

Stable Sheet



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HORSE-HUMAN RELATIONSHIPS

Many people that own horses were drawn to them by their beauty and the promise of an enjoyable ride. Learning to ride is the physical act of knowing how to sit (and stay) in a saddle and how to apply cues or aids to the horse get it to move through the gaits and perform various movements. This can mean in an arena, on a trail ride, ranch work, jumping, or any of the ways that we can enjoy horses. If only it were this simple!



Karen Lassell leads Canon back in from turnout, matching steps.

The horse is a living, breathing mammal with thoughts, feelings, and opinions of its own. They're prey animals that are naturally herd animals; being in a herd brings companionship and safety. In order to survive in a herd, horses know how to read each other's body language and facial expressions to be able to move as a group for safety's sake. It is the non-verbal communication and their ability to not only get along with each other, but form strong bonds that ensures their safety. They must be able to quickly "tell" another horse that they're alarmed, relaxed, annoyed, friendly, playful, etc. and be able to read this from others.

What we want when riding or training our horse is to be viewed as their leader, but this isn't inherently born in them. Just because a human shows up on the scene doesn't

make us their leader. Forcing them to be "subordinate" might get them to go along to get along at that moment, but it doesn't create a partnership, which is what I believe most horsepeople desire with their horse. Many trainers are now coming to recognize and define what goes into making a good connection, friendship and rapport with a horse that then will allow that partnership to develop into one that encourages the horse to be directed and the person to be a good leader. Acknowledging to the horse that you recognize how it feels, physically and See **STEPS**, Page 6



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HD VILLENOVA: A JOURNEY TO RECOVERY

HD Villenova was the only filly born in 2018 — the other 3 foals were colts. It appeared those colts got a bit too rowdy and the best of Nova; the morning of March 16, 2019 Nova was found lying on the ice on the opposite side of their fenced paddock. This was worrisome as Nova was unable to get up on her own for some time. After a brief examination in the field and some coaxing, Nova was finally able to stand and we slowly

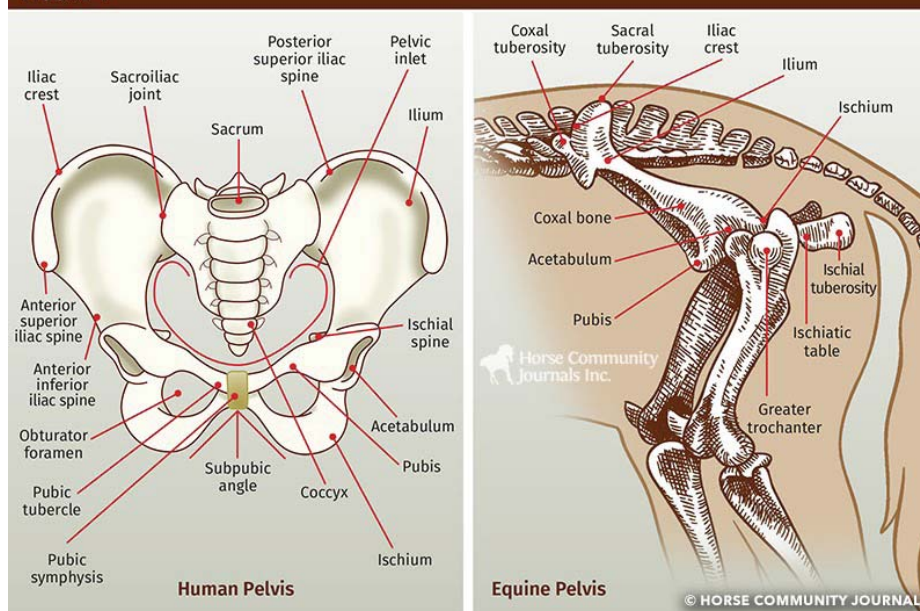
made the journey into the barn. While Nova was luckily able to walk, it was immediately apparent and quite easy to see the hitch in her step and her entire left hip dropped down.

Dr. Phil van Harreveld of Vermont Large Animal Clinic in Milton, VT happened to be at Miner that day for EquiDay, came over to the barn and conducted a more thorough examination and palpated the hip region. You could easily see her left hind leg was rotated outward, the entire hip dropped, and Dr. Phil noted the tubular coxae, known as the point of the hip, was very difficult to palpate. From this examination it was concluded the pelvis was likely broken though the exact parameters of where the break was and how bad it might be, were unknown.

My horse has a broken bone, what next?

For any owner or barn manager this is a big decision to consider and make when a horse has a broken bone. We knew we loved Nova's pedigree, conformation, and way of going. Sired by DPR Noble Viking (sired by our beloved late stallion, Legacy's Viking) and out of Spring's National Velvet, Nova has a strong build and an engaging personality.

FIGURE 1



We were beyond curious to know what the break in her pelvis looked like and how big, but Dr. Phil advised against radiographs until the bone was healed. The process of getting the needed x-rays risked further damage because she would need to be laid down and flipped onto her back for the pictures. Nova was also too small at the age of 9 months for a rectal exam to get a better palpation of the pelvis.

The decision couldn't be based on many hard scientific facts, but we had the optimism of Nova's age. As a weanling, Nova's body still had the opportunity to adapt and overcome. She was able to stand, walk, eat and drink. She very well had the possibility of adapting to the hitch in her giddy up. While her future performance career was in question, there was the likelihood she could be a unique project pony if she healed and matured enough to evaluate how her pelvic canal might handle pregnancy and life as a broodmare with a precious bloodline.

After further discussion with Dr. Phil, we decided on treatment of NSAIDs (bute) and stall rest. It would take the bones at least 4 months to heal and then we would reconvene for radiographs of her pelvis. As

long as she didn't take a turn for the worse, we would carry on!

Recovery Road aka Stall Rest

The journey of an energetic yearling on strict stall rest began! We kept Nova on a regimen of bute for a few weeks paired with an ulcer guard to protect her stomach due to the long term use. We weaned her off as quickly as we could because while we wanted Nova to not be in pain, we didn't want her

so comfortable that she'd bounce around. Her stall was kept deeply bedded for comfort and to also add traction when she would go to stand up. In the early stages it would consistently take Nova multiple attempts, a rest break, and a few more attempts to stand after lying down, but she learned her own way to get around the stall and up and down.

It was not always easy, but we were very lucky with this little filly. It turns out that Nova makes friends with any horse she meets. As long as we kept a horse or two in the stalls next to her, Nova was quite content. She thrived on attention and settled in well to her new surroundings. We got creative playing games, using clicker training techniques to teach target-touching, the use of a slow feeder hay net to keep her occupied as well as multiple toys hanging from the ceiling. Nova became a pro at backing up, pivoting on her left hind leg, and licking the salt block while lying down!

During most of Nova's stall rest she had a recovery buddy by her side. Later that same March, a yearling colt had check ligament

NOVA, Continued on Page 3

NOVA CONTINUED ...

surgery. Alex was prescribed stall rest and together they kept each other company while healing.

Time for Radiographs

Fast forward to July 2019 and we were finally ready for radiographs. Sedation was required to lie Nova down on the lawn and our veterinarians were confident this could be done safely as the bones were as healed as they'd ever be.

We picked a shaded spot on the front lawn of the farm office here at Miner and all hands on deck were required to help Dr. Phil get the best pictures possible. Diagnostic notes from our veterinarian about the radiographs showed an irregularly marginated complete transverse fracture involving the body of the left ilium—immediately cranial to the acetabulum. The fracture margins are wide, but fracture lines extending into the acetabulum are not seen. Moderate irregular bone borders the fracture, consistent with callus. The cranial aspect of the hip joint is moderately narrowed and the margins of the cranial acetabulum are mildly irregular. A focal, small osteophyte is at the cranial aspect of the hip.



Quick anatomy lesson: what do those notes mean?

The pelvis is a ring-like structure consisting of the two os coxae and the sacrum. The os coxae each consist of the os ilium, the os ischium, and the os pubis. The acetabulum, the ilium, and the sacroiliac joint are the weight-bearing structures of the pelvis.

The acetabulum is a concave surface of the pelvis and is where the head of the femur meets the pelvis forming the hip joint. The sacroiliac joint (SI-joint) connects the sacrum to the hip bones (iliac crests) and its main function is to absorb the shock between the back and the hind end of the horse. It is the important connection allowing movement to travel from the hind leg over the spine to the front of the horse. The coxal tuberosity is composed by the cranial ventral iliac spine and the adjacent lateral ventral projection of the wing of ilium. It is an important landmark : it forms the point of the hip visible in the horse.



Left Hip: Craniolateral osteophyte; narrow cranial chronic healing ilial fracture.

In summation, Nova incurred a bone fracture across the body of the ilium, towards the head of the horse/above that acetabulum (hip joint). While now healed, signs of ossification could already be seen on the radiographs showing early signs of arthritis (pictured above).

A Bright Future for Nova

Nova sustained her injury at such a young age, she really knows no other way to move. She has grown and adjusted to running around and this is her new normal. Following the radiographs we started handwalking Nova at increasing intervals everyday. Soon she and Alex were enjoying turnout time in a small paddock for short periods during the day and eventually moved to turnout in a larger pasture. Two months later in September of 2019, Alex and Nova were fully moved out to pasture to live and remember what just being a horse is like under the watchful of the retired broodmare, Boo! Time will tell just exactly what Nova's future will hold, but we're relieved that this young mare is so resilient.

— ShyAnne Koehler

* ShyAnne recently wrapped up her year-long internship and returned home to Missouri to begin a master's program in ag policy.

TIME BUDGET FOR KIMMY AND AUBURN

What is a Time Budget? It is a tool for us to understand how much time an animal spends on certain things. Why is understanding time budget important to us? Animal caretakers can identify abnormality from it. For example, if an adult horse spent 80% of its time lying down suddenly, the horse might be experiencing illness. Because an adult horse typically spends less than 20% of their time lying down. Time budget can also change over time. There are several factors that could impact an animal's time budget, such as breed. Researchers Flannigan and Stookey., (2002) showed that a draft type of horse spent more time standing, whereas light breeds spent more time on feeding. Other research has shown the variables of: season (daylight time), growth, group density, environment enrichment level, and health all to have inputs on a time budget. Stabled horses typically spend more time standing than foraging, since the feeding amount and frequency are controlled by humans. In contrast, horses with turnout may show more maintenance (grooming and rolling), foraging, and locomotion behavior. To achieve a more "natural" time budget as free-range horses for stabled horses, prolonging feeding time with hay nets and at multiple sites may increase by up to 2 h/

night (Ellis et al., 2015).

For an observation for a behavior class I'm taking online through the University of Guelph, I watched Kimmy and Auburn for 440 minutes (15-20 minutes per hour for 24 hours, and 30 minutes for two feeding periods). To ensure the clarity of the pie chart, I only selected events that were over 1% of total observation period to present in the pie chart.

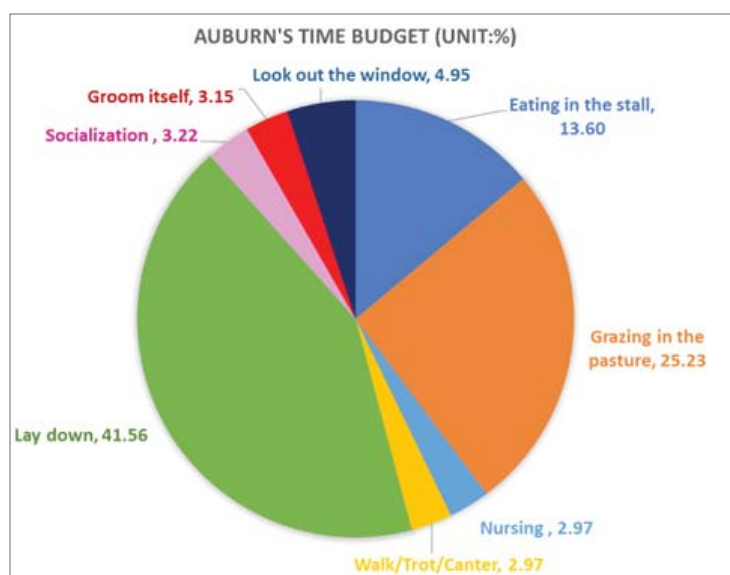
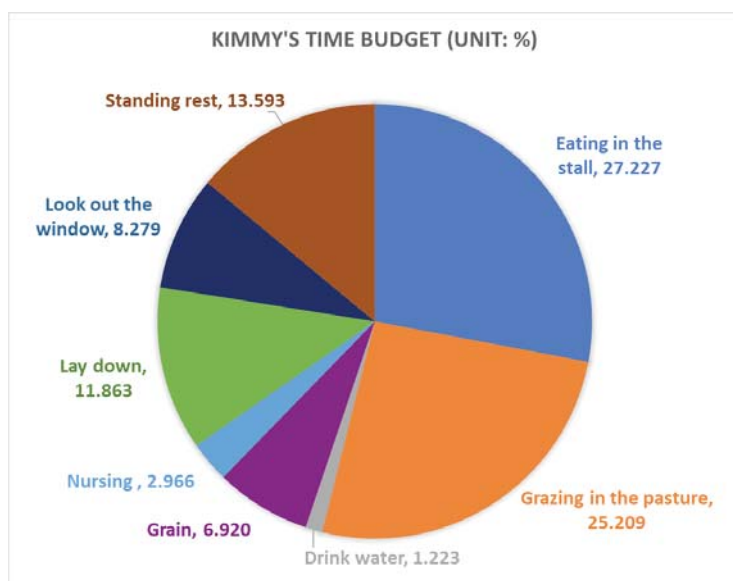
Background information: Kimmy is an 18-year-old broodmare who has had several foals in the past and her filly this year, Auburn, is three months old. There are 3 more pairs of dams and foals that share the same pasture during daytime hours, but only Kimmy and Auburn come into an individual stall for the night due to Kimmy needing a different diet than her pasture mates.

There are several differences between the dam and the foal even though they are living in the same environment. Kimmy spent most of her time eating (total of 59.365%) and resting. Auburn spent 41.8% of her time eating (including nursing, eating hay, and grazing), but she spent more time laying down and playing than Kimmy. Some of the interesting

findings to me were:

1. Auburn had a lot more socialization and grooming time than Kimmy. She also vocalized a lot during feeding (nicker mostly) and playing (nicker and neigh).
2. Before feeding, Kimmy and Auburn would peep out of the feed window more frequently, and either neigh or nicker when they heard cars drove by. Both are very gentle, but if they are fed later than everyone, Kimmy paws on the ground.
3. During eating, both Kimmy and Auburn have their ears sideways (sign of relaxation), but Auburn can be distracted easily. Auburn also spread out hay with her forelimbs whereas Kimmy only sort with her muzzle.
4. Auburn was more curious about the cats, birds and people walking by, whereas Kimmy was not responsive to these stimuli, unless it was close to feeding time.
5. Auburn tended to mimic right after what Kimmy did, such as licking the salt block, trying to eat grain from the hanging bucket, and peeping out the windows.

See **TIME BUDGET**, Page 7



ALUMNI MAKE SOME OF THE BEST MINER MORGAN AMBASSADORS

It's hard not to count a Miner Morgan that you own as one of your favorites. Kristen Anderson says that HD Harmony is "so funny and personable" and definitely her favorite Miner Morgan. The pair live in Lexington, KY where Kristen works as an equine vet tech at the Rood and Riddle Equine Hospital.

Kristen grew up in southwestern NH and attended the University of New Hampshire, where she studied Equine Industry and Business Management. She came to Miner Institute in 2013 as a Summer Experience in Equine Management student and returned as the yearlong equine intern after graduating from UNH in 2014. The yearlong internship, Kristen said, allowed her to get into a groove and test out her management skills.

"I got my first taste of a true working farm and all of the effort, time and energy that goes into it. I got exposed to a lot of different kinds of Morgans and fell in love with the breed as well," Kristen said of her experience at Miner. Kristen said that she has always loved horses and started taking lessons when she was 7 and later volunteered at a therapeutic riding program to help care for horses and assist with lessons.

At Rood and Riddle, Kristen is part of the nursing staff that takes care of patients. This entails holding horses for procedure such as X-rays and catheter placements, administering medications and monitoring vital signs. "This last



Kristen with HD Harmony



Kristen with HD Kingston in 2015.

foaling season, I spent most of my time in the ICU, which takes care of the sick neonates that come in from dystocias or foals that are having a hard time post-birth," she said. "We assist them in standing and nursing, as well as just intensive treatments and round-the-clock monitoring and care. For the foals that are too sick to stand on their own, they actually get mattresses and pillows to

keep them from getting sores."

Kristen said that one of her fondest memories from her time at Miner was foaling out HD Kingston – a 2015 colt. Kristen said that her time at Miner gave her a lot of horse handling experience and the foaling experiences she had at Miner have proved really helpful in her current role. She also fondly remembers working with HD Harmony, who she grew to love and later purchased. Kristen is among a group of Miner alumni who went on to purchase Miner Morgans and they make some of the best horse people! Kristen said that HD Harmony is well liked at her barn in Kentucky. "There's so much personality and skill packed into her and she has become a barn favorite because of her funny noises and expressions."

Kristen said that without a doubt she would recommend Miner's Summer Experience in

Equine Management program to students looking for an internship in the equine industry. "The program is so diverse that you can get experience with foals, to herd management, to breeding and reproductive skills, and training as well. It's a great well-rounded program."

— Rachel Dutil
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STEPS, Continued from Page 1

emotionally, goes a long ways to having the horse feel “heard” and makes that horse want to stick around with you long enough to hear more!

One of the ways that horses show each other “Hey, I get you!” is through mirroring. It can include facial expressions, postures, energy levels and footfall patterns. Mirroring stems from very natural, very basic neuron activity; it is why we might automatically smile at someone when they smile at us. We use those expressions and movements to communicate intentions and feelings and it is the mirror neurons that recognize these things.

You can mirror your horse in many of the everyday things you do with and around him. Hand grazing is often what we do just to spend time with a horse—instead of checking your phone or planning your menu while you let your horse munch, try standing beside him and have your foot position match his front feet. If he’s square, you stand square. If he steps left, right, left and stops with one foot in front of the other, you do the same matching the movements at the same time as best you can. When leading the horse, try to match the front feet stepping as they’re walking along. This matching of steps is something that bonded horses do. All. The. Time. Why shouldn’t we do it too?

I have noticed for myself that horses that I’ve defined as ones I “like” or get along easily with are ones that I naturally fall into matching steps when I’m leading them. Recognizing this in myself has challenged me to be even more aware of not only my energy levels and body language around horses that I’m not feeling particularly connected to, but to also pay attention to trying to match steps with them. Some horses are harder for me to do this with than others, but it is the journey we’re all here for, right? It is fun watching some of those horses start to recognize that I’m trying a little harder to connect to them and offer me some connection in return!

— Karen Lassell
lassell@whminer.com



— photo by Christopher Crosby Morris
Matching Steps: Stonecroft Deuces Wild and HD Springfield, 2016 colt.



— photo by Christopher Crosby Morris
Matching Steps: Spring’s National Velvet and HD Liberty, 2016 filly.

BOO LEADS THE WAY



Nova and Alex are on alert watching the photographer and the people in the pasture who were there to move them around with a small bag whip. Boo has decided that it is time to get moving and walks in front of them to gather them up to leave.



Boo is headed out, her rump is leaving the picture. Nova (white on one hind leg) is on the far side and Alex is looking back over his shoulder to keep an eye on the people.



Boo is trotting, but about to canter, the youngsters are cantering and beginning to line up their strides.

TIME BUDGET, Continued from Page 4

Besides the observation, I also compared Kimmy and Auburn's time budgets with other scenarios found in research papers: Kimmy spent the most time eating hay, grain, and grazing. One contributing factor could be that Kimmy has several expired teeth and missing teeth, so she took more time eating than those 24-hr pasture raised horses. Auburn, the foal, spent the most time resting (lying down in stall mostly) than the other four basic behaviors. It is normal for foals to lay down more than adults. This finding is also supported by Murase et al., 2018; foals lay longer in the stall than in pasture even if pasture time is increased from 7 hours to 19 hours including overnight. Foal time budget research is hard to find since they change so rapidly, but a study done in Mongolia stated that the time budget of the 1- and 2-year olds was more similar to that of adults than foals, indicating approaching adulthood (Boyd and Bandi., 2002). Auburn spent 3.22% of her time playing with her pasture mates. Playing (socialization) is an essential part of foal behavior Although 3.22% does not look much, mares have far less play time than the foals. Furthermore, companionship of other foals is essential to normal horse behavior development

Groups Behavior	Wild Equus (Family band)	Wild Equus (Bachelor)	Densely housed horses (4-6 m ² /horse)	Kimmy (dam)	Auburn (foal)
Feeding	41.8%	18.4%	30.55%	59.37%	41.8%
Resting	18.5%	15.4%	27.33%	25.46%	41.56%
Locomotion	10.9%	21.0%	4.07%	1.48%	2.97%
Vigilance	7.5%	27.0%	30.56%	8.28%	4.95%
Maintenance	2.5%	6.4%	<3%	1%	3.15%
Social behavior	1.4%	2.4%	<5%	Not observed	3.22%
References	(Vos., 2017)		(Raspa et al., 2020)	My observation objects	

**Definition of ethograms (Vos., 2017):*

- Feeding: Grazing, coprophagy, soil ingestion, suckling and pawing at food source
- Locomotion: Walking, trotting, running and swimming
- Resting: Standing, sleeping, lying down, getting up, yawning and stretching
- Maintenance: Grooming, comfort and excretion,
- Vigilance: Standing attentively
- Social: Herding, harem tending, reproductive, aggression, submission and harem social

(Gorgan and McDonnell, 2005). Thus, the breeding program at Miner tries to have multiple foals every year to provide great socializing experiences.

The densely housed horses (total 22 samples) spent the most time standing attentively, resting and socializing (more in the aggression behavior) among all groups. It was the result of high stocking rate and lack of other stimuli (such as turn-out). Surprisingly, densely housed horses showed less than 1% of stereotypy behavior. My explanation for it is that the companionship of other horses provides distractions. These horses were also grouped by gender, height, and weight. Thus, the group is more uniform, although

aggression behavior rate is higher than other groups. Another interesting finding is that the bachelor wild Equus group spent more time moving than all the other groups. The explanation for this could be that the family band spent more time taking care of their youngsters. Research done in 1988 stated that male wild Przewalski horses devoted more time to behaviors that would be necessary for harem acquisition and defense in the wild. Male wild Przewalski horses were more active and exhibited greater numbers of behaviors per hour (Boyd., 1988).

— Kai Yun Lai, Equine Intern

* References available upon request.

ALEX AND NOVA GET IN STEP



Boo is now cantering in the lead and you can see that their legs pretty well all match as this little herd heads to a quieter part of the pasture.



They're all pretty closely in sync here; look closely- Alex and Nova look like one horse they are so in tune!



Boo rocks back on her hocks as she starts to slow down arriving at the stopping place.



The herd has come to the other side of the pasture and stops moving to regroup and decide what do next.

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FEATURED MINER MORGAN: THE 2020 FOALS



— photos by Christopher Crosby Morris
Clockwise from top left: HD Mexico and her filly, HD Persia aka “Pearl”; UVM Loyalty and her filly, HD Athena aka “Minnie”; UVM Kimberly and her filly, HD Auburn; and Spring’s National Velvet her her not-yet-named colt aka “Floyd”.

All of 2020’s foals — three fillies and one colt — are by a stallion we stand at Miner, Canon. We’re just thrilled with these individuals and marvel at being able to see the contributions of each parent in the resulting baby!



Canon

— photo by Roy Mauritsen

Learn more about the Miner Morgans at www.whminer.org/equine.html