



EQUINE HEALTH UPDATE

For Horse Owners and Veterinarians
Vol. 19, Issue No. 2 – 2017

Have you heard of HERDA?

Co-authored by Amber Fowler, DVM Student (Class of 2018)
and Sandy Taylor, DVM, PhD, Dipl. ACVIM-LA

Hereditary Equine Regional Dermal Asthenia (HERDA) is also known as hyper-elastosis cutis and has most frequently been noted in the American Quarter Horse breed, but does occur in other breeds. Within the Quarter Horse breed, the cutting horse lines are most commonly affected and are all descendants of the stallion, “Poco Bueno.” HERDA is an equine hereditary disorder that is similar to Ehlers-Danlos syndrome in people, and is caused by a gene mutation that causes abnormal collagen synthesis. This causes the skin to be unable to withstand typical stressors, including the weight and motion of a saddle or rider. The outer layer of the eyeball (cornea) is often thin, which can predispose horses to corneal ulcers. HERDA is an autosomal recessive disorder, meaning that two affected gene copies must be passed down (one from each parent) to the offspring to cause clinical signs (symptoms) in the offspring. Horses with clinical signs are considered homozygous for the mutation. If only one copy of the abnormal gene is present, the horse will be a carrier of the mutated gene, but will not show clinical signs. These horses are considered heterozygous for the mutation, and can have affected foals if bred to another carrier. Clinical signs of HERDA are usually seen by the time a horse is two years old, which is normally when most training of horses begins; however, it has been noted in horses as young as six months of age. The most common clinical signs are:

- 👉 Pain when the skin is touched
- 👉 Loose skin that feels doughy and is easily stretched
- 👉 Sudden skin loss
- 👉 Large and numerous skin lacerations from mild trauma
- 👉 Large blood or serum-filled swelling under the skin (hematomas, seromas)
- 👉 Corneal ulcers
- 👉 Increased flexibility of limbs

Many clinical signs are due to loss of the skin’s integrity and can be made worse with any kind of trauma to the body. Generally, clinical signs are confined to changes to the skin itself. Many of the large body systems such as the heart, lungs, and gastrointestinal systems remain normal in structure and function. There have been reports of some horses that do not exhibit loose skin and non-healing sores; however, they show clinical signs of pain and can have a change in attitude when being saddled or ridden. Exposure to sunlight can make clinical signs worse.

Diagnosis of HERDA is often made based on clinical signs. The horse usually has a history of persistent sores and wounds that take a long time to heal. There is generally scarring of the horse’s skin as well. A sample of a sore can be taken and submitted for histopathology to give a preliminary diagnosis, but confirmation of the disease requires a DNA test to look for the mutated gene. Normal healing from general procedures such as castration or wound repair does not mean that a horse does not have HERDA.

(continued on page 2)

Contents...

Health

HERDA	pg. 1
Foaling	pg. 6

Community Practice

New Wounds.	pg. 4
Skin Grafts	pg. 5

News & Notes

Who’s Who?	pg. 2
Horseman’s Forum.	pg. 3
Q and A (Wounds).	pg. 3

Visit vet.purdue.edu/ePubs for more information on how to access the newsletter through our PVM ePubs app.

New LA Med Resident



Dr. Kaitlin A. Mielnicki is originally from Lebanon, Ohio. She received her undergraduate degree in Biology from Bowling Green State University, where she rode with the Intercollegiate Horse Show Association (IHSA) Hunt Seat team. She received her Doctor of Veterinary Medicine from The Ohio State University. It was during her second year there that she realized her passion for equine internal medicine. Thus, she pursued a specialty internship and accepted a year-long position as the Large Animal Medicine intern at the University of Minnesota following graduation. July marked the beginning of her Large Animal Medicine residency. Her interests include gastroenterology, infectious disease, neurology and neonatology. She very much looks forward to spending the next 3 years at Purdue University caring for your animals

New Intern



Dr. Alex Powers is originally from South New Berlin, NY where she grew up showing dairy cattle and riding hunter ponies and horses. She received her undergraduate degree from the State University of New York at Geneseo in Biology and her DVM from University of Wisconsin-Madison School of Veterinary Medicine. Alex developed a strong interest in large animal medicine during her 4th year of veterinary school and accepted a large animal rotating internship at Purdue University to continue developing her skills. Her strong interests include geriatric horses and neonatal calves. When not working she enjoys running, baking cakes and cookies, and spending time with her family.

New LA Surgery Resident



Dr. Skelton was born and raised in southern Alberta, Canada. He received his Bachelor of Science degree in 2012 and his Doctor of Veterinary Medicine in 2016 both with distinction from the University of Calgary. His passion has always been for athletics as he has competed in high level sport including playing football in university and playing rugby whenever he can find the time. He began his veterinary career with an internship at Pioneer Equine Hospital, an equine exclusive referral hospital in Oakdale, California. As the first year large animal surgery resident at Purdue he is excited for the challenge ahead. His professional interests lie in all aspects of large animal surgery but he especially enjoys orthopedics, minimally invasive surgical techniques, lameness and imaging. In his limited spare time he enjoys mountain biking, snowboarding, going to the gym and spending time with his girlfriend who is also an equine veterinarian.

reer with an internship at Pioneer Equine Hospital, an equine exclusive referral hospital in Oakdale, California. As the first year large animal surgery resident at Purdue he is excited for the challenge ahead. His professional interests lie in all aspects of large animal surgery but he especially enjoys orthopedics, minimally invasive surgical techniques, lameness and imaging. In his limited spare time he enjoys mountain biking, snowboarding, going to the gym and spending time with his girlfriend who is also an equine veterinarian.

HERDA (continued from cover)

Unfortunately, to date, there is no treatment for this genetic condition; however, careful breeding can lessen the occurrence of the disorder. Carriers of the mutated gene should not be bred to each other and, since carriers do not show clinical signs, all Quarter Horses of cutting lines should be tested prior to breeding. Management of horses who show clinical signs entails by preventing direct contact with sunlight, decreasing the risk of trauma to the horse, good wound care, and nutritional management with

emphasis on meeting copper requirements. This is because copper is very important in the formation of collagen. Well-managed and mild cases can result in rideable horses, but many owners euthanize HERDA horses because of potential problems that may arise in the future. The American Quarter Horse Association has included HERDA genetic testing in its registration process to help owners become aware of young horses with HERDA and horses that are carriers.



Figure 1. Non-healing wounds that are present on the skin



Figure 2. Very loose, elastic skin



Figure 3. Skin scars from long term wounds

References:

Badial PR, Cisneros-Alvarez LE, Brandao CV, Ranzani JJ, Tomaz MA, Machado VM, Borges AS. Ocular dimensions, corneal thickness, and corneal curvature in quarter horses with hereditary equine regional dermal asthenia. *Vet Ophthalmol*, 2015;18(5):385-392.

Rashmir-Raven AM & Spier SJ. Hereditary equine regional dermal asthenia (HERDA) in Quarter Horses: A review of clinical signs, genetics and research. *Eq Vet Educ*, 2015;27(11):604-611.

Rashmir-Raven AM. Heritable equine regional dermal asthenia. *Vet Clin North Am Equine Pract*, 2013;29(3):689-702.

Halper, J. Connective tissue disorders in domestic animals. *Advances in Experimental Medicine and Biology*, 2014;802:231-240.

Tryon RC, White SD, Famula TR, et al. Inheritance of hereditary equine regional dermal asthenia in Quarter Horses. *Am J Vet Res*, 2005;66(3):437-442.

All images found at: Rashmir-Raven, A.M. & Spier, S.J. (2015) Hereditary equine regional dermal asthenia (HERDA) in Quarter Horses: A review of clinical signs, genetics and research. *Equine Veterinary Education*. Vol 27:11. Pages: 604-611.

Q and A—Dr. Caroline Gillespie How do wounds heal?

All wounds heal by the same basic, progressive phases in all species: inflammation, proliferation, and maturation but the length of time for each phase varies wound to wound and the phases overlap at various points.

↻ The inflammatory phase initiates wound healing with controlling blood loss, then increasing the blood flow to the wounded area, initiation of debridement (cleaning) of the wound, and depositing inflammatory products (fibrin) in the wounded area. During this phase, you will see the bleeding decrease, yellowish discharge from the wound site, and the wound getting slightly bigger if it is not sutured closed.

↻ The proliferation phase allows for ingrowth of new blood vessels, the formation of granulation tissue, wound contraction, and epithelialization (migration of new skin cells). During this phase you will see bright pink tissue filling in the wound, the wound getting smaller, and a light pink line at the skin edge starting to grow over the wound bed.

↻ The final phase is the maturation or remodeling phase. This is when the wound organizes and the tissue gains some strength. This phase takes place over a very long period of time (weeks to months). You will not see much during this phase. The wounded area is becoming stronger by the alignment of fibers that are too small to be seen by our eyes, but you will see the wound scar and slowly start to look more normal and be less noticeable.

This image series shows a large wound over a shoulder that was sutured closed. Part of the skin flap became non-viable and was debrided, but the wound was considerably smaller in size when this happened, and only the non-viable skin was removed. This large wound progressed over several months to a point where the mare only has a small scar on her shoulder. This particular owner was very happy with a small scar as prior to seeing a vet she thought the horse would be put down over such a wound.



Registration Open for Purdue Horseman's Forum

The 2018 Horseman's Forum will take place on Saturday, February 10, 2018, in Lynn Hall on the Purdue University West Lafayette campus. This one-day program is designed to educate horse owners and equine industry professionals about current horse health issues, ranging from basic preventive health care and husbandry topics to state-of-the-art medical advancements. Topics for 2018 include: Nutrition, Endoscopy, Equine Health, EPM Update, Deworming, Mare Reproduction, Pre-purchase Exams, Equine Melanoma, and an Equine Research Update. The day also includes an equine treadmill demonstration, equine endoscopy demonstration, as well as tours of the large animal hospital. This program is generously sponsored by Nutrena and Zoetis. Come and share our passion for horses at Purdue University College of Veterinary Medicine!

Registration is now open! For more information, go to <https://vet.purdue.edu/ce> or contact Andrea Brown at ahbrown@purdue.edu or (765) 494-0611.



Figure 1.
Initial injury



Figure 2.
Wound repair



Figure 3.
1 week after repair



Figure 4.
12 days from repair



Figure 5.
13 days from repair



Figure 6.
After wound debridement,
13 days from repair



Figure 7. 6 days
from debridement,
20 days from repair



Figure 8. 16 days
from debridement,
30 days from repair



Figure 9.
45 days from
initial injury



Figure 10.
60 days from
initial injury



Figure 11.
75 days from initial injury



A New Wound?

Why Your Vet Should Take a Look

By Caroline Gillespie Harmon, DVM, MS, Diplomate ACVS-LA

Almost every horse owner has dealt with at least a wound or two on their horse. The big questions are and what wounds need to be seen by a veterinarian and how you treat them. This is not always an easy question to answer and if ever in doubt it is always better to have the wound looked at as soon as possible. The term “wound” encompasses everything from simple abrasions to “degloving” injuries (when the skin peels away from the leg). Horses can injure themselves on almost anything, and it is rare that the wound is made with something clean or sterile. Common items include loose nails in stalls, bucket handles, doors and door latches, and fencing. The list is exhaustive.

What wounds can you handle at home?

Skin abrasions, not full thickness skin wounds, are usually simple to handle at home. The key here is understanding why they are there. If they are rub sores from lying down in the stall, then extra bedding might be the trick for your horse. However, if the abrasions are there because the horse is colicky and rubbing his head on the ground, then he needs to be seen by a vet for the colic. Basic treatment for these partial thickness skin wounds is to keep them clean and dry so they can heal. Topical treatment of these wounds is not really necessary but some triple antibiotic ointment may help reduce the number of bacteria in the wound.

What about full thickness wounds?

A full-thickness wound is a wound that has gone through all the layers of the skin to the subcutaneous tissue, muscle or at times down to bone. The severity of full thickness skin wounds greatly depends on the location of the wound. Some very small wounds can be significant and even life threatening, and some very large wounds may heal on their own very well. That being said, some big wounds that are not over structures like joints and tendon sheaths may heal faster and ultimately with less expense if seen by a veterinarian.

If the wound is anywhere close to a joint or other synovial structure, like a tendon sheath or bursa, it should be evaluated by a veterinarian at the time it is discovered. The reasoning for this is that if the wound communicates with one of those structures and is not addressed early, when the wound seals the structure during healing, the horse will likely become very lame due to developing septic arthritis or septic synovitis (infection in the joint or synovial structure).

This unfortunately is a life threatening condition that can be difficult and extremely expensive to treat. If a veterinarian evaluates a wound over a synovial structure, he will likely place a needle into the structure away from the wound and see if it communicates with the wound. This procedure has risk associated with it, but the knowledge that the horse does or does not have joint communication will greatly change how the wound is treated. Not only will early intervention save you time and money, but it may also save the horse's life or serviceability.

How long should you wait to call your vet about a wound?

We like to see wounds as soon as possible. Our goal is to see wounds early enough that they can be sutured closed or partially closed. This decision is not always easy to make and a lot of factors come into play. Suturing the wound will likely decrease the healing time and possibly scar formation. Not all wounds will be sutured closed and a large number of those sutured closed will dehiscence (come apart) or have a portion of a skin flap die off. Even a closed wound that comes apart has often made great progress and the wound size is reduced, or the tissue that dies acts as a biologic bandage over the granulating site. Throughout this process your vet will be evaluating the wound and continue adapting the treatment plan as needed.

What should I do if I see a nasty wound on my horse while waiting for the vet?

It is easy to get overwhelmed by the blood or the tissue damage associated with wounds. The best thing you can do is stay calm, clean the wound as best you can with some dilute betadine solution, and apply a bandage while waiting for your vet. Take a picture after cleaning the wound but prior to bandaging to share with your vet, if possible. The bandage helps to keep more debris out of the wound, but also to reduce the bleeding and swelling of the tissue. This makes suturing the wound easier and increases the chances of the wound healing.

What about bandaging?

Bandages will likely be part of the therapy if the wound is located in an area that can be bandaged such as a lower limb or parts of the head. Bandages keep the laceration clean and protected from the environment while developing a granulating bed. They also help to decrease the amount of movement at the wound site. This allows the granulating bed to form without the formation of crevices or micro-cracks, which will delay healing. Decreasing the movement of the wound, particularly over a joint, will help it heal more quickly—this is why sometimes bandage casts or splints are needed to help minimize movement at the wound site for optimal healing. Once a wound is granulated, the need for a bandage goes down as the granulating bed forms a barrier between the environment and the wound. In certain cases, keeping a wound unbandaged and clean at this point will accelerate healing by allowing a part of the skin to migrate across the granulation tissue.

Are limb wounds different to other wounds?

Limb wounds are some of the most common wounds that are seen in the Purdue Veterinary Teaching Hospital and are different to others in a few ways. They generally have a slower rate of healing than wounds on the trunk of horses, they are generally contaminated with dirt, debris, and feces, and finally, these wounds are more likely to develop exuberant granulation tissue, better known as “proud flesh.” This is normal granulating tissue that

Skin Grafting: A Scary Sounding but Affordable and Rewarding Procedure to Treat Large Wounds on Horses

By Sarah J. Waxman, DVM, MS, Diplomate ACVS-LA

If you have owned a horse for any period of time, you have probably experienced a wound. Some wounds are small and heal quickly, maybe even without the help of your veterinarian, but others, especially when they're on the legs, can be very large and take *forever* to heal.

Horses tend to get their legs cut up, sometimes badly. Frequently these wounds aren't found for many hours so even if the vet gets called right away, it can be extremely difficult, or even impossible, to completely suture the wound closed. The best care for a wound is immediate veterinary attention so that it can be sutured, however if it cannot, we must go down the road of "second intention healing," and healing without sutures. Unfortunately horse legs have minimal soft tissue coverage, the skin on their legs has little extra stretch to it, and horses innately have problems with wound healing in their lower limbs, including developing large amounts of proud flesh. For these reasons we often experi-

ence weeks, if not months, of doctoring and bandaging a leg when a horse has gotten a decent sized laceration on its limb that must heal by second intention. This is extremely time consuming, not to mention expensive when you factor in vet visits and bandage material, plus there is all the time lost on the horse's use, and the resulting scar is usually fragile and prone to trauma.

The good thing is that there are some things we can do to speed up the healing process. The first thing is to have any large wounds evaluated by your veterinarian as quickly as possible. Frequently these wounds can involve important structures like joints, tendon sheaths, tendons, or ligaments. Best case scenario your vet just needs to get the wound appropriately cleaned up (hopefully sutured) and bandaged and start your horse on any medications they feel are necessary. If a wound is large and must heal by second intention we can then start the conversation about skin grafts.

(continued on page 6)



Figure 1.
Initial wound



Figure 2.
34 days after grafting



Figure 3.
67 days after grafting, hair regrowth by 40 days

New Wound *(continued from page 4)*

rises above the margin of the skin, and it inhibits the migration of the epithelium over the wound bed. Exuberant granulation tissue can still develop despite our best efforts to reduce it. This is most common in areas with lots of motion or movement like the legs. This is typically treated with trimming of the tissue or sometimes by application of specifically prescribed products. A lot of the products that are used to treat proud flesh also decrease healing in the area. If your horse develops proud flesh, your vet will likely trim back the tissue so that it is level with the skin. This will allow the healthy skin to remain and have a better chance at contracting or healing over the area. Your veterinarian may need to trim back proud flesh multiple times during wound healing. These trims will save you time in the long run. If a special oint-

ment is prescribed to help decrease the excessive tissue, it will only be for a short period of time due to effects on the other healing tissue like skin.

Take home points

Determining the severity of a wound can be difficult and there can be many complications, particularly in horses. It is extremely easy for a small innocent looking wound to cause major problems that may not be noticed for days. Get your vet involved right away, especially if the wound is close to or over a joint or tendon sheath, or there is a full thickness wound. The best thing for dealing with a wound is by the team approach—to have it evaluated early by your veterinarian and to make a management plan with you for your horse to ensure the best outcome. ↻

Spotlight on Foaling: The Stages of Parturition and Foal Highlights

Co-authored by Nicole Rapa, DVM Student (Class of 2018) and Stacy Tinkler DVM, MPH, Dipl. ACVIM-LA

When one is interested in breeding horses and having foals born on their property, one of the most important aspects of this process is observation and an understanding of normal foaling. Management of a mare during gestation involves many management components that can all affect the health of the mare and foal. Proper research and communication with your veterinarian will help you prepare your mare adequately for the act of parturition or foaling. Prediction of foaling is difficult; however, some signs you may see in your mare include relaxation of tail head as well as increased udder size. In order to monitor the mare and ensure being present for the foaling, you may consider live stream videos, a foaling attendant, or a birth alert system while the mare is being kept in a clean foaling stall. Once the process of foaling starts it can be categorized into three distinct stages. Keep your vet's phone number handy and keep an eye on the clock so you know your mare is progressing normally through foaling.



Stage 1—uterine contractions and foal positioning (30 minutes to 4 hours):

During the first stage of foaling the uterus begins to contract and the cervix is stimulated to dilate. This allows the foal to move through the cervix and into position in the birth canal. Your mare will likely become restless and appear colicky during this stage as the foal positions itself. Signs that the mare is going into labor are flank watching, rolling, tail flagging and getting up and down repeatedly. The mare may be sweating and have a decreased interest in feed; however, in some cases, there are no signs at all. At this time in a normal foaling scenario white colored fetal membranes may be observed over the front feet of the foal. When these membranes rupture fetal fluids are expelled (the water “breaks”) and stage 1 of parturition ends. This stage typically last 1-2 hours.

What you can do during stage 1:

- ☞ Wrap the tail of the mare
- ☞ Clean the area of the hind quarters, vulva, and udder with mild soap and rinse well
- ☞ If there is no progress of delivery after 1 hour, contact your veterinarian
- ☞ If the hooves are not “sole down” call your veterinarian as the foal may be mal-positioned and you may have complications

Stage 2—birth or expulsion of the foal (20-30 minutes):

During the second stage strong abdominal contractions cause delivery to occur typically within 20 to 30 minutes. If it takes a mare more than 30 minutes to foal once the fetal membranes rupture, there may be a problem with positioning which can be a sign of a difficult birth (dystocia). Additionally, if a red membrane is seen protruding from the vulva during stage 2 it should be opened immediately and a veterinarian should be contacted. If this occurs, there has been premature separation of the placenta from the uterus, also known as a “red bag,” and there will be decreased blood supply and oxygen delivery to the foal. This is a true foaling emergency. The umbilical cord is often broken during delivery or afterwards when the mare or the foal stand. The cord should break about an inch below the foal's belly. Do not cut the cord, or clamp or suture the umbilical stump.

What you can do during and after stage 2:

- ☞ If foaling has not progressed by 30 minutes after the fetal membranes rupture and fetal fluids are expelled, call your veterinarian
- ☞ If you see a red membrane over the foal as it emerges from the vagina, this must be opened immediately and your veterinarian called
- ☞ Post-foaling observe the umbilical area of the foal for bleeding or contamination

Stage 3—passage of the placenta (30 mins-3 hours):

The third stage of parturition is when the placenta is passed. Most mares pass their placenta between 1-3 hours after delivery. If the mare retains her placenta, she may be at increased risk of a significant uterine or systemic infection and possible laminitis.

What you can do during and after stage 3:

- ☞ Try and document placental passage
- ☞ If the placenta is passed, collect it and store it in a plastic bag until your veterinarian can examine it to make sure it looks healthy
- ☞ If the placenta has not passed in 3 hours, call your veterinarian
- ☞ Examine the hind end of the mare to ensure there is no visible trauma to the vulva
- ☞ In cases of vulvar trauma contact your veterinarian



Foal Highlights:

Now that the foal is here, there is more work to do! After initial observations are made of the foal and mare, it is important to leave them together to bond without too much human interference. Foals should typically stand within 1 hour of birth (make attempts within 30 minutes), nurse from the mare to get colostrum within 2 hours, and pass the meconium (first feces) within 2-3 hours. Colostrum is the first milk and it is very rich in nutrients and antibodies that are essential for protecting the foal from pathogens; it is critical that the foal ingest an adequate amount of good quality colostrum within the first 12 hours of life or it will be at increased risk of disease. If the foal is unable to stand or nurse adequately within 3 hours contact your veterinarian. An enema may be needed if the meconium doesn't pass within 24 hours. To prevent an umbilical infection, dip the entire umbilical stump in 0.5% chlorhexidine solution (1:4 chlorhexidine to water) 3-4 times a day for the first three days of life. Have your vet out for a newborn foal exam and to check your mare and the placenta post-foaling so you are all off to a healthy start.

Take Home Message

Foaling is no small task; it requires lots of preparation, monitoring and decisive action. Knowing what is normal, what is not, and what to do about it are essential to maximize the chance of an uneventful foaling or early intervention in a difficult foaling. Be prepared and consult with your veterinarian to establish a plan for your mare and newborn foal before foaling so everyone knows "what to expect when you are expecting!"

References

- Brinsko, SP, Blanchard, TL. *Manual of Equine Reproduction*. 3rd ed. Chapter 9 and Chapter 11. Elsevier. 2011.
- Davies-Morel, M. *Breeding Horses*. Chapter 6 and Chapter 7. Blackwell Publishing. 2005.
- England, GCW. *Fertility and Obstetrics in the Horse*. 3rd ed. Chapter 9. Wiley. 2005.
- Farr, A. VCS 80800 Equine Medicine Lecture. *Equine Preventative Medicine: Vaccination*. August 23, 2016. West Lafayette, IN.
- McCue, PM. *Red Bag-A Foaling Emergency*. Colorado State University Equine Reproduction Laboratory. April 2009.
- Naughton, KG. VCS 814 00 Comparative Theriogenology Lecture. *Parturition in the Mare*. November 17, 2016. West Lafayette, IN.

Skin Grafting *(continued from page 5)*

Skin grafting in horses is a very easy and affordable procedure that can significantly decrease the time for wound healing, which reduces labor and material costs for you the owner, time lost on the horse during healing, and improves the strength of the healed wound vs the standard epithelial scar. These grafts usually come from skin on the horse's neck from an inconspicuous place under the mane. This procedure is most often performed standing with sedation and local anesthesia, and can even be performed outside of a hospital setting, at a horse's home barn, as long as an appropriate, quiet area with decent lighting is available. Virtually no special equipment is needed to perform skin grafts and most general practitioners are able to do the procedure. The skin grafts (individual plugs or discs of skin) are removed from the donor site (usually the skin on your horse's neck) and then transferred to the recipient site (wound bed) and implanted. After the procedure the donor sites may be sutured closed and the grafted wound is bandaged. The entire procedure can be as quick as 30 minutes to a few hours depending on the size of the wound (and therefore the number of grafts required) and how many veterinary team members are involved.

Once a wound has been grafted, it is left alone for several days while the grafts take root. From there, the bandage is only changed as often as necessary (usually every 3-5 days) and assuming there

are no complications and the majority of the grafts take, the wound will be healed in 2-4 weeks. The length of time until healed and out of a bandage just depends on how big the wound is and how many grafts were implanted. The hair will regrow about 4-6 weeks after grafting, and will come in tufts from each graft. Although this resultant graft scar isn't the most cosmetic, when you compare it to what it would look like without, and then length of time to achieve healing without, it is a very good outcome. The cost is also very reasonable. The procedure requires a hospital visit or a farm call, sedation, clipping and scrubbing the donor and recipient sites, local anesthesia for the donor site, minor surgical supplies, surgical time, suture, and possibly a bandage. Typically this can be done for \$300-500 depending on the amount of grafts that must be harvested, and does depend on the typical veterinary costs for the region you live in. The grafting process also does require that the wound be in good health and ready to accept grafts, which requires veterinary assessment. Although the cost for the procedure and the thought of a couple of vet visits before and a couple of vet visits after may sound like it adds up, generally the cost is worth it when you consider the amount of bandage material you have to buy, your time, and the time lost on the horse when it takes many months to heal up a wound.



EQUINE HEALTH UPDATE

is published by:

Purdue University
College of Veterinary Medicine
Equine Sports Medicine Center
1248 Lynn Hall
West Lafayette, Indiana 47907-1248

ADDRESS SERVICE REQUESTED

Phone: 765-494-8548
Fax: 765-496-2641
www.vet.purdue.edu/esmc/

With generous support of
Purdue University's Veterinary
Teaching Hospital and the College of
Veterinary Medicine Dean's Office.

Please address all correspondence related
to this newsletter to the address above.

Editorial Board:
Drs. Couétil L., Hawkins J. and Tinkler S.

Design & layout by:
Elaine Scott Design

EA/EOU



The Equine Sports Medicine Center

Purdue's Equine Sports Medicine Center is dedicated to the education and support of Indiana horsemen and veterinarians through the study of the equine athlete. The Center offers comprehensive evaluations designed to diagnose and treat the causes of poor performance, to provide performance and fitness assessments, and to improve the rehabilitation of athletic horses. Other integral goals of the Center are to pioneer leading-edge research in the area of equine sports medicine, to provide the highest level of training to future equine veterinarians, and to offer quality continuing education to Indiana veterinarians and horsemen. For more information visit our website:

www.vet.purdue.edu/esmc/



Continuum© by Larry Anderson