD,
Diplomate American College of
Veterinary Internal Medicine
Visiting Assistant Professor, Equine
Emergency & Critical Care*

Poncho, a mature Quarter Horse bay gelding presented to the LSU School of Veterinary Medicine's Equine Clinic approximately one year ago for severe respiratory distress. Dale Blanchard, the owner, reported that for the two months prior to presentation, Poncho had increased his breathing effort and had been losing weight. Poncho had been treated empirically with little success. At the time of presentation, Poncho's breathing was extremely labored (his nostrils were flared and he had a pronounced heave line), the heart rate and breathing rate and effort were increased, and Poncho was depressed, febrile (running a fever) and wheezing with each breath. Drs. Elizabeth Vint and Ann Chapman had to identify the causes of Poncho's distress. His blood work showed that the oxygen in his arterial blood was very low and the carbon dioxide was slightly increased despite his great breathing effort, indicating he was having difficulty ventilating. He did not want to eat or drink because all of his attention and effort was devoted to getting air into his lungs. In order to determine the nature of his problem (pulmonary, cardiac or other organ system, or a combination), Drs. Vint and Chapman recommended ultrasonographic and radiographic examination of Poncho's chest and heart. However, because of the results of the clinical examination and blood work, Poncho was administered intranasal oxygen in order to increase the oxygen content in his blood before the radiographic and ultrasonographic exams were performed.

The radiographs revealed changes indicative of airway obstructive disease, like asthma, and no evidence of pneumonia or any other pulmonary disease. The ultrasonographic exam supported the radiographic findings and no cardiac abnormalities were present. So, the good news was that Poncho did not have a heart dysfunction, nor a lung infection or a tumor. However, he still had difficulty breathing. The remaining laboratory work suggested that there was no evidence of systemic infection and all

the other organ functions appeared in order, except for the lungs.

A sample from the tracheal secretion was evaluated, and revealed a large number of inflammatory cells known as neutrophils, excessive mucus accumulation, and absence of lung infection, confirming the tentative diagnosis of airway disease. Much like asthma, this is an allergic response of the airways that impairs the delivery and removal of air into and from the lungs. The wheezing and labored breathing were due to the obstruction to air flow into the lungs because of the airway inflammation and bronchospasm (constriction of the airway walls). Poncho was given inhaled bronchodilators (albuterol and ipatropium) aimed to relax the airways, improve pulmonary clearance (albuterol) and therefore provide better air movement in and out the lungs. He was also given a systemic anti-inflammatory corticosteroid (dexamethasone) to relieve the inflammation and decrease airway obstruction.

Dr. Vint asked Mr. Blanchard many questions in order to determine which environmental conditions Poncho was exposed to at home and to identify what might have triggered his airway allergy. Mr. Blanchard recalled that beginning in July, Poncho started showing signs of difficult breathing while in pasture. Poncho was diagnosed with summer-pasture-associated heaves. Because this is an allergic condition of the airways, just like in human asthma, decreasing exposure to environmental particles that trigger the airway allergic response is critical for improvement of airway function. Poncho was placed in an environment with very little dust (a box stall in a well ventilated area bedded with good quality wood shavings and minimal dust) and he was fed a complete pelleted diet (which means the fiber content is greater than 25%), and no hay was given to him.

Scientific investigations performed by LSU Equine Health Studies Program scientists, including Drs. Ralph E. Beadle, Thomas E. Seahorn, Lais R. Costa, C. S. Venugopal, and co-workers has indicated that summer-pasture-associated heaves is a seasonal airway disease that appears to be initiated by exposure to certain particulate matter

such as mold spores and grass pollens. In addition, removal of the horse from the insulting environment is crucial for clinical recovery. Research by Dr. Costa has shown that mold spores and grass pollens can induce inflammatory cells to produce mediators of inflammation and activate neutrophils, which seem to perpetuate the disease.

Research in several other institutions, including Kansas State University, Tufts University and Michigan State University, has indicated the successful treatment of clinical exacerbation of equine recurrent airway disease with inhaled administration of bronchodilators, two of which were given to Poncho.

By the second day of hospitalization, Poncho's breathing was much improved and he became interested in feed and water again. Poncho continued to improve clinically, and within two days he no longer needed the supplemental oxygen. Within a few days, the dose of anti-inflammatory corticosteroid was gradually decreased until finally it was discontinued. Poncho was discharged with recommendations to minimize exposure to respirable dust particles (such as mold spores and pollens) and to prevent the recurrence of the clinical exacerbation during the late spring to mid fall by maintaining Poncho in a box stall away from the pasture.

This year, Mr. Blanchard reported that Poncho started to show signs of heaves (coughing and slight increase in respiratory effort) in the beginning of July. Poncho was removed from pasture and kept in a low-dust environment. The farm veterinarian was called and Poncho responded very quickly to treatment with bronchodilator and anti-inflammatory medication, only having to be medicated for a couple of days. The early recognition and treatment of the problem and the early and aggressive management changes have prevented Poncho from progressing to another episode of severe respiratory distress.

Poncho and many other horses have benefited from the knowledge gained through clinical experience and basic and applied scientific investigation in horses and from the knowledge applied from research in human asthma.

Guest Lecturer Provides Insight into Musculoskeletal Injuries in Thoroughbred Racehorses

Recently, the LSU School of Veterinary Medicine hosted Dr. Susan Stover, professor and director of the JD Wheat Veterinary Orthopedic Research Laboratory at the University of California-Davis, as part of the LSU Chancellor's Distinguished Lectureship Series. Dr. Mandi Lopez served as the primary host for her visit. Dr. Stover's presentation, "Clues to Genesis of Musculoskeletal Injuries from Thoroughbred Racehorses," was an in-depth exploration of the frequency of low grade bone damage in Thoroughbred racehorses and how the damage correlates with the development of catastrophic breakdown injuries.

Work presented in Dr. Stover's study began after a program was developed in 1998 wherein she and her colleagues were able to conduct postmortem examinations on a number of horses that had died as a direct or indirect result of a breakdown during racing. She wanted to learn more about the breakdown and what factors led up to the fracture or severe soft tissue injuries that led to the horse's demise.

To this end, Dr. Stover and her team endeavored first to identify the cause of death, secondly to identify the reasons for the cause(s), and ultimately, to

design strategies for prevention in the future.

The overall intent of the presentation was to provide background information on bone biology, to demonstrate patterns of bone structure disruption and to ultimately emphasize how the majority of fractures occurring in Thoroughbred racehorses are frequently associated with pre-existing damage.

Dr. Stover's work suggests that a change in the typical training cycle could greatly increase the number of races a horse is able to compete in over the course of its athletic career.

In horses examined, a "weak spot" in the bone often exists that acts as a stress riser. Under otherwise normal exercise, the bone structure would have the opportunity to heal. However, when pushed too hard with too little recovery time, this minor bone damage does not have a chance to remodel and heal. When the time for recovery or repair of the injured bone is inadequate, the horse is at risk for a fracture.

Dr. Stover's work demonstrated that there are predictable patterns of exercise in Thoroughbred racing that basically predispose a horse to breakdown. Often these patterns involve too much high-speed exercise over a short period of time. The majority of Thoroughbred racehorses are trained in a traditional

manner of going through either a work (high intensity exercise) or an actual race once a week. The day after the race they are hand walked. In subsequent days, the horse is then galloped, then they move up to an actual "work" or race, and the cycle repeats itself.

Clearly, to maintain the level of fitness required to compete at the desired level, the training process must continue. However, Dr. Stover's work suggests that there is a delicate balance between maintaining and increasing that level of fitness, and taking a horse too far. It is important to allow sufficient time for the bone to adapt to the damage sustained during exercise so that it can successfully remodel; this minimizes the risk to catastrophic injury and is necessary to maximize the chances for the horse's long-term athletic career.

Dr. Stover's work suggests a change in traditional training methods. Each horse is different, and while some are able to withstand the rigors of training under current methods, others are not. Dr. Stover's work suggests that a change in the typical training cycle could greatly increase the number of races a horse is able to compete in over the course of its athletic career.

"In California, a horse runs approximately every 21 to 26 days," said Dr. Stover, "and right now if you look at the economic impact of the attrition of these horses, we have approximately 28% attrition every three months. We need to ease the pressure on trainers and increase the time between races to allow the horses time to recover in an attempt to decrease injuries and subsequent temporary or permanent loss."



Dr. Susan Stover (center) was invited to speak at LSU as part of the Chancellor's Distinguished Lecture Series. Dr. Stover is joined by Dr. Harold Silverman, vice chancellor of LSU Research & Graduate Studies, and Dr. Mandi Lopez, assistant professor in the Department of Veterinary Clinical Sciences.

***Did You Know . . .
The EHSP serves as a leader in the scientific investigation of medically and economically important equine diseases/injuries.***

Summer is Science Season for Equine Research Students

While school was out for many undergraduate and veterinary students, veterinary research experiences were just beginning for those participating in summer research programs in the Equine Health Studies Program. With a program as diverse as the EHSP, there are many avenues for students whose interest in learning didn't stop after completing their last final exam of the spring semester. The EHSP sponsors mentoring programs in veterinary research in conjunction with the Howard Hughes Medical Institute Undergraduate Science Program, the Merck-Merial Veterinary Student Scholars Program, the National Institutes of Health Biomedical Research Experience for Veterinary Students, the Geraldine R. Dodge Frontiers in Veterinary Medicine, and the Louisiana Biomedical Research Network Undergraduate Research Program.

All of the students worked with mentors in basic and/or clinical equine research labs throughout the EHSP. Under the guidance of his or her mentor, each participant designed and completed an original project, and prepared his or her findings for poster presentations at the end of the summer program and in the fall for Phi Zeta Research Day on September 28. Students also participated in journal club discussions, seminars and laboratory meetings.

We hope their experiences this summer will encourage some of these outstanding students to consider careers in equine veterinary biomedical research. At the very least, these students conducted their own research, were exposed to research possibilities, and increased their knowledge regarding the subject matter and scientific methods.

EHSP students in the Merck-Merial/NIH summer veterinary research program (Jessica Carey, Jenny Liford, and Christine Mocklin) presented their work July 28-31 at the University of Georgia in Athens, Georgia at the 2005 meeting of the Merck/Merial National Veterinary Scholar Symposium.

Jeffrey Cardinale, an undergraduate summer researcher and an EHSP student worker, presented his work on the LSU campus during the LSU Summer Undergraduate Research Forum (SURF) on July 28.

To obtain a summer fellowship, students submitted proposals to the various funding agencies under the direction of their faculty mentors. Selection is very competitive; therefore, we are very proud of our summer research fellows and their hard work.

EHSP Summer Research Fellows, projects and mentors for 2005:

Jeffrey Cardinale, LSU Undergraduate Junior. The expression of the inflammatory-related gene IL-8 (chemotaxis) in equine laminitis. Louisiana Biomedical Research Network Summer Undergraduate Research Program. Drs. Ashley Stokes and Sharon Chirgwin.

Jessica Carey, LSU School of Veterinary Medicine Class of 2008. Effects of lidocaine and flunixin on permeability and secretory capacity of equine right dorsal colonic mucosa. Merck-Merial/NIH-BREVS - SVM Summer Research Program. Drs. Becky McConnico and Ashley Stokes.

Brenna Hanly, LSU-SVM Class of 2009. The expression of the apoptosis-related gene caspase-3 in equine laminitis. Equine Health Studies Program. Drs. Ashley Stokes and Sharon Chirgwin.

Jennifer Liford, LSU-SVM Class of 2008. Expression of cyclooxygenase-1 and -2 in a model of ascending placentitis in



Jessica Carey (2008), Diane Savoys (2008), Brenna Hanly (2009) Jeffrey Cardinale (LSU undergraduate), Jennifer Liford (2008), participated in the School's summer research program.

the mare. Merck-Merial/NIH-BREVS - SVM Summer Research Program. Drs. Sara Lyle, Dale Paccamonti, Ashley Stokes, and Sharon Chirgwin.

Christine Mocklin, LSU-SVM Class of 2007. Effect of Post-ovulatory PGF2 α or Cloprostenol on Plasma Progesterone Concentration in Mares. Merck-Merial/NIH-BREVS - SVM Summer Research Program. Drs. Dale Paccamonti, Bruce Eilts, and Sara Lyle.

Diane Savoys, LSU-SVM Class of 2008. The regulation of the ischemia-related gene glucose transporter-1 in equine laminitis. Equine Health Studies Program. Drs. Ashley Stokes and Sharon Chirgwin.

Erik Wouters, Universiteit Utrecht Class of 2006. Induction of ovulation in mares using a nitric oxide donor. Equine Health Studies Program. Drs. Dale Paccamonti, Bruce Eilts, and Sara Lyle.

Equine Health Tips

For more information on several diseases or injuries of horses, please visit our website (www.LSUEquine.com) and click on the Equine Health Tips tab and expand your knowledge.

Phi Zeta Presents Research Awards

On September 28, the LSU School of Veterinary Medicine held its annual Phi Zeta Research Emphasis Day, which was established to promote research in veterinary medicine; to recognize research conducted by veterinary students, residents, graduate students and faculty; and to encourage veterinary students to pursue careers in veterinary medicine. Phi Zeta is the national veterinary honor society, which recognizes and furthers scholarship and research in matters pertaining to the welfare and diseases of animals.

Phi Zeta Day provides an opportunity for national experts to speak to students on current research in various fields and to present a picture of global veterinary research. This year's speakers were Dr. Corrie Brown, professor of veterinary pathology and coordinator of international veterinary medicine at the University of Georgia College of Veterinary Medicine; and Dr. Ann Kier, professor of veterinary pathology and director of the Center for Comparative Medicine at the Texas A&M University College of Veterinary Medicine.

Veterinary and graduate students (including interns and residents) and faculty and staff presented their current research relevant to disease and welfare of animals. This year, there were 30 entries in two categories: doctoral student competition, and the undergraduate, Master's degree, and House Officer competition. First-, second- and third-place received monetary awards.

Winners in the Student competition, including Master's, undergraduate and veterinary students, and interns and residents were as follows: First place went to Dr. Joseph Bernstein a dermatology resident at the School, for "Mohs Micrographic Surgery: An Application in Veterinary Cutaneous Oncology and Surgery." Bernstein's major professor is Dr. Carol Foil with the Department of Veterinary Clinical Sciences (VCS). Second place went to Mark Bates (Class of 2007) for "Comparison of Methods Used for Restraint in Juvenile Chimpanzees, *Pan*



Winners of the Phi Zeta student competition are (from left to right) Julie Hartfield, Anuradha Guggilam, Anna Israyelyan, Brenna Hanly, Courtney Sember, Joseph Bernstein, and Mark Bates.

troglodytes, and Their Effects on Behavioral and Physiologic Indicators of Sedation." Bates' faculty mentor is Dr. David Baker with the School's Division of Laboratory Animal Medicine. There was a tie for third place between Courtney Sember (Class of 2008) for "Tumor Necrosis Factor – alpha Nox1, gp91 phox and Nox4 In Rat Cardiomyocyte Cultures;" and Brenna Hanly (Class of 2009) for "Expression of the Apoptosis-Related Gene Caspase-3 in Equine Laminitis." Sember's faculty mentor is Dr. Joseph Francis with the Department of Comparative Biomedical Sciences (CBS), and Hanly's faculty mentor is Dr. Ashley Stokes with the Department of VCS.

Winners in the Ph.D. Category were as follows: First place went to Julie Hartfield for "Angiotensin II-Induced Hypertensive Response Is Modulated Through Tumor Necrosis Factor- α : Role of Nox1, Nox4 and gp91 phox." Second place went to Anuradha Guggilam for "Cytokines Modulate Oxidate Stress in Ischemia Reperfusion-Induced Heart Injury in Rats: Role of gp91 phox and Its Homologues, Nox1 and Nox4;" and third place went to Anna Israyelyan for "Oncolytic Herpesviruses for the Treatment of Breast Tumors." The faculty mentor for Hartfield and Guggilam is Dr. Joseph Francis, and Israyelyan's faculty mentor is Dr. Konstantin G. Kousoulas with the Department of Pathobiological Sciences (PBS).

Phi Zeta would like to take this opportunity to thank the poster judges: Dr. Doris Carver, associate vice chancellor, LSU Research and Graduate Studies; Dr. Stephanie Cormier, assistant professor, LSU Biological Sciences; Dr. Fred Rainey, associate dean, LSU Biological Sciences; Dr. Kenneth Bondioli, associate professor, LSU Animal Sciences; Dr. Diane Williams, National Hansen's Disease Programs, USPHS; Dr. Cathy Williams, associate professor, LSU Dairy Science; Dr. Jerome LaPeyre, assistant professor, LSU Veterinary Science; and Dr. Hans Berthoud, professor of basic science, Pennington Biomedical Research Center.

"The SVM annual fall research emphasis day sponsored and organized by Phi Zeta has become an important aspect of our research culture. This is the sixth year of this expanded program. It gives us an opportunity to showcase the research activities of our scientists and to recognize our students for their efforts with significant awards," said Dr. Thomas R. Klei, associate dean for research and advanced studies at the LSU School of Veterinary Medicine.

Did You Know . . .

The EHSP plays a vital role in the ~ \$2.5 billion Louisiana equine industry through our high standards of research, public service, education and outreach.

EHSP Hosts RDVM Summit

In an effort to continually improve our service to clients and referring veterinarians, the Equine Health Studies Program faculty and staff recently hosted a Summit with private equine veterinary practitioners from around the state to discuss ways to improve collaborative efforts and strengthen our effectiveness.

This Summit covered a broad range of discussions focused on improving customer care and veterinary services at LSU, such as remaining current in obtaining and maintaining state-of-the-art equipment, particularly related to imaging modalities and other diagnostic and therapeutic procedures, improving communication with veterinarians and owners and enhancing our outreach services and capabilities.

Many of the veterinarians in attendance represented members of a newly formed Veterinary Advisory Council. This council is comprised of veterinarians who refer cases to the LSU Equine Clinic; the members represent a broad cross section of equine practice types and their focus concentrates on a wide variety of equestrian activities

throughout Louisiana and the surrounding region.

The overall purpose of the Veterinary Advisory Council is to assist the EHSP in reaching its mission of becoming an elite and premier equine biomedical program by providing advice and counsel to the EHSP faculty and staff in order to meet the needs of the equine industry and its constituents. The Council will also offer insight concerning logistical operations, necessary equipment, facility enhancements, and enhanced communication between EHSP clinicians and referral veterinarians and their clients.

Current Council members include Drs. Gary Norwood – Racetrack/ New Orleans and Bossier City; Jay Addison – Racetrack/ New Orleans and Polo/ Folsom; Randolph Hayes – Racetrack/ New Orleans and Bossier City; Julie Cabbage – Racetrack and Ambulatory/ Lafayette; Sonny Corley – Racetrack and Ambulatory/ Lafayette; Larry Findley – Racetrack and Ambulatory/ Vinton (Lake Charles); Phil Deville – Breeding Farm

and Ambulatory/ Abbeville; Chat Kleinpeter – Ambulatory and Breeding Farm/ Baton Rouge; Jim LaCour – Ambulatory/ Slaughter; Allison Barca – Ambulatory/ New Orleans; Keith Cooper – Ambulatory and Breeding Farm/ Covington-Folsom; Gary Greene – Breeding Farm and Ambulatory/ Covington and Folsom; Lowell Roger – Ambulatory, Breeding and Racing/ Folsom; Brad Boutte – Ambulatory/ Alexandria; Patrick Cleveland – Ambulatory/ Picayune, Mississippi; Steve Goodeaux – Breeding Farm and Ambulatory/ Lafayette; Eddie Moore – Ambulatory and Breeding Farm/ Princeton (Haughton); and Chris Thompson – Ambulatory/ Alexandria.

The Council members will rotate, but the geographic and equestrian discipline balance will be maintained. Regardless of membership on the Council, we seek constructive criticism and input/ideas from all of the veterinarians who use our referral services in order to improve customer care and our veterinary services.

EHSP Advancement Council is Formed

Recently the Equine Health Studies Program established its own Advancement Council to provide insight, assistance and guidance toward furthering the work of our program. The Advancement Council is comprised of equine industry constituents and leaders representing a broad cross section of individuals involved in equestrian activities throughout Louisiana.

The overall purpose of the Advancement Council is to assist the EHSP in reaching its mission of becoming an elite and premier equine biomedical program. The objectives of the Council are to provide advice and counsel to the program's director and staff in order to meet the needs of the equine industry and its constituents. They will also endeavor to provide assistance in engaging equine constituents and cultivating private support, assist with fundraising activities and events in support of the EHSP, and assist in informing the public about the mission, vision and contributions of the EHSP to the equine industry in Louisiana and the surrounding region.

Council members attended their first meeting with representatives from LSU in mid-August to gain a better understanding of the EHSP's history, programs and goals. The members are Dr. Jay Addison of Folsom; Ms. Julie Calzone of Lafayette; Mr. Glenn Delahoussaye of Carencro;

Ms. Debra DePrato of New Orleans; Mr. David Fennelly of Reserve; Mr. Harold Foreman of Folsom; Mr. Warren Harang of Donaldsonville; Ms. Sydney Hines of Pass Christian, Miss.; Ms. Anne Hornbeak of Folsom; Mr. Claude Leach of Lake Charles; Ms. Sharon Londono of Covington; Mr. Courtney Ramsey of Lafayette; Mrs. Michelle Rodriguez of Folsom; Ms. Francie Sterling of Folsom; Mr. Phil Witter of Baton Rouge; Mr. Randy Wright of Baton Rouge; and Mr. Zeke Zeringue of Westwego.

The faculty and staff of the LSU EHSP are deeply appreciative of the insight, commitment and efforts of these individuals and look forward to working with them to continually strengthen our program and advance the State's vibrant and diverse equine industry and assist its many constituents.

The Council members will rotate, but the geographic and equestrian discipline balance will be maintained. Regardless of membership on the Council, we seek constructive criticism and input/ideas from anyone involved in the equine industry who uses the Equine Clinic for veterinary care for their horses and who are interested in promoting the health, well-being and performance of horses.

Derby Party Fundraiser Benefits Equine Isolation Unit

Over 170 people watched Giacomo win the 131st "Run for the Roses" at the LSU School of Veterinary Medicine's annual Kentucky Derby Party presented by Taylor, Porter, Brooks & Phillips, LLP. The School's Equine Health Studies Program hosted the event on May 7 at the Country Club of Louisiana.

While celebrating the 131st "Run for the Roses," guests enjoyed an afternoon of Kentucky Derby activities and cuisine. The afternoon party also included a Derby Trivia Contest and an exhibition of equestrian art by local artist Anita LeJeune. Competitions were held for the best hats and tie. Judging the competitions was René Singleton, representing the *South Baton Rouge Journal*. In the hat contest, awards were given for Most Beautiful, Honorable Mention, Best Flowers, Best Group, Best Derby Theme, Most Whimsical, and Biggest Hat. The Most Beautiful award was given to Constance Cowart, and the award for Best Derby Tie went to Bill Strain.

Guests placed "bets" on the race, and a prize drawing was held from those who chose the Win, Place and Show Horses. Stacey Simmons received a silver Derby mint julep cup for choosing the winning horse. Amy Strain received a bottle of Woodford Reserve

Bourbon for choosing the horse that placed second, and Kelly Strain Guastella received a set of Derby bookends for choosing the horse that came in third. René Singleton received a set of Derby-themed Mardi Gras beads for choosing the horse that came in last place.

The afternoon's festivities also included traditional Derby cuisine of cheese grits, Kentucky Derby pie, and mint juleps. Each guest received a commemorative 2005 Kentucky Derby mint julep glass.

A silent auction was also held, and the EHSP would like to thank the following individuals and businesses for donating items for the silent auction:

Mike Batten
 Gayle Braud
 Twyla Brower
 Becky Bynum and John Servis
 Calandro's Supermarket
 Charvet's Garden Center
 Bonnie Clark
 Richard and Cindy Ford Cochran
 Cool 95.7
 P. J. Demarie
 Johnny Donnels
 Dr. Dina Duplantis
 Victoria Duplantis
 Evangeline Downs Racetrack & Casino
 Lauren M. Francis
 Dr. & Mrs. Dennis French
 Sonya Griffin
 H&H Supplements
 Sherry Harmon
 Jane Henslee
 Jeanne Hines
 Donna Joffron



Representing Taylor, Porter, Brooks & Phillips, LLP, the sponsor of the 2005 Kentucky Derby Party, are, from left to right, Mr. John Morganti, Mrs. Tracy Morganti, Dean of the School of Veterinary Medicine Michael G. Groves, Mrs. Ronnie Bodin, Mr. Greg Bodin, Mr. Cary Daugherty, and Mrs. Nancy Daugherty. Also attending from Taylor, Porter, Brooks & Phillips but not pictured are David and Lea Shelby.

Dr. Jill Johnson
 Lynda Katz
 Rob Keene
 Anita LeJeune
 Carol Little
 LSU Athletic Department
 and Skip Bertman
 Blake Luquette
 Roger Mays, Louisiana Nursery
 Charlotte Mathes
 Cassie Milazzo
 Donnie R. Miller
 Dr. Rustin Moore
 Ky Mortensen
 Nancy Nolan
 Steve Palmer
 Warren Parker
 Chris Prescott
 Jim and Sharon Salmon,
 South Down's Gym
 Charlene Shexnayder
 Tom Siegrist
 Amy W. Strain

The event was planned by the Kentucky Derby Party planning committee: Dr. Rebecca Adcock, Julie Calzone, Pat Edwards, Judi Gerhardt, Ginger Guttner, Dr. Jill Johnson, Catherine Koch, Dr. Rustin M. Moore, Ky Mortensen, Nancy Nolan, Dr. Ashley Stokes, Georgia Stokes, and Leslie Talley. Proceeds from the party will benefit the construction fund for the new Equine Isolation Unit, which will facilitate advanced treatment of horses with infectious and potentially contagious disease.



The 2005 Kentucky Derby Party included a hat competition. The winners are (front row, from left to right) Mrs. Ronnie Bodin, Honorable Mention; Ms. Julie Hardin, Best Group; Mrs. Rosemary Klei, Most Whimsical Hat; Mrs. Patia LaCour, Best Flowers; (back row, from left to right), Mrs. Margaret McKerley, Best Group; Ms. Libby McKerley, Best Group; Ms. Susan Haynes, Best Group; Mr. Carroll Songy, Biggest Hat; and Mrs. Constance Cowart, Most Beautiful Hat.

Faculty & Staff Receive Honors

Dr. Abdul Aljarrah, who completed his theriogenology residency and Master of Science degree at LSU, passed the certifying examination and is a Diplomate of the American College of Theriogenology. He is enrolled in a Ph.D. program in the Department of Dairy Science at LSU.

Dr. David Bolt, who completed an internship in equine medicine and surgery followed by an equine surgery residency at LSU, passed the Large Animal certifying examination by the American College of Veterinary Surgeons. Dr. Bolt completed a one-year position at the University of California, Davis and now is a visiting assistant professor of equine surgery at The Ohio State University in Columbus, Ohio.

Dr. Etta Bradecamp, who completed her equine practice residency, passed the certifying examination and is a Diplomate of the American College of Theriogenology. She is currently in private equine practice in Virginia.

Dr. Ann Chapman (LSU 2001), a previous resident in equine medicine at LSU, passed the Large Animal certifying examination of the American College of Veterinary Internal Medicine. She currently serves as an equine internal medicine fellow at the LSU Equine Clinic.

Dr. Lais R. R. Costa successfully defended her doctoral dissertation titled, "Cytokines and aeroallergens in the pathogenesis of summer pasture-associated obstructive pulmonary disease: Effects on endothelin production, neutrophil activation and chemotaxis," and received her PhD in Veterinary Medical Sciences in May of this year.

Dr. Ann Davidson (LSU 2001), a previous intern in equine medicine and surgery at LSU, passed the Large Animal certifying examination of the American College of Veterinary Internal Medicine. She completed her equine medicine residency and Master of Science degree at Colorado State University and is working at the Acadiana Equine Clinic in Lafayette, La.

Dr. Maria Soledad Ferrer, who completed her theriogenology residency and Master of Science degree at LSU, passed the certifying examination and is a Diplomate of the American College of Theriogenology. She is enrolled in a PhD program at the University of LaPlata, Argentina.

Dr. Dennis French, professor of veterinary science, was awarded the LSU School of Veterinary Medicine Distinguished Service Award based on a criteria of service in departmental administration, participation in continuing education, extension committees, professional and community activities, and counseling. Dr. French is highly deserving of this award for his many years of dedicated and tireless work on behalf of the School, its students, and the farm animal and equine clientele he has served.

Dr. Gary Sod (LSU 2001) completed an internship in equine medicine and surgery at LSU in 2002 and then completed a residency in Farm Animal Medicine and Surgery. He currently serves as an instructor of Farm Animal Health Management. He was awarded the Mark S. Bloomberg Resident Research Award (2005) at the 32nd Annual Conference, Veterinary Orthopedic Society in Snowmass, Colo., in February for his work related to equine orthopedics.

Dr. Ashley Stokes (LSU 2001) graduated from Leadership Greater Baton Rouge 2005, a Baton Rouge Area Chamber of Commerce program to develop tomorrow's community leaders through innovative problem-solving sessions and teamwork training. This nine-month program focuses on issues of education, city and state government, health care and social concerns, economic development, arts and media, criminal justice system, and the environment. Dr. Stokes currently is an assistant professor of research in the LSU Equine Health Studies Program.

Students Receive Honors and Awards

Internships and Residencies

Dr. Andrew Lewis (LSU 2005) is completing an internship in large animal medicine and surgery at the University of Georgia in Athens, Ga.

Dr. Katie Marcus (LSU 2005) is completing an internship in equine medicine and surgery at Alamo Pintado Equine Medical Center in Los Olivos, Calif.

Dr. Meaghan Gilhooly (LSU 2005) is completing an internship in equine medicine and surgery at Texas A&M University in College Station, Texas.

Dr. Amy Voliva (LSU 2005) is completing an internship in equine medicine and surgery at San Luis Rey Equine Hospital in Bonsall, Calif.

Awards and Honors

Erica Wallace (LSU 2006) was awarded the Louisiana Veterinary Medical Association/American Association of Equine Practitioners Foundation Scholarship. The award is given annually to a second year student in good standing with the Student Chapter of the American Association of Equine Practitioners and who has demonstrated outstanding scholastic abilities and a commitment to the AAEP and the pursuit of equine practice.

Jennifer Liford (LSU 2008) was awarded the LSU Equine Health Studies Program Scholarship. The monetary award and certificate are given to a year I-III student in good standing with the Student Chapter of the American Association of Equine Practitioners and who has demonstrated an interest in equine medicine through participation in activities and events involving the equine industry and the Equine Health Studies Program.

Katie Marcus (LSU 2005) was awarded the Louisiana Veterinary Medical Association Equine Clinical Proficiency Award. The award is given to the Year IV student judged by the equine medicine and surgery faculty to be the most proficient in equine medicine and surgery.

Lane Breaux (LSU 2005) was awarded the Arizona Equine Medical & Surgical Centre Award. This scholarship award is given to the Year IV student who has exhibited proven clinical competency in equine medicine and surgery and who is an active member of the Student Chapter of the American Association of Equine Practitioners.

Andrew Lewis (LSU 2005) was awarded the American College of Veterinary Surgeons Large Animal Proficiency Award. The monetary award and certificate are given to a Year IV student who has demonstrated academic and clinical proficiency in large animal surgery.

New Faces at the EHSP

Dr. Colin F. Mitchell, originally from Perth, Scotland, received his veterinary medical degree from the University of Edinburgh. He then completed an internship at the University of Prince Edward Island prior to entering a combined three-year equine surgery residency and Master of Science graduate program at the University of Minnesota, which he completed in June 2004. He then remained on the hospital staff at the University of Minnesota, where he worked as the equine emergency clinician/surgeon until July 2005 when he joined the LSU School of Veterinary Medicine. He is board certified by the American College of Veterinary Surgeons. His clinical interests include soft tissue surgery and ultrasound. His research interests include assessment of gastrointestinal motility. He enjoys running, the outdoors, and watching movies.



Dr. Cassandra (Cassie) Johnson, originally from Gardnerville, Nev., is one of our new equine medicine and surgery interns. She comes to us from Columbus, Ohio, where she graduated from The Ohio State University College of Veterinary Medicine in June 2005. She began here at LSU in July of this year. She plans to pursue an equine internal medicine residency.



Dr. James (Jimmy) Redmond, originally from Louisville, Ky., is one of our new equine medicine and surgery interns. He graduated from Auburn University College of Veterinary Medicine in May 2005. He began here at LSU in July of this year. He has plans to pursue an equine surgery residency.



Dr. Lais R. R. Costa, originally from Sao Paulo, Brazil, first came to LSU as an intern in equine medicine and surgery, which she completed in 1990. She then completed a Master of Science degree in virology in at the University of Kentucky in 1994, and spent two years at the University of California, Davis as a combined

clinical and research fellow. She entered a three-year equine medicine residency here at LSU, which she completed in June 1999. She then embarked upon a doctoral (PhD) program at LSU involving investigating the pathophysiology of summer heaves in horses, which she completed in March of this year. She has maintained an interest and has continued to work in the clinic during her graduate studies. She was recently hired as an equine emergency clinician to assist with the evaluation, triage and treatment of horses that are admitted to the LSU Equine Clinic for emergency and critical care needs. She is board certified by the American College of Internal Medicine.

Dr. Amy Snyder, originally from Newport, New York, graduated from Cornell University College of Veterinary Medicine in May 2004 and completed a one year internship at Chino Valley Equine Hospital in Chino, Calif. She began her two-year equine practice residency, a program that combines advanced training in reproduction, internal medicine and surgery, in July of this year.



Dr. Jose Len, originally from Chiriqui, Panama, is our new theriogenology (reproduction) resident. He entered this three-year combined residency and Master of Science graduate program in July of this year. His clinical interests include mare reproduction and infertility.

Faculty Departures

Dr. Aloisio Bueno, originally from Brazil, completed an internship in equine medicine and surgery and a Master of Science degree here at LSU, a one-year large animal fellowship at Oregon State University, and then a three-year equine surgery residency at the University of California, Davis. He returned to LSU in July 2002 as the emergency equine clinician/surgeon and has worked in this capacity since that time. He is board certified by the American College of Veterinary Surgeons. He recently accepted a position at the University of Florida, where he will begin in early December. We thank him for the hard work and dedication to the Equine Clinic's emergency and critical care service.

Dr. Sharon Chirgwin, originally from Australia, joined the faculty of the Equine Health Studies Program in 2004 as an assistant professor of research. She brought to the program much needed experience and expertise in molecular biology and facilitated the integration of these new technologies into our diverse and productive research programs. Dr. Chirgwin and her husband, Dr. Andy DeRosa, recently moved to North Carolina. We want to thank Dr. Chirgwin for all of her contributions to our program during her tenure here at LSU.

New Equipment and Services at the LSU Equine Clinic

The LSU Equine Clinic recently acquired two new pieces of equipment that expands and enhances its diagnostic capabilities for performance horses. The clinic acquired an Eklin digital radiography unit for acquisition of radiographic (x-ray) images of the bones and joints of horses' legs. This state-of-the-art technology provides radiographic images with exceptional quality and detail of bones and joints. The computer technology enables focusing on certain areas or magnifying these areas on the images to obtain a "closer look" without blurring of the image. This imaging modality also removes the need for storage of the traditional radiographic films and allows easy electronic storage of the images. The images can also be copied to a compact disc or sent via e-mail for electronic distribution to clients, which is much easier and less costly than copying all of the films. Thus, this digital radiography unit compliments other existing diagnostic imaging modalities including ultrasonography, nuclear scintigraphy (bone scan) and computer tomography (CAT scan).

The Equine Clinic also acquired a Sound Technologies Logicbook XP laptop ultrasound machine. This versatile and portable unit will increase capabilities in ultrasonographic evaluation of the equine heart. With phased array probe technology, deeper structures

can be evaluated and color flow Doppler images obtained allowing easier evaluation of diseases of the valves. The entire unit fits safely into a hard covered suit case on wheels for safe transportation to the equine treadmill where full cardiac evaluation can be performed before and after exercise on the high-speed treadmill.



Dr. Jeremy Hubert demonstrates radiographic images acquired with the new Eklin digital system.

Because some diseases of the heart muscle can only be detected after strenuous exercise, this portable unit enhances diagnostic capabilities for performance horses.

For more information on these and other services, please call 225-578-9500 or visit our the LSU EHSP website at www.LSUEquine.com.



Over 25 faculty, staff and students of the Equine Health Studies Program participated in the Inaugural Red Stick Dragon Boat Regatta (a fundraising event of the Baton Rouge Area Chamber of Commerce) at University Lakes on Saturday October 8. Each boat required 20 paddlers, a drummer and a person to steer the boat. There were 26 teams from the city's business community competing in racing vessels decorated as Chinese Dragons. The EHSP team, "The Dragon Jockeys," representing the School of Veterinary Medicine won both of its heats but did not make the finals. The event provided a great opportunity to have fun, relax and enjoy a beautiful autumn day with family, friends and colleagues.



Louis Pomes of St. Bernard parish, who worked tirelessly to find and help lead abandoned horses to safety in the wake of Hurricane Katrina, was named the 2005 winner of the White Horse Award during the third annual Race Track Chaplaincy of America's White Horse Heroes Luncheon held in the Marquee tent near the Belmont Park paddock in New York on Thursday, October 27. Mr. Pomes (second from right) was accompanied to New York by Dr. Rustin Moore (far left), Leslie Talley (second from left), and Cherie Carreras (far right). The award was presented by former jockey and Hall of Famer Pat Day (center).

ESHP Advancement Director's Corner

In This Together

From the moment I arrived in this state eight months ago, I have spent as much time as I could simply trying to get a handle on what truly makes up the equine industry of Louisiana. I have traveled to nearly every major city and to many small towns in countless parishes trying to get to know you, see your farms, learn a little about what you do, and to try and identify ways that the LSU Equine Clinic could improve our service. I wanted to find out what was lacking and what could be done to increase or complement the effectiveness of the industry from a veterinary standpoint.

No sooner had we developed two advisory councils of veterinarians and horse owners and were beginning to collaborate on ideas and projects, when our state was struck with a hurricane season that no one could have predicted. Our focus shifted, and new work took priority over everything else. It was work that needed to be done, and work that continues even now. Like many of our state's residents, I find myself looking out at the situation and asking a familiar question...now what?

I'm a firm believer in getting on with the program. Setbacks, as minor or as

severe as they may come, are inevitable, regardless of your situation. But as an industry, we need to regroup. How much damage have we incurred?

Where do we still need to lend a hand? An economic study published by the American Horse Council earlier this year suggested that the state of Louisiana boasts a \$2.45 Billion equine industry. Where does it stand now? The veterinary profession is one of service. As horse owners from this great state, we need to know what needs you have. Where can LSU step in and make a difference? These are questions that we don't necessarily have the answer to right now, and we need to hear from you.

In recent months, I have been privileged to participate as a member of the board of directors of a fledgling organization of horse owners endeavoring to bring unity to the horse industry of Louisiana. This group is the Louisiana Equine Council. I have spent the better part of my adult life involved in such efforts. I have worked closely with the American Horse Council, the American Quarter Horse Association, the Thoroughbred industry, and the veterinary community for years. The diversity of the horse industry is great. But it is that very diversity that makes the

horse such a unique and amazing animal and brings every one of us together time and time again.

Throughout the remainder of this year and well into the next, this group (LSU included) will be working cooperatively with representatives from many disciplines to gauge the health of our industry, work toward strengthening areas of weakness, and collectively moving the needs of our equine community forward. In areas of legislation, marketing, health, and economics, our industry can move forward on countless fronts, and your input is vital to the success of this effort.

The LSU Equine Clinic exists for the people and the horses of Louisiana and the surrounding region. It is a clinic of service, not only in the health of the horse, but in the health of an industry as well. A viable industry is essential to any operation, and the success of that industry is our main priority right now.

I'd love to hear from you if you need anything.

Best regards and have a great holiday season,
Ky Mortensen
Director of Advancement
kmortensen@vetmed.lsu.edu

LSU Hosts Equine Artificial Insemination Workshop

The LSU School of Veterinary Medicine is hosting an Equine Artificial Insemination Workshop for Owners and Breeders. The dates are January 28-29, and the cost is \$325 before January 14, and \$350 after January 14. This workshop is designed to provide participants with the knowledge and skills needed to successfully perform artificial insemination with both fresh and cooled semen. In addition, the proper handling and preparation of semen for transport will be discussed to enable participants to provide this service. Training in rectal palpation is not included in this course. Instructors are faculty of the Theriogenology Section, School of Veterinary Medicine.

For more information, please contact Dr. Rebecca A. Adcock, Director of Alumni & Public Programs, at (225) 578-9826 or adcock@vetmed.lsu.edu.

Did You Know . . .
The EHSP provides comprehensive, state-of-the-art, advanced medical, surgical and reproductive veterinary care for ill and injured horses by a team of board-certified specialists. While referrals are a large portion of our caseload, we do not require a referral in order to treat your horse at the LSU Equine Clinic.

Scientific Manuscripts

Lyle SK, Ferrer MS. Low-dose insemination - Why, when and how. *Theriogenology* 64 (2005) 572-579.

Chidambaram RM, Eades SC, Moore RM, Hosgood GL, Venugopal CS: Characterization of in the in vitro responses of equine cecal longitudinal smooth muscle to endothelin-1. *Am J Vet Res* 66 (7) 1202-1208, 2005.

Walesby HA, Venugopal CS, Hosgood GL, Eades SC, Moore RM: In vitro evaluation of the contractile response to endothelin-1 of the circular and longitudinal myometrial layers of the uterine horn of nongravid mares. *Am J Vet Res* 66 (6) 1094-1100, 2005.

Mirza MH, Seahorn TL, Oliver JL, Hosgood G, Moore RM: Detection and comparison of nitric oxide in clinically healthy horses and those with naturally acquired strangulating large colon volvulus. *Can J Vet Res* 69 (2) 106-115, 2005.

Moore RM, Sedrish SA, Holmes EP, Koch CE, Venugopal CS: Role of endothelium and nitric oxide in modulating in vitro responses of colonic arterial and venous rings to vasodilatory neuropeptides in horses. *Can J Vet Res* 69 (2) 116-122, 2005.

McConnico RS, Stokes AM, Eades SC, Moore RM: Investigation of the effect of black walnut extract on in vitro ion transport and structure of equine colonic mucosa. *Am J Vet Res* 66 (3) 443-449, 2005.

Gilhooly M, Eades SC, Stokes AM, Moore RM: Effects of topical nitroglycerine patches and nitroglycerine ointment on digital venous plasma nitric oxide concentrations and digital blood flow in healthy conscious horses. *Vet Surg* 34, 604-609, 2005.

Sod GA, Hubert JD, Martin GS, Gill MS: An in vitro biomechanical comparison of a prototype equine metacarpal dynamic compression plate fixation with double dynamic compression plate fixation of ostectomized equine third metacarpal bones. *Vet Surg* 34, 594-603, 2005.

Sod GA, Hubert JD, Martin GS, Gill MS: An in vitro comparison of a limited-contact dynamic compression plate fixation with a dynamic compression plate fixation of ostectomized equine third metacarpal bones. *Vet Surg* 34, 579-586, 2005.

Sod GA, Hubert JD, Martin GS, Gill MS: An in vitro evaluation of plate luting using ostectomized equine third metacarpal bones with a limited contact-dynamic compression plate. *Vet Surg* 34, 587-593, 2005.

Keowen M, Garza F, Moore RM: Quantification of laminar microcirculatory perfusion in normal horses using isotopic-labeled microspheres. Proceedings 8th International Equine Colic Research Symposium, 128-129, 2005.

Wallace E, Stokes AM, Paulsen DB, Hosgood G, Eades SC, Moore RM: Immunohistochemical staining to determine and compare the presence and location of matrix metalloproteinase-2 and -9 in laminar tissue of clinically healthy and laminitic horses. Proceedings 8th International Equine Colic Research Symposium, 118-119, 2005.

Gilhooly MH, Eades SC, Stokes AM, Moore RM: Effects of topical nitroglycerine patches and nitroglycerine ointment on digital venous plasma nitric oxide concentrations and digital blood flow in healthy conscious horses. Proceedings 8th International Equine Colic Research Symposium, 116-117, 2005.

Leise BS, Fugler LA, Eades SC, Stokes AM, Moore RM: Effects of intramuscular administration of acepromazine on digital blood flow, systemic blood pressure and packed cell volume in clinically healthy conscious horses. Proceedings 8th International Equine Colic Research Symposium, 108-109, 2005.

Johnson JR, Liford J, Henk W, Borkhsenius O, Paccamonti D, Moore RM, Nickerson CA: Development of three-dimensional tissue assemblies of equine fetal laminar cells under microgravity conditions. Proceedings 8th International Equine Colic Research Symposium, 106-107, 2005.

Fugler LA, Eades SC, Truax RE, Stokes AM, Garza F, Moore RM: Nitric oxide and endothelin-1 synthesis by cultured equine digital endothelial cells in response to endotoxin and cytokines. Proceedings 8th International Equine Colic Research Symposium, 92-93, 2005.

McConnico RS, Moore RM, Hubert JD: Right dorsal colonic pathophysiology in horses administered phenylbutazone. Proceedings 8th International Equine Colic Research Symposium, 84-85, 2005.

Souza AH, Valadao CAA, Henrique J, Borges S, Reis RG, Uribe ADP, Bueno ECPG, Stokes RM, Moore RM: Effects of aluminum hydroxide/magnesium hydroxide antacid on clinical signs and blood and peritoneal fluid hematological and biochemical alterations in horses with

Scientific Abstracts

Stokes AM, Savoie D, Eades SC, Keowen M, Moore RM: Evaluation of digital hemodynamics associated with BWE-induced equine laminitis using colored isotopic-labeled microspheres. Proceedings 8th International Equine Colic Research Symposium, 169-170, 2005.

Valadao CAA, Souza AH, Koch C, Stokes AM, Eades SC, Venugopal CS, Moore RM: Inhibition of norepinephrine and serotonin-induced contractile response of equine digital vessel rings by ifenprodil. Proceedings 8th International Equine Colic Research Symposium, 130-131, 2005.

Stokes AM, Savoie D, Eades SC,



Past and present EHSP scientists attended and presented scientific abstracts at the 8th International Equine Colic Research Symposium August 3rd - 5th in Quebec City, Canada. From left to right, Drs. Jill Johnson, Adriana de Souza, Rustin Moore, Ashley Stokes, Carlos Valadao, Paco Mora, Britta Leise, Anne Wooldridge and Lee Ann Fugler.

experimental laminitis induced by carbohydrate overload. Proceedings 8th International Equine Colic Research Symposium, 14-16, 2005.

Saile K, Paulsen DB, Kearney MT, McConnico RS: Mechanisms of specific and nonspecific cyclooxygenase inhibitor drug induced injury in equine right dorsal colonic mucosa. Proceedings 8th International Equine Colic Research Symposium, 112-113, 2005.

Vidal MA, Gimble JM, Johnson JR, Lopez MJ, Moore RM: Cell growth and doubling characteristics of equine fetal and foal mesenchymal stromal cells of bone marrow origin. Proceedings American College of Veterinary Surgeons Symposium, October 27-29, San Diego, CA, 26, 2005.

Stokes AM: The pathophysiology of acute laminitis. Proceedings Anais do II Simpósio Internacional do Cavalo Atleta - IV Semana do Cavalo, Belo Horizonte, Brazil, Universidade Federal de Minas Gerais, 83-89, 2005.

Moore RM: Diagnosis and treatment of joint and bone infection in horses. Proceedings Anais do II Simpósio Internacional do Cavalo Atleta - IV Semana do Cavalo, Belo Horizonte, Brazil, Universidade Federal de Minas Gerais, 29-38, 2005.

Moore RM: Diagnosis and treatment of laminitis in horses: Present and future. Proceedings Anais do II Simpósio Internacional do Cavalo Atleta - IV Semana do Cavalo, Belo Horizonte, Brazil, Universidade Federal de Minas Gerais, 46-50, 2005.

Grants & Contracts

Da Cunha AF, Moore RM, Chirgwin SR, Stokes AM, Paulsen DB, Pettifer GR: Identification of the equine transient receptor channel, vanilloid subfamily member 1 (TRPV1) receptor: Gene sequencing, quantification and immunohistochemistry. Initiation of a novel pain management strategy for orthopedic disease in horses. \$6,000. LSU Equine Health Studies Program, July 2005.

Venugopal CS, Beadles RE, Moore RM: Role of vanilloid receptors in summer pasture-associated obstructive pulmonary disease in horses. \$10,400. LSU Equine Health Studies Program, July 2005.



Drs. Rustin Moore and Ashley Stokes were invited guests and speakers at the II Simpósio Internacional do Cavalo Atleta; IV Semana do Cavalo, Belo Horizonte, Minas Gerais, Brazil, in April 2005. Dr. Moore gave lectures on "Diagnosis and treatment of joint and bone infection in horses" and "Diagnosis and treatment of laminitis in horses: Present and future." Dr. Stokes lectured on "The pathophysiology of acute laminitis". In Front: Ashley Stokes (Assistant Professor of Research, LSU), Dr. Rustin Moore (Professor and Director, LSU-EHSP), Geraldo Eleno (Associate Professor, Surgery), Maristela Palhares (Associate Professor, Equine Internal Medicine), Humberto Pereira (Associate Professor, Surgery). Back Row: Roberto Baracat (Vet School Director), Rafael Faleiros (Associate Professor, Surgery), Geraldo Juliani (Associate Professor, Reproduction), José Aurélio Bergmann (UFMG Research Dean), Hans-Joachim Menzel (Associate Professor, Biomechanics).

Chirgwin SR, Stokes AM, DeRosa AA, Moore RM: Transcriptional changes associated with equine laminitis: Potential identification of disease mediators. 22,364.00. LSU Equine Health Studies Program, July 2005.

Lopez MJ, Burba DJ: A novel method to facilitate ankylosis for treatment of equine bone. \$12,000. LSU Equine Health Studies Program, July 2005.

Natalini CC, Kousoulas KG, Linardi RL: Multi-drug resistance (MDR 1) gene identification and its regulatory effect of drugs in horses. \$11,939. LSU Equine Health Studies Program, July 2005.

Natalini CC, Barker SA, Linardi RL, Stokes AM, Bueno ACD: Pharmacokinetics and pharmacodynamics of oral methadone administration in horse. \$4,500. LSU Veterinary Clinical Sciences Organized Research Fund, July 2005.

Johnson JR, Vidal MA, Gimble JM, Lopez MJ, Moore RM: Characterization of equine marrow mesenchymal stromal cells grown in monolayer and low shear microgravity culture. \$17,432. Grayson-Jockey Club Research Foundation, Inc. February 2005.

Equine Gene Sequences Cloned and Submitted by EHSP Scientists to GenBank

Da Cunha AF, Chirgwin SR, Stokes AM, Pettifer GR, Moore RM: Equus caballus, similar to transient receptor potential cation channel, subfamily V, member 1 (Trpv1), mRNA, partial cds. ACCESSIONS DQ267482, DQ267483.

Hanly BK, Stokes AM, Chirgwin SR, Moore RM: Equus caballus caspase-3 mRNA, partial cds. ACCESSIONS DQ174690, DQ174689, DQ174688.

Natalini CC, Linardi RL, Kousoulas KG, Huang L-JT: Equus caballus multi-drug resistance p-glycoprotein 1 (MDR1) mRNA, partial cds. ACCESSION AY968084.

Savois DM, Stokes AM, Chirgwin SR, Moore RM: Equus caballus glucose transporter-like protein I (GLUT1) mRNA, partial cds. ACCESSION DQ139875.

Stokes AM, Chirgwin SR, Moore RM: Equus caballus preproendothelin 1 mRNA, partial cds. ACCESSION AY730629.

Charitable Gifts

Many aspects of the Equine Health Studies Program rely on the generosity of our friends in the equine community. The following persons and entities have donated to the Equine Health Studies Program:

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Thank you for your support!



Ronnie Anderson of the Louisiana Farm Bureau presents a donation to Dr. Michael G. Groves, dean of the LSU School of Veterinary Medicine, for the EHSP.



YOU Can Take Equine Health Studies

“Full Stride Ahead”

Did you know?

- Your tax-deductible charitable contribution to the Equine Health Studies Program will be used to support leading-edge equine scientific investigations, equipment needs, improved facilities and student scholarships in equine studies at the LSU School of Veterinary Medicine.
- We accept gifts of cash, stock or property, which may be made by cash, check or credit card.
- You may direct your gift to a specific project, or allow us to choose the area of greatest need.
 - Equine Isolation Unit
 - Equine Health Studies Program/Most Pressing Need
 - Equine Research Studies

If you would like information about gifts of stock or property, bequests in wills or formation of a charitable trust, contact the Director of Advancement, Equine Health Studies Program, LSU School of Veterinary Medicine, Baton Rouge, LA 70803, 225-578-9590, e-mail: kmortensen@vetmed.lsu.edu or visit our website: www.LSUEquine.com.

YES! I would like to contribute to the Equine Health Studies Program at the Louisiana State University School of Veterinary Medicine. Enclosed is my tax-deductible contribution of:

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Fall 2005

LSU Hosts Summer Educational Program for Children



The LSU School of Veterinary Medicine hosted Pets & Vets, its annual children's educational program, in June. Each year, Pets & Vets features various topics regarding veterinary medicine and basic information about pet and animal care. All presentations are free and open to the public. The program is open to all children ages 6 and up, and parents are also invited to attend the presentations with their children.

Educational sessions included workshops on orthopedics, wildlife, show animals, veterinary careers, small animals, and cows. There was also one day dedicated to horses. Dr. Rebecca McConnico made a presentation on equine emergencies, and Drs. Ashley Stokes and Dan Burba (pictured above [left]) presented "Anatomy of the Horse."

For more information about this program or to be added to the Pets & Vets mailing list, please contact Ginger Guttner, Public Relations Coordinator, at 225-578-9900 or gguttner@vetmed.lsu.edu.



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