

Equine NEWS

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Equine Piroplasmosis: a risk for horses traveling abroad

ARS and WSU scientists developed internationally standardized test to curtail spread

For years, a common infectious disease transmitted by ticks called equine piroplasmosis (babesiosis) has had great impact on the horse industry in the United States and abroad. An acute infection of the disease produces clinical signs in horses similar to those seen with malaria in humans. The disease can be deadly to horses that have never been exposed.

Equine babesiosis, caused by two distinct parasites (*Babesia equi* and *Babesia caballi*), is widespread in many parts of the world, including South and Central America, the Caribbean including Puerto Rico, Africa, the Middle East, and many European countries.

The United States, however, is considered free of the disease and maintains strict regulations to keep it out of the country. Regulations restrict the movement of horses internationally and include mandatory testing by the Animal and Plant Health Inspection Service (APHIS) of the U.S. Department of Agriculture to detect infection in horses entering the United States.

Unfortunately, past testing measures did not always yield accurate results. However, a serological test developed recently at Washington State University in collaboration with the USDA's Agricultural Research Service (ARS), has improved the reliability of detecting equine piroplasmosis and increased the ability to keep infected horses from entering the United States.

Called cELISA (competitive enzyme-linked immunosorbent assay), the test is currently the official serological test used by the USDA to detect piroplasmosis infection. It is also commercially available to horse owners abroad who would like to export horses to the United States for commerce, or to enter equestrian races, shows, or other competitions within the country.

"ARS and WSU scientists worked collaboratively to ensure the test for detection of infection with each parasite was a commercially available, standardized product so that all interested parties were



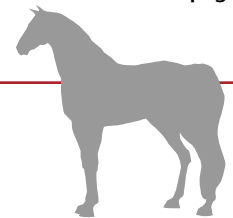
A piroplasmosis-infected horse heavily infested with the "tropical horse tick" (Dermacentor nitens) in natural conditions in Brazil. This tick also inhabits parts of the United States.

using the same test and getting the same results," said **Dr. Don Knowles**, research leader with the ARS Animal Disease Research Unit and a professor in the WSU Department of Veterinary Microbiology and Pathology, who headed the project. The team also included Drs. Lance Perryman, Steve Hines, Travis McGuire, and Tim Baszler from WSU, Lowell Kappmeyer and Will Goff from ARS, and Steve Hennager and John Katz from APHIS.

"It took 10 years to develop in the laboratory, be validated by the USDA's National Veterinary Services Laboratory, and acquire a patent for the tests," said Dr. Knowles, who has worked on the project since 1990. "One important outcome was that a local company, VMRD Inc. (Veterinary Medical Research and Development) in Pullman, was able to get a USDA license for the tests and put them into a format for international sale. So not only has the research been beneficial globally, but also locally.

"The main reason we developed the test was to protect U.S. horses from getting equine piroplasmosis," he said. "But it has been

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a double-edged sword for some because it has made it harder for importers to get horses into the country.”

While the United States is currently considered free of equine piroplasmiasis, the disease was introduced in the Southeast during the late '50s and early '60s when infected horses were imported from Latin American countries. Since then, a few cases have occurred, but intensive control measures have curtailed further spread.

U.S. horse owners likely need not fear the disease if their horses travel exclusively within the country, but it is important to be aware of the restrictions and risks for horses that are imported or travel internationally.

Currently, all horses must be tested serologically for piroplasmiasis at U.S. ports of entry and remain quarantined when necessary until results prove the horse to be negative. Horses that test positive are not allowed entrance into the United States. If a domestic horse is found positive on serologic blood tests, local and federal veterinary authorities must be immediately contacted and the horse must be quarantined, exported, or euthanized without delay.

While the regulations are aimed at protecting the U.S. horse population, they can frustrate owners and breeders. Owners planning to import horses into the United States or desiring temporary entrance to compete at equestrian sport and show events commonly deal with these regulations. This is because nearly all horses from South America and from some parts of Africa, Central America, the Middle East, and some European countries test serologically positive for piroplasmiasis.

In addition, U.S. horses traveling to countries where equine piroplasmiasis is present are at risk of contracting the disease if exposed to infected ticks and will therefore not be allowed re-entry.

Reasons for strict control

Equine piroplasmiasis is caused by two microscopic parasites. These parasites live within blood cells of infected horses, mules, donkeys, and zebras. They are transmitted by ticks that feed from one horse to another. Horses can also contract the disease from the blood of other infected horses, such as from the use of contaminated veterinary equipment like syringes and needles.

Clinical signs of equine piroplasmiasis can be similar to malaria in people, leading some to refer to it as equine malaria. These signs include weakness, fever, lack of appetite, colic, jaundice, swollen limbs, bloody urine in severe cases, abortion, and occasionally death.

Symptoms can vary significantly from horse to horse, and may be non-specific. It can also depend on the endemic status of a certain area. Some horses experience mild cases that resemble flu, while others present with poor body condition and performance. Others may experience severe disease that results in abortion and death.

Death especially occurs when adult horses never previously exposed to the disease are suddenly placed in contact with infected ticks. Mortality rates can reach 50 percent in previously unexposed herds, as occurred in one instance where a few infected horses were introduced into a herd in southern France. The degree of illness in surviving horses is also typically severe. Newborn foals from infected mares can be born very sick as well, requiring intensive care that may still result in high mortality rates.

One reason why authorities are concerned with preventing equine piroplasmiasis introduction to the United States is because most U.S. horses have never been exposed to the disease. The United States also possesses various tick species capable of transmitting the disease. Once ticks become infected in the wild, it can be very difficult to control the disease's spread.

Another important reason for strict testing control is that horses infected with piroplasmiasis can carry the parasite in their blood for many years, even if they recover from the initial disease. Many carrier horses show no symptoms of disease, and return to their

normal condition, look healthy, and show good performance. This is especially true of horses from endemic regions exposed to the disease at a young age. Despite appearing healthy, these carrier horses can transmit the parasites to ticks and are a potential continuous source for maintaining and disseminating the organisms to the horse population.

In addition, there are no treatments available that can consistently completely clear the parasite from a horse. Drugs are available that can help minimize clinical signs and help the horse recover from the disease, but in many instances cannot eliminate all the parasites from the horse's blood, allowing more horses to be unapparent carriers.

There is also no vaccine commercially available to protect horses from contracting the disease from infected ticks and horses.

“Because most recovered carrier horses look and perform normally, it is hard for owners to accept some of the imposed regulations, especially when euthanasia or immediate quarantine or exportation is involved,” said Dr. Chantal Rothschild, a WSU graduate research assistant and board-certified equine medicine specialist working with Dr. Knowles in the department of Veterinary Microbiology and Pathology. “Adding to this frustration is that in the past, diagnostic tests for horses with piroplasmiasis were not very sensitive. This resulted in many false negative results in which horses were actually positive, especially in carrier horses with low blood parasite levels. Then several months later, they were proven to be serologically positive when tests were repeated.”

These tests include microscopic examinations of blood smears and certain serologic tests, such as the complement fixation test. For many years the complement fixation test was the official test used for horses entering the United States. Recently the official serologic test was changed to the cELISA test developed by ARS and WSU.

“The cELISA is more accurate than the complement fixation test, especially in terms of sensitivity,” Dr. Rothschild said. “In the case of suspect horses, the testing must be done under the supervision of the state veterinarian and submitted to specific USDA-approved laboratories.”

There are also several genetic and molecular tests available at WSU and other USDA approved laboratories that can detect the presence of the parasite even at very low levels when undetectable by other tests. These tests are beginning to be used in cases where horses that were once serologically positive become negative after treatment with anti-piroplasm drugs.

“Authorities have serious concerns because it only takes one or two ticks to transmit the disease to healthy horses, even from healthy looking carrier horses,” Dr. Rothschild explained. “In addition, carrier pregnant mares can transmit the parasites to their fetuses via the placenta for many generations.”

“There is much controversy surrounding this topic and still many unknown aspects regarding the parasites, treatment protocols, transmission, and the immunology of infected horses” she said. “Further studies are essential, especially to try and identify a method of clearing horses of infection by using more intense drug combinations and protocols.”

“WSU and the USDA have invested many years and resources into piroplasmiasis research trying to find a solution, including a vaccine, for everything this disease causes for affected horses and involved owners,” she said. “However, until there are reliable protection measures for our native horse population, U.S. veterinary authorities have elected to maintain strict control so that infected horses do not enter or reside here. Hopefully, with the advancements in research, reliable curative and preventative methods will be discovered soon.”

For more information, contact the WSU Veterinary Teaching Hospital at 509-335-0711, or Dr. Donald Knowles at 509-335-6022 or dknowles@vetmed.wsu.edu. 🐾

Some grasses may cause horses to stop eating

When owners think of things that can injure their horses, hay is probably not the first thing that comes to mind.

Of course, dietary changes can be the source of gastrointestinal upset and colic. But certain grasses present in hay can cause horses to develop blisters or lesions in their mouths, including painful ulcerations on the tongue, gums, cheeks, and lips. These sores can get so painful that a horse may stop eating, and the sores can become infected.

"There are many types of grasses that can cause mechanical injuries in horses due to the presence of grass awns," said **Dr. Patricia Talcott**, a Washington State University associate professor who provides diagnostic toxicology services for the Washington Animal Disease Diagnostic Laboratory in Pullman.

Grass awns are the slender bristle-like or hair-like structures found on the seed heads of many grasses. "We get many calls throughout the year from clients whose horses are suffering from oral lesions, and most end up being related to certain plants in grass or alfalfa hay," she said. "Mostly, the horses have eating problems, but the oral lesions and associated pain can be so severe that some owners have opted to euthanize their horse."

There are several grass species that consistently cause mechanical problems in animals. These include bristleglass or foxtail grasses (*Setaria spp.*), wild barley and foxtail barley (*Hordeum spp.*), bent grass or wind grass (*Agrostis* or *Apera spp.*), barnyard grass (*Echinochloa spp.*), feather finger grass (*Chloris virgata*), bromes (*Bromus spp.*), wild oats (*Avena fatua*), and needlegrass or speargrass (*Stipa spp.*).

"These grasses grow in many parts of the country," Dr. Talcott said. "Most of the hay we see in the laboratory comes from northern

Idaho and eastern Washington. Many of these grasses are so ubiquitous and common that people generally don't recognize them as a problem."

Another major problem with grass awns is that they can be hard to see in hay. Often these grasses grow as weeds and are baled along with timothy-mix grasses or alfalfa.

"The awns don't have to be horribly big to cause a lot of damage," Dr. Talcott said. "They

can be incredibly small and easily be overlooked, even when you are looking for them."



Lesion on a horse's tongue caused by grass awns in its hay.

Lesions often mistaken for viruses

Not all horses on the same feed will develop sores, or experience the same degree of problems. Signs of grass awn irritation include bad breath, red, swollen, or receding gums, and lesions or ulcerations in the mouth and tongue. Sometimes grass awns are compacted in the gums. In addition, a horse may refuse to eat, and be very reluctant to have its owner or veterinarian look in its mouth.

"Many times when owners see oral ulcerations in their horse's mouth, they get nervous and think the cause is a viral infection or some foreign disease or public health issue," Dr. Talcott said. "Others think it is related to a chemical burn, but it rarely is. Many don't think of grass awns."

A veterinarian should examine the horse and feed to determine the cause. If awns are the problem, a veterinarian can flush the wounds clean, prescribe and administer appropriate antibiotics and analgesics for associated infection and pain, and guide the owner about oral care, such as brushing, and what to feed the horse as it heals.

"It does take time for a horse to heal and treatment does involve intensive care on the owner's part," she said. "It can be difficult to get a horse to eat, so an owner might have to result to tube feeding. After a couple of weeks, there should be improvement.

"Mechanical irritation and sores from grass awns are completely preventable," Dr. Talcott said. "It is important for owners to know what they are purchasing when they buy hay, and to be able to recognize components in the hay they feed. If owners have questions about what is in their hay, county extension services are very useful and can help identify which grasses are present."

Suspicious plant samples can be sent to the WSU Extension for identification. Dr. Richard Old serves as the weed identification specialist and can be contacted at 509-335-2915. Hay and plant samples can also be sent to Dr. Talcott at the Washington Animal Disease Diagnostic Laboratory for identification.

For more information, contact Dr. Patricia Talcott at the Washington Animal Disease Diagnostic Laboratory at 509-335-9696 or ptalcott@vetmed.wsu.edu.



A horse's swollen gums from grass awn irritation.

Count Me In

It is our privilege and desire at WSU to provide the best veterinary care to the many formidable equine athletes and companions who are treated at our hospital. Through the generosity of many individuals who support quality health care and the WSU College of Veterinary Medicine's mission of teaching, research, and service, we are able to continue our work and plan for the future with confidence.

The largest part of what we do is made possible by the encouragement, collaboration, and financial contributions of our generous public. Through each thoughtful gift, WSU is making a difference in the lives of our students and the equine industries of Washington and the region. These gifts enable us to greatly

enhance the scope of our equine veterinary services and allow us to continue to provide world-class health care for horses throughout the Pacific Northwest.

We would be honored if you choose to become a partner in the important work that goes on here. If you are interested in supporting the advancement of Washington State University's renowned equine medicine and surgery section, please contact **Dr. Richard DeBowes, DVM**, chair of Veterinary Clinical Sciences and special assistant to the dean, at 509-335-0738 or debowes@vetmed.wsu.edu, or **Lynne Haley**, director of veterinary development, at 509-335-5021 or lhaley@vetmed.wsu.edu.

The WSU College of Veterinary Medicine **Equine Team**

The WSU Veterinary Teaching Hospital could not operate without the cooperation and dedication of its veterinarians, technicians, and other support personnel. The WSU equine team strives to provide every client with the best possible medical care for his or her horse. Below is a chance to get to know some of these people before you visit the hospital with your horse.

Equine Faculty

The **Equine Medicine team** provides an array of services for the diagnosis and treatment of a wide variety of horse diseases, including heart and lung disorders, colic, diarrhea, neurological diseases, neonatal intensive care, and infectious diseases. Our senior faculty members, **Drs. Melissa Hines** and **Debra Sellon**, are board-certified in large animal internal medicine by the American College of Veterinary Internal Medicine (ACVIM).

The **Equine Surgery team** is renowned for their expertise in lameness evaluation and laparoscopic surgery. They provide a comprehensive array of surgical procedures for many conditions including fracture repair, arthroscopic surgery, colic, urinary bladder disorders, upper respiratory abnormalities, and ovariectomies, to name just a few. Team members also perform high-speed treadmill testing. **Drs. Claude Ragle**, **Kelly Farnsworth**, and **Bob Schneider** are board certified by the American College of Veterinary Surgeons (ACVS). Another key board-certified member of the surgery team, **Dr. Julie Cary**, is head of our emergency services at WSU.

The **Equine Theriogenology team** (reproduction service) is led by **Dr. Ahmed Tibary**, our board certified and internationally renowned large animal theriogenologist. Dr. Tibary provides a diverse range of services for horse owners including breeding soundness evaluations of stallions and mares, pregnancy and fetal well-being evaluations, semen collection and freezing, embryo transfers, and artificial insemination with fresh-cooled or frozen semen.



Dr. Melissa Hines, DVM, Ph.D., Diplomate ACVIM
Associate Professor and **Chief of the Equine Medicine Service**
Specializes in **immunology, infectious diseases, neonatology, and exercise physiology**
Member of the WSU veterinary faculty since 1989
509-335-0765, mth@vetmed.wsu.edu



Dr. Debra Sellon, DVM, Ph.D., Diplomate ACVIM
Professor of Equine Medicine
Specializes in **infectious diseases, hematology, and pain management**
Member of the WSU veterinary faculty since 1997
509-335-0733, dsellon@vetmed.wsu.edu



Dr. Robert Schneider, DVM, M.S., Diplomate ACVS
Professor and **Chief of Large Animal Surgery**
Specializes in **equine orthopedic surgery**
Member of the WSU veterinary faculty since 1992
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Dr. Claude Ragle, DVM, Diplomate ACVS, Diplomate ABVP (equine practice)
Associate Professor of Equine Surgery
Specializes in **minimal invasive surgery, laparoscopy, respiratory surgery, and gastrointestinal surgery**
Member of the WSU veterinary faculty since 1992
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Dr. Julie Cary, DVM, M.S., Diplomate ACVS
Clinical Instructor of Equine Surgery and Emergency Care
Specializes in **equine emergency medicine and surgery**
Member of the WSU veterinary faculty since 2005
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Dr. Kelly Farnsworth, DVM, M.S., Diplomate ACVS
Clinical Assistant Professor of Large Animal Surgery
Specializes in **minimal invasive surgery, laparoscopy, and lower limb lameness**
Member of the WSU veterinary faculty since 2002
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Dr. Ahmed Tibary, DVM, Ph.D., Diplomate of the American College of Theriogenologists
Associate Professor of Theriogenology
Specializes in **large animal reproduction**
Member of the WSU veterinary faculty since 2000
509-335-1963, tibary@vetmed.wsu.edu

WSU Equine Veterinary Technicians

Our registered veterinary technicians are the “nursing” staff of WSU’s Veterinary Teaching Hospital. They play a vital role in patient diagnostics and care, as well as in the education of veterinary students. Their dedication



Equine Veterinary Technicians (left to right) Letha Hunter, Jill Connolly, Rachel Jensen, patient services representative Lynette Kinzer, Teri Olson, and Molly Loaiza.

and caring is evident with every patient they assist.

Janel Holden and **Letha Hunter** work primarily with the equine surgery service. Besides surgery, they frequently help with the evaluation and treatment of horses with lameness problems. Janel also helps with large animal imaging. **Molly Loaiza** has been a technician at the Veterinary Teaching Hospital for more than 20 years. She primarily works with the equine medicine service. **Shirley Sandoval** provides primary support for large animal and equine theriogenology. **Teri Olson** is a licensed veterinary technician with advanced training in equine dentistry. She also helps the equine surgery service, and is an invaluable aid in evaluation and treatment of a variety of dental disorders in horses.

WSU Equine Support Staff

Many other individuals provide critical assistance in the day-to-day operations of the equine hospital. It is difficult to include everyone involved with the care and treatment of equine patients,



Equine support staff (left to right): Jim Hicks, Jesse Ayling, and Mike Carpenter

but you may meet a few of these people.

Lynette Kinzer is our patient services representative at the large animal appointment desk, and the person you are most likely to talk to on the phone. Lynette helps clients make appointments, answers questions,

arranges transportation to the hospital, and is a liaison between our doctors and clients. **Bob Parkins, Mike Carpenter, Rick Fredrickson, Jim Hicks, and Dan Hopkins** are our full-time large animal care staff. They clean and maintain the stalls for patient care during hospitalization, maintain our paddocks, and work with the animals. Rick Fredrickson is also the person who drives the shuttle van for equine patients traveling between Pullman and western Washington. 🐾

2007 Equine Interns and Residents

The WSU equine section is staffed with many competent veterinarians who occupy a number of critical positions on our health care team. Here, we introduce a number of resident and intern veterinarians who are new this year. They will join Dr. Sarah Sampson, a fourth-year equine surgery resident (featured in the spring 2006 issue of *Equine News*); Dr. Macarena Sanz, a third year equine medicine resident (featured in the spring 2006 issue of *Equine News*); and Dr. Kristin Gablehouse, a second year equine surgery resident (featured in the fall 2006 issue of *Equine News*).

WSU Veterinary Teaching Hospital 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 graduate research programs to enhance their competence as clinical scientists and future academicians.

WSU equine interns gain advanced training in equine medicine and surgery for one year under the mentoring guidance of WSU's senior clinicians. Clinical internships in equine medicine and surgery are offered at select universities and private practices throughout the United States and Canada and are highly competitive. WSU equine interns are chosen for their outstanding skills, abilities, and knowledge. They are involved in many cases that come through our doors and are crucial to the hospital's operation.



Dr. L. Nicki Wise

Dr. Wise earned her DVM from the University of Georgia in 2006, and following graduation was a large animal intern instructor at Texas A&M University. Her previous experience also includes working as a research assistant and large animal treatment technician at UGA, and she completed several university externships, including at the University of California, Davis, Louisiana State University, and Texas A&M. In July, she joined the WSU equine team as an equine medicine

resident with a special interest in critical care and neonatology. Her goals are to become board certified, complete a doctorate, and pursue a career that encompasses clinical practice, teaching, and research.

"WSU's diverse caseload, excellent reputation, and the opportunity to work with the field's leading experts are obvious attributes," she said of her residency. "The program also offers a great deal of support to incorporate research into the residency curriculum, which is very appealing to me."

Dr. Stavros Yiannikouris

Dr. Yiannikouris also joined the WSU equine team in July. He earned his DVM from the University of California, Davis in 2006, and performed an internship that focused on surgery, medicine, and anesthesia at the Rood and Riddle Equine Hospital in Lexington, Kentucky. Originally from Nicosia, Cyprus, Dr. Yiannikouris comes from a family-owned horse breeding and training Thoroughbred

farm, and was an exercise jockey in Nicosia. He also was a second lieutenant for the Cyprus National Guard before coming to the United States. He gained experience as head barn nurse at the University of California, Davis equine barn during his college career. His future goals are to become board-certified in equine surgery and to work in a private surgical practice that focuses on racehorses.

"I was impressed by the reputation of Washington State University," he said. "The facilities and diagnostic modalities offered are a reflection of the patient care provided and the superb student education. It's an honor to join WSU and I am looking forward to be a part of this team."



Dr. Jacobo Sebastian Rodriguez

Dr. Rodriguez joined the WSU equine team as a large animal theriogenology resident in July. He earned his DVM from the National University of La Plata, Argentina, in 2000, and until 2006, worked as a veterinary surgeon for Farm Santa Margarita in Buenos Aires, the largest Quarter horse farm in Argentina. There he was involved with reproductive procedures such as artificial insemination with fresh, cooled, and frozen semen and embryo transfer. He



also completed an equine internship program at Chino Valley Equine Hospital in Chino, California, in June. His future goals are to become board certified in theriogenology and to enter into a master's or doctoral degree program to develop research skills.

"My goal is to increase my education through intense training and to expand my clinical and surgical skills under the direct supervision of experienced clinicians at WSU," he said.

Dr. Chad Marsh

Dr. Marsh joins our team as an equine surgery intern this year after earning his DVM from Texas A&M University in May. He has a special interest in equine sports medicine and orthopedic and soft tissue surgery. Dr. Marsh has experience as a veterinary technician in equine surgery, lameness, sports medicine, drug testing, and radiographic evaluation over several years, and has also been involved with competitive team roping. His future goals are to become a board certified equine surgeon.

"The program and mentorship at WSU will provide an excellent environment to act as a stepping stone to further develop my education and competencies," he said of his internship. "This experience will allow me to further develop my surgical training and be exposed to imaging modalities not currently available at Texas A&M." 🐾





Equine tapeworms a common and often unnoticed problem

Many horses are regularly dewormed throughout the year, but until recently, the medications available for use did not protect them from or control equine tapeworms.

Tapeworms are parasites that live at a specific area of a horse's intestines where the small intestine joins the large intestine, called the ileocecal junction. Their effect on horses isn't as alarming as many other intestinal parasites, but in some cases horses experience severe colic that requires surgery because of intestinal impaction with worms.

Tapeworms can also cause a condition where one part of the intestine telescopes or folds into the other, called ileocecal intussusception. This condition requires surgical intervention to correct. Other problems associated with tapeworms in horses include inflammation, scarring, thickening of the intestinal walls where the worms attach themselves, spasmodic or gas colic, lethargy, and a general failure of a horse to thrive or keep weight on.

"We certainly see horses with tapeworm problems in eastern Washington, but many horses that have them do not display any remarkable outward signs," said **Dr. Debra Sellon**, a Washington State University board-certified equine medicine specialist and professor of equine medicine. "Horses of any age can get them. Worldwide, it is estimated that as few as 14 percent or as many as 81 percent of horses have tapeworms. In the United States, the estimate ranges from 13 to 54 percent, depending on the specific farm or geographic area."

Horses get tapeworms from oribatid mites, which commonly live in most pastures. "Tapeworms have a life cycle that moves from mites to horses and back again," Dr. Sellon said. "If you start with tapeworm eggs, oribatid mites ingest the eggs when breaking down manure in a pasture. The eggs take 8-20 weeks to develop into larvae inside of the mites. If a grazing horse eats grass with mites on them at this point, then the horse can become infected with the larvae. After the horse eats the mites, it can take 6-16 weeks for the tapeworm larvae to develop into adults, which then live for months to several years inside a horse without treatment."

Once the adult stage is reached, the tapeworms attach themselves to a horse's intestines and begin to suck blood. As they grow, tapeworms break off into segments and shed eggs, which pass onto the pasture in feces. Then the mites begin to break down the feces and ingest the eggs, starting the cycle all over again.

"The longer a horse carries tapeworms, the more eggs it will shed in the pastures it grazes and the greater the exposure to other horses," Dr. Sellon said.

While tapeworm segments are commonly found in the stool of dogs and cats that have them or are visible around their anus, it is unusual to see tapeworms in horse stool. It is also difficult for veterinarians to diagnose tapeworms from equine fecal examinations. Often they are only noticed during a direct examination of the intestines during surgery or necropsy after a horse has died. In 2000, necropsy reports in Kentucky detected that approximately 52 percent of horses there were infested with tapeworms.

Because diagnosis is often difficult, the need for treatment frequently goes unnoticed. "Because tapeworms are difficult to find in fecal samples, we recommend owners regularly deworm their horses," Dr. Sellon said. "There are a couple of new dewormers available that are quite effective."

The new dewormers contain a drug called praziquantel, which has been used for years to control tapeworms in dogs and cats, and is proven to be very effective against equine tapeworms. "Equine medications that contain praziquantel usually come in combination with other deworming drugs," she said. "Owners should talk to their veterinarian about when and how often to use these drugs in their horses in their particular area."

For more information about tapeworms or tapeworm medications, contact Dr. Debra Sellon at 509-335-0733 or dsellon@vetmed.wsu.edu, or the WSU Veterinary Teaching Hospital at 509-335-0711. 🐾



Equine tapeworm.

WSU Veterinary Teaching Hospital Switchboard

Main Hospital Switchboard and Emergencies.....509-335-0711
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Agricultural Animal Appointments
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Therigenology (Equine and Ag Animal).....509-335-0741
Small Animal Appointments509-335-0751/509-335-0752
Dean's Office509-335-9515

Department Chair.....509-335-0738
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