

Equine NEWS

COLLEGE OF VETERINARY MEDICINE | SPRING 2006 | VOLUME 3, NUMBER 2

Hypothyroidism in Foals

If a foal is born late, but is immature in other ways, hypothyroidism may be the cause. Hypothyroidism is a condition in which there is an unusually low level of certain thyroid hormones in the blood.

Signs most often associated with this problem in foals include prolonged gestation, an under-bite ("monkey mouth" or prognathism), contracted tendons, and, in some cases, rupture of the extensor tendons. In severe cases, the foal may be unable to stand and suckle on its own.

Affected foals are usually normal sized or large, but they may have immature physical characteristics, such as soft, pliant ears and a silky hair coat. Importantly, some bones, especially in the hock and carpal joints, may be incompletely formed, which is known as hypo-ossification.

While hypothyroidism can be difficult to accurately diagnose in adult horses, the signs can be quite clear in newborn foals. "Its official name is Congenital Hypothyroidism and Dysmaturity Syndrome (CHD), and it is one of the few documented syndromes of hypothyroidism in horses," said **Dr. Melissa Hines**, an associate professor in equine medicine at WSU who has diagnosed and treated many cases.

"We don't really know what causes CHD, but it does not appear to be related to genetic predisposition," she said. "It is theorized that the syndrome may be related to mustard weed consumption by pregnant mares based on epidemiological studies, as well as a lack of mineral supplementation—selenium in particular. Some also suspect nitrates in forage may be a culprit, too."

Cases of the syndrome can be found throughout the United States and parts of Canada. It is most frequently seen in the Pacific Northwest and western Canada. Interestingly, not all foals in the same herd or location will be born with the syndrome.

"Even in the same location, weather conditions and the amounts of plants growing when mares have access to pasture may be different from year to year," Dr. Hines said. "In addition, individual mares may have different grazing habits. We see cases of CHD in which eight to ten foals may be affected in one area in one year, but later on, there won't be any cases."

In addition, mares that have foals with hypothyroidism are themselves unaffected. They may also give birth to normal foals in the future. One exception may be mares that seek mustard plants out as forage.

The mustard plants of concern are of the Brassica species, including Shepherd's purse (*Capsella bursa-pastoris*), Blue mustard (*Chorispora tenella*), Flixweed (*Descurainia sophia*), Clasp pepperweed (*Lepidium perfoliatum*), Field pennycress (*Thlaspi arvense*), and Tumble mustard, also known as Jim Hill mustard



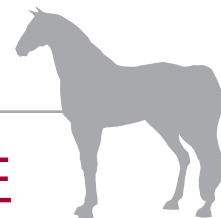
A foal with CHD that has contracted tendons.

(*Sisymbrium altissimum*). These plants may contain a chemical toxic to horses called glucosinolate that is carried in the seeds and vegetative parts of developed plants, whether the plant is fresh or dry.

"We don't know at what point in the pregnancy foals are affected," Dr. Hines said. "It may be that some foals are affected early on and are aborted. It is thought that most foals born with the syndrome are affected in the latter part of gestation."

"We recommend keeping foaling mares away from mustard weed stands during pregnancy, and avoid feeding hay that is heavily contaminated with mustard weeds," she said. "Owners can also supplement their mares with trace minerals, especially selenium."

continued on page 2



IN THIS ISSUE

- Hypothyroidism in Foals
- Infertility Overcome in a Mare
- Equine Influenza
- Meet Our 2006 Equine House Officers
- Meet Dr. Julie Cary
- *Equine News* at the Speed of Light

WASHINGTON STATE
 UNIVERSITY

World Class. Face to Face.

Equine News is published 4 times a year by Washington State University, PO Box 645910, Pullman, Washington 99164-5910. Volume 3, Number 2. Phone: 509-335-0738. To subscribe, contact Emmy Widman at esunleaf@vetmed.wsu.edu or 509-335-3100. 4/06 112881

Infertility Overcome in a Mare of Rare Morgan Blood Line

The sight of Sara Rose, a frisky colt romping in the pasture, warms the heart of her owner, Dawn MacNamara of San Diego, California. "She is just so special," she said. "Dr. Tibary made it all happen."

Several years ago, MacNamara and her husband bought a rare Lippit Morgan mare named Megan in hopes of continuing this special bloodline. Many consider Lippit Morgans to be one of the oldest American breeds, with only about 2,000 left in the United States. "We think these animals are a part of American history that is worth saving," MacNamara said.

Unfortunately, the 12-year-old mare had a difficult time becoming pregnant. After a number of visits to area veterinarians and a long list of treatments, the MacNamaras worried their dreams of a new foal were slowly coming to an end. "We had a trainer even tell us that sometimes mares can't produce, and that we had to accept that. But we just weren't ready to give up."

Soon after, the couple heard about and consulted with **Dr. Ahmed Tibary**, WSU's renowned large animal theriogenologist at the College of Veterinary Medicine in Pullman, Washington. As a large animal reproduction expert with more than 20 years of experience, Dr. Tibary provides a number of equine reproduction services, including breeding soundness evaluations for mares and stallions, pregnancy and fetal well-being evaluations, semen collection and freezing, embryo transfer, and artificial insemination with fresh-cooled and frozen semen.

Coincidentally, Dr. Tibary was working with a Lippit Morgan stallion, whose owner agreed to help the MacNamaras. Megan was transported to the WSU veterinary college in Pullman from San Diego to be artificially inseminated with fresh-cooled semen from the stallion. "She needed very close supervision," Dr. Tibary recalled. "She was a mare with a

typical susceptibility to endometritis, which is an inflammation of the uterine lining."

Soon, the MacNamaras received the good news that their mare was pregnant; the artificial insemination had worked. Within the year, Megan gave birth to a healthy foal named Quail Mountain Sara Rose, or Sara for short.

"I think it was critical to have Dr. Tibary on the case," MacNamara said. "Dr. Tibary had the knowledge and the commitment to make it happen. We couldn't be more pleased."

"I am touched by the compliments of the owner," said Dr. Tibary, who says he often wonders how such cases turn out. "We work many times with mares like this that come from different states and I always wonder what happened with the pregnancy."

Now Dr. Tibary and the students involved in this case have a photo for their wall as a reminder of the specialty they bring to the WSU College of Veterinary Medicine.

For more information about how to deal with infertility in mares, contact Dr. Tibary at tibary@vetmed.wsu.edu or 509-335-1963, or read about this topic in the spring 2005 issue of Equine News at www.vetmed.wsu.edu/depts-vth/EquineNews/index.asp.



Quail Mountain Sara Rose

Hypothyroidism...continued from page 1

DIAGNOSIS, COMPLICATIONS, AND TREATMENT

CHD is confirmed through thyroid testing and biopsy of the thyroid gland. Because CHD signs in affected foals are so unique, many veterinarians will make a presumptive diagnosis based on observations, rather than laboratory testing.

In most cases, the thyroid gland is not noticeably enlarged, but when microscopically examined, it is very hyperplastic or abnormally enlarged. Hyperplasia causes the cells to be crowded and have decreased levels of colloid, a substance that helps cells produce thyroid hormones.

The thyroid gland produces hormones that are important for the proper growth and development of all animals. The lack of thyroid hormones seen in CHD cases causes foals to be underdeveloped and have a number of musculoskeletal deformities. The severity of the syndrome varies from foal to foal, ranging from mild to severe.

"There is no specific treatment for CHD and the affected foal's thyroid will actually become normal overtime, usually within a few months," Dr. Hines said. "The long lower jaw will also correct over time, but the lack of bone in the legs may cause deformities in the foal before the bone can form normally."

Because of these problems, even in mild cases, foals will need supportive care and their musculo-skeletal problems will need to be managed. It is currently unknown if thyroid hormone supplementation benefits foals.

Foals with contracted tendons may not be able to stand to nurse, and will need help from their owners. This is very important because many complications can result if the foal does not get enough colostrum from its mother. Colostrum,

or the mare's first milk, contains protective antibodies that foals need to fight infections. Without it, a foal may develop a fever, decreased appetite, diarrhea, pneumonia, and other complications that can be deadly.

For bone deformities, radiographs can be taken of a foal's knees and hocks to determine how underdeveloped the bones are. Splints and restrictive exercise can be used to help foals with very weak bones. As they grow, their bones will eventually become stronger and the splints will help their bones form correctly. Later in life, foals that have been significantly affected may have problems with arthritis and joint disease.

For more information about CHD, contact the WSU Veterinary Teaching Hospital at 509-335-0711 or Dr. Melissa Hines at 509-335-0765 or mth@vetmed.wsu.edu.



Blue mustard



Clasp pepperweed



Equine Influenza: Effect on Horses, Dogs, and Humans

Much has been in the news lately about avian influenza, and in particular the H5N1 subtype of the avian influenza A virus

that affects birds and has been linked to the illness and death of a small number of humans. Horses are also infected by two different and distinct subtypes of the influenza A virus, called the H3N8 and H7N7 strains. The H3N8 strain recently made news because it apparently mutated and has been linked to several infections in dogs, beginning in 2003.

"The mutation, or antigenic drifting, that occurred with the H3N8 strain is characteristic of all influenza viruses," explained **Dr. James Evermann**, a professor of infectious diseases in the WSU College of Veterinary Medicine. "The first strain of equine influenza was discovered in 1956, and a second in 1963. Since then, there has been continual antigenic drifting. Over time, the H3N8 strain seems to have shifted to the point where dogs may now be susceptible."

The first canine cases were reported in Florida during 2003 in greyhound dogs. The dogs were housed close to horse racetracks and developed a respiratory infection and disease with a mortality rate of about 30 percent. Since then, a number of cases have been reported nationwide, but most cases have occurred in greyhounds near equine racetracks.

Even though H3N8 affects dogs, both equine influenza strains have a different antigenic makeup than the strains that affect humans. "Viruses jump species through the receptors of various species, and there is quite a bit of difference between the receptors of dogs and humans," Dr. Evermann said, who performs investigative research for the Washington Animal Disease Diagnostic Laboratory (WADDL) and the Field Disease Investigative Unit (FDIU) at WSU.

"Just because a virus jumps from one species to another does not mean humans are next," said **Charlie Powell**, senior public information director at the WSU College of Veterinary Medicine. "This equine virus is unlike the flu viruses humans are vaccinated for each fall. Humans have been exposed to the horse influenza A virus since 1956 and the canine mutation since at least 2003. So far there is no evidence it has jumped to humans or that it will jump to humans."

RISK TO HORSES

Equine influenza is most prominent in the cooler months of autumn, winter, and spring. Once a horse has been exposed to the virus, it will generally display symptoms within three to five days. Signs include a fever of about 103 degrees, cough, runny nose, and lethargy.

"A high percentage of horses can become ill from influenza, but they won't die from it," Dr. Evermann said. "Fatalities usually result from secondary bacterial infections or complications, like pneumonia."

The clinical signs of equine influenza also appear similar to several other viral respiratory diseases, such as equine herpesvirus and equine viral arteritis (EVA). Horses thought to have influenza should be confined to avoid exposing other horses and can be diagnosed by a veterinarian and laboratory testing.

"At WSU, testing for equine influenza is included in our normal respiratory screen, along with equine herpesvirus and EVA," Dr. Evermann said. "A veterinarian can take a blood sample, nasal swab, or trans-tracheal wash and send it to our diagnostic laboratory (WADDL) where we can make the diagnosis. The local veterinarian will try to minimize the stress on

the horse, and keep it as confined as possible to avoid exposing other horses."

Equine influenza is highly contagious, and is spread through the air through aerosol droplets, nasal discharge, and objects such as contaminated brushes and rags. "If there are a large number of horses together in a confined area, it can spread quite easily," Dr. Evermann said. Those at greatest risk are horses that are congregated together at racetracks or training facilities from around the country or the world. Risk varies with how long horses have been together, age, herd movement, and vaccination.

There is no treatment for influenza once a horse has it other than rest, but if a bacterial infection begins to occur, antibiotics may be administered for control. "The big thing with influenza, unlike equine herpesvirus (rhinopneumonitis) or EVA, is that it takes a longer time to recover," Dr. Evermann said. "Horses with a mild case of influenza need at least two to three weeks to fully recover, and those with a severe case might need up to four months."

"This is especially true for performance horses, such as racing or rodeo horses," he said. "The tendency is to try to get them back into training as soon as possible, but with flu, you don't want to begin too soon. Before an animal resumes training, it should be well rested, clear of nasal discharge and coughing, and have a temperature of about 101 degrees. Owners should also monitor their horses to make sure the animal does not relapse."

WSU recommends horses be vaccinated at least twice as foals and then annually thereafter. "Performance horses or those with a heightened risk of exposure should be vaccinated quarterly," he said. Horses can become infected with the influenza virus even with a vaccine, but they will not experience symptoms of the disease.

RISK TO DOGS

"The mutation of the H3N8 strain makes us aware how flexible influenza is and emphasizes the need to be more watchful of new and emerging diseases," Dr. Evermann said.

This year, researchers from WADDL are conducting a survey to discover the rate of canine influenza exposure in dogs with the aid of banked canine serum. "We would like to know if canine influenza occurred here before 2003 and we just didn't know about it," Dr. Evermann said.

"It could have because there are two levels of a disease. The first level is the infection level where up to 50 percent of a population may have been exposed," he said. "The second level is the disease level in which a much smaller percentage actually show symptoms. The research team would like to know what percent of dogs have been exposed, but have never shown any clinical symptoms."

"We were expecting a lot more canine influenza problems, but I am not aware of a diagnosed case in eastern Washington," he said. "Some locations reported canine flu around racetracks, but those were primarily greyhound dogs."

Currently, there is no vaccine for canine influenza. Owners concerned about the disease should minimize contact between risk groups, such as greyhounds and horses, and vaccinate their horses to reduce the risk.

For more information about equine influenza, contact the veterinary teaching hospital at 509-335-0711, or Dr. Evermann at 509-335-3044 or jfe@vetmed.wsu.edu. For more information about canine influenza, go to www.vetmed.wsu.edu/announcements/canineinfluenza/index.asp.

Meet Our 2006 Equine House Officers...

The WSU Equine section is staffed with many competent veterinarians who occupy a number of critical positions on our health care team. **Dr. Mónica Mira** is a Portuguese equine veterinarian who joins us for a one-year fellowship in equine surgery. **Dr. Erin Groover** is our new instructor in equine internal medicine. **Dr. Jennifer Cohen** is an equine medicine intern who was featured in the fall 2005 issue of Equine News. Joining the trio are several veterinarians in their residency training programs: **Drs. Sarah Sampson, Matthew Brokken, Marta Gonzalez Arguedas, and Macarena Sanz.**

Residents are veterinarians who have completed their veterinary degree and at least one year of an internship or equivalent practice experience. As residents, they pursue advanced clinical training in a veterinary specialty area such as internal medicine or surgery. Completion of a residency qualifies them to pursue specialty board certification with the American College of Veterinary Internal Medicine or the American College of Veterinary Surgery. Residents typically work at the WSU Veterinary Teaching Hospital for at least three years and are involved in many cases that contribute to the development of their high level skills. Many of the residents also engage in masters or doctoral research programs to enhance their competence as a clinical scientist and future academicians.



Dr. Sarah Sampson

Dr. Sampson entered a four-year residency in equine surgery at WSU in July 2003. Her emphasis is equine orthopedic surgery, lameness diagnosis, and magnetic resonance imaging's (MRI) role in the lameness evaluation. Born and raised in Victoria, British Columbia, Dr. Sampson came to Pullman as an undergraduate and earned her bachelor's degree in Animal Science and a DVM degree from

the WSU College of Veterinary Medicine in 1999. She also worked as a research assistant during her stay at WSU. She later worked in a private equine veterinary practice near Seattle for four years with an emphasis on lameness, equine dentistry, and reproduction. Dr. Sampson has had a life-long interest in horses and has spent years riding and showing horses in many different disciplines. These experiences led her to develop a strong interest in performance-limiting conditions. Her goal is to become a board certified equine surgeon and specialize in orthopedics, lameness, and surgery at a university with equine MRI capabilities.

"The ability to work closely with cases involving MRI makes the WSU residency very interesting to me," she said. "Through it, I aim to expand my knowledge of orthopedic issues to be able to more thoroughly diagnose and treat horses."



Dr. Matthew Brokken

Dr. Brokken is a native of Fort Lauderdale, Florida, and the son of an equine racetrack practitioner. Dr. Brokken earned his DVM degree from the University of Florida in 2003, and completed an equine ambulatory internship at Ohio State University the next year. In July 2004, he joined the WSU Equine Team as an equine surgery resident with a special interest in the equine athlete and MRI. He

is currently researching tendon and ligament injuries in the sport horse.

"My first year and a half here at WSU has been a great experience," he said. "The clientele have been very receptive and are extremely knowledgeable. The team of surgeons and facilities here are second to none and the MRI unit has really elevated the diagnosis and treatment of certain musculoskeletal disorders to a whole new level."



Dr. Marta Gonzalez Arguedas

Dr. Arguedas earned her DVM degree from the University of Zaragoza in Spain in 2000. Since then, she has sharpened her skills in equine medicine at two veterinary hospitals in Spain and California. Before coming to WSU, she completed an internship in large animal medicine, surgery, and theriogenology at the Atlantic Veterinary College in Charlottetown, Canada,

on Prince Edward Island.

The Spanish native began her residency at WSU in July 2004. Her focus is equine internal medicine with a special interest in neonatology, conditions of the gastrointestinal tract, and equine clinical pathology. Her goals are to become the first veterinarian from Spain to be board certified through the American College of Veterinary Internal Medicine and to eventually return to private practice in Madrid.

"I have really enjoyed the training program at WSU, and I'm looking forward to the next two years of my residency," she said. "I feel very lucky having the opportunity to learn from and to work with the equine medicine senior clinicians, and to be a part of this team."



Dr. Macarena Sanz

Dr. Sanz earned her DVM degree from the National University of La Plata in Buenos Aires, Argentina, in 2000. She has a wide variety of clinical experience that includes an internship in 2001 on Haras La Madrugada, one of Argentina's largest Thoroughbred farms. Dr. Sanz also served as an extern in equine medicine, surgery, and theriogenology at North Carolina State University in 2003, and worked as a field veterinarian at a large animal swine operation in North Carolina. She came to WSU in 2004 and spent a year as an equine intern before beginning a three-year residency at WSU in equine internal medicine in July 2005.

"I enjoy the unique experience of working in an academic environment with cutting edge technology and novel therapeutics," she says of the WSU College of Veterinary Medicine. Her future plans include becoming board-certified in equine internal medicine and to secure a university faculty position that encompasses research, teaching, and clinical work.

Meet Dr. Julie Cary



Dr. Mónica Mira

Dr. Mira joined the WSU Equine Team in spring 2005 for a one-year Equine Surgery Fellowship sponsored by a European Union project at the University of Évora in Portugal. Dr. Mira earned her DVM degree from the Technical University of Lisbon, Portugal, and is accredited by the International Federation for Equestrian Sports. She worked as an equine practitioner for six years before coming

to WSU, and has been appointed as resident veterinarian of the future Equine Teaching Hospital of Alter located at the National Stud in Alter do Chão, Portugal. She will begin this appointment following her WSU fellowship, in which she is gaining advanced training in equine surgery. She also spent two months at a private equine practice in Pennsylvania, and two months in equine surgery and anesthesia at the University of California Davis.

"My experience at WSU has been great, especially with the students, who I really enjoy teaching and being with," she said.



Dr. Erin Groover

Dr. Erin Groover recently joined the WSU Equine Team as an equine internal medicine clinical instructor. She earned her DVM degree from the University of Georgia in 2001, where she also completed an internship and residency in large animal internal medicine before coming to WSU in the summer of 2005. She recently completed her credentials for board certification by the American College of

Veterinary Internal Medicine, and is particularly interested in equine respiratory diseases, neonatology, ultrasonography, critical care, and gastroenterology. Dr. Groover has spent many years riding and training horses, and has experience in equine private practice ambulatory medicine and private practice referral medicine.



Dr. Julie Cary is WSU's newest equine surgeon and diplomate of the American College of Veterinary Surgeons. She recently joined our team as a clinical instructor of equine surgery and emergency care in 2005, replacing Dr. Tamara Swor, who accepted a position at Texas A & M University.

Dr. Cary is responsible for organizing the large animal emergency and intensive care services at WSU. She also instructs students, and assists and mentors interns and residents in emergency care and treatment. In addition, she evaluates, assesses, and performs medical treatments and emergency surgery on equine patients, all while working closely with clients and referring veterinarians.

Dr. Cary received her DVM from Colorado State University in 1999 and completed a residency in Large Animal Surgery with a master's degree at the University of Minnesota in 2003. She became board certified in large animal surgery in 2004. Dr. Cary practiced at the Cave Creek Equine Surgical Center in Arizona for two years before coming to WSU. In Arizona, she was an associate surgeon in orthopedic and general surgery.

In addition to her veterinary work, Dr. Cary has a number of outdoor interests. She has been very involved with her family's ranch and outfitter business located in Wyoming, which has been family owned and operated for three generations. She has also been an environmental educator and wildlife technician for a number of years.

WSU offers a 24-hour-a-day emergency service at the Veterinary Teaching Hospital in Pullman. A team of internists, surgeons, and anesthesiologists are available to provide state-of-the-art surgery and emergency intensive care for the most critical patients. Referrals are not necessary for horses to obtain veterinary care, and concerned horse owners are welcome to contact the service about emergencies or questions they may have regarding veterinary care for their animals. The service can also assist area and referring veterinarians with complicated cases. For more information, contact the Veterinary Teaching Hospital at 509-335-0711.

WSU Veterinary Teaching Hospital Switchboard

Main VTH Number / Switchboard..... 509-335-0711
Equine Appointments.....509-335-0718 / 509-335-0719
Agricultural Animal Appointments..... 509-335-0741
Small Animal Appointments509-335-0751 / 509-335-0752
Dean's Office 509-335-9515
Department Chair..... 509-335-0738

VTH Fax Number..... 509-335-3330
Billing 509-335-0816
Pharmacy 509-335-0736
Pet Partnership Program..... 509-335-4569
Pet Loss Hotline..... 509-335-5704

Would you like to know more about our equine clinical services, research, accomplishments, or just get directions to the college?

Please check out our equine Web site at www.vetmed.wsu.edu/depts-equine or the WSU Veterinary Teaching Hospital Web site at www.vetmed.wsu.edu/depts-vth/equineServices.asp.

Also feel free to call 509-335-0718 for **equine appointments** or 509-335-0711 for **emergency care**.



WSU Veterinary Teaching Hospital
Department of Veterinary Clinical Sciences
College of Veterinary Medicine
PO Box 646610
Pullman, WA 99164-6610

Nonprofit Organization
U.S. Postage
PAID
Pullman, WA
Permit No. 1

“Equine Transport” Takes Horses to and from WSU

The WSU Veterinary Teaching Hospital offers an equine transport service for horses as far away as western Washington. This is an especially useful service for busy horse owners with sick or injured horses, but no time to take their animals to Pullman for advanced veterinary care.

For \$210 each way, WSU van driver **Rick Fredrickson** picks up horses at **Emerald Downs Racetrack** and **Donida Farms** in Auburn, and **Yakima Meadows** in Yakima, and transports them to and from the WSU veterinary teaching hospital.

“Horse owners are very appreciative of this service,” say Fredrickson, who has been a driver and equine staff member at the college for more than 20 years. “Usually, the trailer is full with six horses both ways and we run it about every other week, but if the need is great, we run it once a week.”

Horses also travel in more comfort than ever before. The college, which has offered this service for more than 30 years, recently purchased a new six-horse trailer that features a stallion and mare/foal stall in it.

“It is such a convenient service for people on the west side of the state,” Fredrickson said. “I make the trips year round... rain, snow, or shine.”

For more information about the van service, referrals, or directions to the pick-up points, contact **Lynette Kinzer** at the Equine Appointment Desk at **509-335-0718** from 8 a.m. to 5 p.m., Monday through Friday.

The main pick-up point for horses west of the Cascade Mountains is at Donida Farms. Directions are posted on the WSU Equine website at www.vetmed.wsu.edu/depts-equine/directions.asp.

Equine News at the Speed of Light!

Beginning January 1, 2007, WSU Equine News will be available to our readers via e-mail. Instead of waiting for a hard copy in the mail, the newsletter will arrive in your e-mail inbox as a Web link to the WSU Equine News Web site to peruse at your convenience.

In it, you will be able to find out what is new with the WSU Equine Team, the latest in equine research, health issues, hospital services and activities regarding our college, and horse health throughout the Pacific Northwest. You can also meet our faculty doctors, residents, interns, staff, and members of the WSU Equine Advisory Board, learn about upcoming events at the college, and keep track of critical contact information for the Veterinary Teaching Hospital and college Web site. Online, the newsletter also offers the advantages of Internet hotlinks directly to the people and programs you read about.

The newsletter is published quarterly and is sent to teaching hospital clients, referring veterinarians, equine industry people, and horse lovers in general.

If you would like to keep receiving the newsletter electronically for free, simply go online to the WSU College of Veterinary Web site at www.vetmed.wsu.edu/depts-vth/EquineNews/index.asp and enroll. Previous issues of Equine News can also be found there. Those who prefer a hard copy of the newsletter can subscribe for a \$25 annual fee to receive four quarterly issues by U.S. Mail. To request a hard copy, you can mail this slip to the address below, call 509-335-3100, or go to the WSU veterinary Web site link above.

Hard copy mailings to non-subscribers will cease on January 1, 2007, so be sure to reply soon.

Name: _____

Address: _____

City/State/Zip _____

E-mail: _____

- I would like to receive WSU Equine News for free via e-mail and have included my e-mail address above.
- I would like to subscribe to WSU Equine News to receive four quarterly issues via U.S. Mail. Enclosed is my check for \$25, made payable to WSU Veterinary Clinical Sciences.
- I would like to make a donation to the WSU College of Veterinary Medicine to support important equine services and research being performed to improve equine health everywhere. Enclosed is my check, made payable to Washington State University Foundation.

Or charge my Visa MasterCard

Card # _____

Expiration Date: _____

Signature _____

Mail to: Linda Wilson
Washington State University
College of Veterinary Medicine
PO Box 646610
Pullman, WA 99164-6610