
UNDERSTANDING SADDLE

Do we underestimate the
impact of ill-fitting tack?

LUCILE VIGOUROUX, MSC

FIT

Some analogies compare the equine back to a violin. The horse's spine is the wooden body of the instrument, and the muscles are the strings.

When the horse's muscles and other soft tissues move the spine, the structures must stretch and extend accordingly for the entire instrument—the back—to function. The horse's ability to engage and use his back depends on well-developed and healthy musculature. Underutilized, atrophied, or spasmodic or otherwise painful muscles disrupt the animal's locomotion. Unfortunately, this kind of muscle damage often occurs due to a common, often-overlooked culprit: ill-fitting saddles. In this article we'll tackle the process of recognizing and addressing saddle fit problems to help you be sure your equine partner has a pleasant experience in the tack.

The Importance of a Saddle That Fits

Imagine running a 5K with sneakers that are too small and tight for your feet, causing blistering pain with every footfall. Or picture a track-and-field athlete attempting to navigate a course of hurdles while wearing tightly buttoned jeans that dig into the skin and cause uncomfortable friction at the seams. These struggles are similar to those horses endure in the hands of well-intentioned but ill-informed riders—and even trainers. Undoubtedly, pain, lameness, muscle atrophy (see page 61), and behavioral resistance in the ridden horse can all be linked to an improperly fitting saddle. With so much potential for harm if fitted incorrectly, saddles deserve the attention of the professionals on your horse's team—veterinarian, bodyworker, and saddle fitter.



When it's Time to Call a Pro

"It's crucial to involve a saddle fitter when your horse's body has changed for any number of reasons," says Jenna Shipley, of Shipley Equine Services, a certified equine bodyworker and saddle fitter based in Carmel, New York. Like most independent professional saddle fitters, Shipley recommends a routine saddle checkup at least twice a year. She names a few scenarios that might affect this schedule and warrant dialing your saddle fitter's number:

- **Extreme weight gain or loss.** This can include significant muscle loss from a period of inactivity, decreased nutrient intake, or even systemic illness.
- **Starting (or restarting) a horse under saddle.** Commencing training with properly fitted tack is better than fixing problems down the road.
- **Rehabbing a horse after a period of stall rest due to injury.** Shipley says the shape of the topline will change when transitioning from inactivity back to work and encourages horse owners to have saddle fit evaluated throughout the rehabilitation process.
- **A change in riders.** "Crooked riders make crooked horses," says Shipley. Researchers have shown riders who are too large for the saddle, out of balance, or crooked create uneven force distribution across the tack (Bondi et al., 2019). "These unbalanced riders can actually change the quality of their tack, creating unbalanced, asymmetrical saddles," she says.

Furthermore, ill-fitting saddles can create a "vicious cycle," our sources say. "Horses with saddle-induced back pain can have the shape of their back change, often dramatically, in a short amount of time, from the associated muscle atrophy," explains Shipley. "We have to remember how dynamic a horse's musculoskeletal system is, how much it responds to its environment."

Erin Contino, MS, DVM, Dipl. ACVSMR, associate professor of equine sports medicine and rehabilitation at Colorado State University, in Fort Collins, echoes these observations: "Whether from saddle fit issues or underlying back pathology (disease



SHELLEY PAULSON

The gullet's width (see here on both a Western and an English saddle) dictates the weight distribution of the rider across both sides of the horse's back.

or damage), horses with back pain will often 'turn off' their stabilizing muscles, causing them to atrophy. Many horses with back pain will appear to have lost muscle mass over their topline rather quickly."

As a general rule, Shipley recommends more frequent saddle fit checks for horses in a dynamic program—green horses that are still maturing, athletes rehabilitating from

an injury, or horses experiencing a variable workload throughout the year—than those in a static program. This latter group is governed by consistency: These horses have a steady workload throughout the year, and their bodies are less likely to change rapidly.

Realistically, many horse owners look for more practical and cost-effective alternatives to having their saddles professionally

evaluated and adjusted as frequently as every couple of months. Researchers' findings suggest certain saddle pads can in some cases reduce pressure on the back (Kotschwar et al., 2010).

"I do see value in some half pads that come with the ability to have shims added and subtracted, as they can be particularly useful during these times when the horse's

body is changing a lot," explains Shipley. "The reality is that although corrective saddle pads can temporarily improve the fit in certain cases, they can't be a permanent solution." And more padding isn't necessarily harmless—layering on various pads to correct a gullet or tree that's already too narrow will only make matters worse, similar to adding thick socks to your tight shoes.

How to Evaluate Saddle Fit

Our sources list eight elements to assess:

Saddle balance. The saddle must be balanced from front to back and from side to side to avoid putting excessive pressure on any portion of the horse's back or shifting with movement.

Panel contact. Both panels should make full, even contact with the horse's back. Full panel contact prevents the saddle from rocking back and forth. It also helps distribute the rider's weight evenly across the horse's entire back, ending just before the last vertebrae (typically the 18th thoracic vertebrae—T17 in some horses—which is the point of junction for the last rib). If the panels are flocked with wool, they can be re-flocked to address imbalances. Foam panels, on the other hand, do not offer that option.

Wither clearance. "Lack of wither clearance is one of the most common issues I see in performance horses," says Shipley. It's easy to see why a saddle that puts direct pressure on or around the horse's sensitive, bony withers hinders range of motion and causes pain. A horse whose saddle pinches his withers might be reluctant to move forward and might show behavioral signs of pain such as kicking out and bucking. Read about the Ridden Horse Pain Ethogram on page 68 for a full inventory of pain-related behaviors under saddle.

Gullet width. How wide or narrow the gullet is dictates the weight distribution of the rider across both sides of the horse's back. The width of the horse's individual spine and musculature at the withers should dictate gullet width. Researchers have confirmed excessive padding can make an otherwise well-fitting gullet too small (Bondi et al., 2019).

Tree width. "The tree points located at the front of the saddle should mirror the angle of the horse, allowing the shoulders to rotate comfortably," says Shipley. "If the tree is too narrow, it will restrict shoulder movement and likely cause pain. If the tree is too wide, the entire saddle will be unstable and have excess pressure at the front of the saddle. It may rock or slip from side to side, or the back half of the saddle may twist



Prascend®
(pergolide tablets)
1 mg

Brief Summary: This information is not comprehensive. Before using Prascend® (pergolide tablets), please consult the product insert for full prescribing information. The full insert may be obtained from your veterinarian or by visiting www.prascend.com. Dopamine receptor agonist for oral use in horses only.
Caution: Federal law restricts this drug to use by or on the order of a licensed veterinarian.
Description: PRASCEND Tablets are rectangular light red colored, half-scored tablets containing 1 mg pergolide, as pergolide mesylate. Pergolide mesylate is a synthetic ergot derivative and is a potent dopamine receptor agonist.
Indication: For the control of clinical signs associated with Pituitary Pars Intermedia Dysfunction (Equine Cushing's Disease) in horses.
Dosage and Administration: Administer orally at a starting dose of 2 mcg/kg once daily. Dosage may be adjusted to effect, not to exceed 4 mcg/kg daily. It has been reported that pergolide tablets may cause eye irritation, an irritating smell, or headache when PRASCEND Tablets are split or crushed. PRASCEND Tablets should not be crushed due to the potential for increased human exposure and care should be taken to minimize exposure when splitting tablets.
The tablets are scored and the calculated dosage should be provided to the nearest one-half tablet increment (see Table 1).

Body Weight	Dosage	
	2 mcg/kg	4 mcg/kg
136 - 340 kg (300 - 749 lb)	0.5 tablet	1 tablet
341 - 567 kg (750 - 1,249 lb)	1 tablet	2 tablets
568 - 795 kg (1,250 - 1,749 lb)	1.5 tablets	3 tablets
796 - 1,022 kg (1,750 - 2,249 lb)	2 tablets	4 tablets

Dosing should be titrated according to individual response to therapy to achieve the lowest effective dose. Dose titration is based on improvement in clinical signs associated with Pituitary Pars Intermedia Dysfunction (PPID) and/or improvement or normalization of endocrine tests. In some cases, adverse events were reported after a dose increase (see Post-Approval Experience). If signs of dose intolerance develop, the dose should be decreased by 50% and then titrated back up in 2 mcg/kg increments every 2 weeks until the desired effect is achieved.
Contraindications: PRASCEND is contraindicated in horses with hypersensitivity to pergolide mesylate or other ergot derivatives.
Warnings: Do not use in horses intended for human consumption. Keep PRASCEND in a secure location out of reach of dogs, cats, and other animals to prevent accidental ingestion or overdose. Dogs have eaten PRASCEND tablets that were placed in food intended for horses or dropped during administration of the tablets to the horses. Adverse reactions may occur if animals other than horses ingest PRASCEND tablets (see Post-Approval Experience).
Human Warnings: Not for use in humans. Do not ingest the product. Keep this and all medications out of the reach of children. PRASCEND should not be administered by persons who have had adverse reactions to ergotamine or other ergot derivatives. Pergolide, like other ergot derivatives, may cause emesis, dizziness, lethargy or low blood pressure. Pregnant or lactating women should wear gloves when administering this product. It has been reported that pergolide tablets may cause eye irritation, an irritating smell, or headache when PRASCEND Tablets are split or crushed. PRASCEND Tablets should not be crushed due to the potential for increased human exposure and care should be taken to minimize exposure when splitting tablets. Store this product separately away from human medicinal products and handle this product with care to avoid accidental ingestion. In case of accidental ingestion seek medical advice immediately and show the package leaflet or the label to the physician.
Precautions: Treatment with PRASCEND may cause inappetence. The use of PRASCEND in breeding, pregnant, or lactating horses has not been evaluated. The effects of pergolide mesylate on breeding, pregnant, or lactating horses are not known; however, the pharmacologic action of pergolide mesylate suggests that it may interfere with reproductive functions such as lactation. PRASCEND is approximately 90% associated with plasma proteins. Use caution if administering PRASCEND with other drugs that affect protein binding. Dopamine antagonists, such as neuroleptics (phenothiazines, domperidone) or metoclopramide, ordinarily should not be administered concurrently with PRASCEND (a dopamine agonist) since these agents may diminish the effectiveness of PRASCEND.
Adverse Reactions:
Pre-Approval Experience: A total of 122 horses treated with PRASCEND Tablets for six months were included in a field study safety analysis. Inappetence or decreased appetite occurred at one or more meals in 40 of 122 horses treated with PRASCEND. At the baseline evaluation, 15% of owners reported a history of inappetence or decreased appetite as compared to the 32.3% of horses that experienced inappetence or decreased appetite during the study. Most cases of inappetence were transient and occurred during the first month of treatment; however, some horses experienced sporadic inappetence throughout the study. Two horses required a temporary reduction in dose due to inappetence during the first month of the study. Both horses returned to their original dose within 30 days. Weight loss occurred in more than half of the horses in this study; however, weight loss that was considered abnormal was only reported in 11 horses. Lethargy was reported in 9.8% of horses during the study. Behavioral changes were noted in 6 horses including aggression, kicking, agitation, nervous behavior and increased activity. One horse required a temporary reduction

Clinical sign	# Cases	Cases (%)
Decreased appetite	40	32.8
Lameness	22	18.0
Diarrhea/Loose stool	12	9.8
Colic	12	9.8
Lethargy	12	9.8
Abnormal Weight Loss	11	9.0
Laminitis*	10	8.2
Heart murmur	10	8.2
Death	8	6.6
Tooth disorder	8	6.6
Skin abscess	7	5.7
Musculoskeletal pain	6	4.9
Behavior change	6	4.9

* Three new cases and 7 pre-existing, recurring cases in dose due to energetic behavior during the first month of the study. Eight horses died or were euthanized during the study due to worsening of pre-existing conditions (laminitis, dental disease, septic tenosynovitis) or colic (strangling lipomas, large colon volvulus). One mare was inadvertently enrolled in the study while pregnant and experienced dystocia resulting in the death of the foal.

Post-Approval Experience (2019): The following adverse events are based on post approval adverse drug experience reporting for PRASCEND. Not all adverse events are reported. It is not always possible to reliably estimate the adverse event frequency or establish a causal relationship to product exposure using these data. The following adverse events in horses are categorized in order of decreasing reporting frequency by body system and in decreasing order of reporting frequency within each body system:
General: anorexia, lethargy, weight loss
Gastrointestinal: diarrhea, abdominal pain/colic

Dermatological: alopecia, hyperhidrosis, dermatitis
Musculoskeletal: laminitis, muscle stiffness/soreness
Neurological: ataxia, seizure, muscle tremors

Behavioral: aggression (to other horses and humans), hyperactivity (anxiety, agitation), other behavioral changes (stuck-like behavior, spooky, unpredictable, confused)
Clinical pathology: anemia, elevated liver enzymes, thrombocytopenia
The above adverse events were reported in some horses at starting dose levels, while in the others following a dose increase.

Death (including euthanasia) has been reported. Adverse events have been reported in dogs following ingestion of tablets prepared for administration to horses.
To report suspected adverse reactions, to obtain a Safety Data Sheet (SDS), or for technical assistance, contact [Boehringer Ingelheim Animal Health USA Inc.](http://www.fda.gov/reportmalpractice), at 1-888-637-4251. For additional information about adverse drug experience reporting for animal drugs, contact the FDA at 1-888-FDA-VETS or online at <http://www.fda.gov/reportmalpractice>.

Effectiveness: A field study evaluated the effectiveness of PRASCEND for the control of clinical signs of PPID. A total of 122 horses with PPID were enrolled in the study, 113 of which were included in effectiveness evaluations. The success of each horse was based on results of endocrinology testing (dexmethasone suppression test or endogenous ACTH test) and/or improvement in clinical signs related to PPID (hirsutism, hyperhidrosis, polyuria/polydipsia, abnormal fat distribution, and/or muscle-wasting) on the Day 180 evaluation. Based on endocrine testing and investigators' clinical assessment scores, 86 (76.1%) of the 113 evaluable cases were treatment successes.

Animal Safety: In a six-month target animal safety study healthy adult horses received PRASCEND administered orally, once daily, at doses of either 0 mcg/kg, 4 mcg/kg, 6 mcg/kg, or 8 mcg/kg (QX, 1X, 1.5X, or 2X the maximum recommended dose). There were eight healthy horses (four males and four females) in each treatment group.

PRASCEND treated groups had lower mean heart rates and higher mean temperatures than the control group. Horses in all treatment groups had minimum heart rates within the normal range and maximum temperatures below 101.5°F. One 1.5X horse experienced a mild episode of spasmodic colic on Day 3 that resolved after treatment with flunixin meglumine. Mean red blood cell counts and hemoglobin values were lower in PRASCEND treated groups as compared to the control group. Other hematology parameters including hematocrit, white blood cells, absolute neutrophils, and absolute lymphocytes exhibited mild, transient decreases as compared to the control group. The hematology parameters generally decreased over the first 30 to 60 days after treatment initiation and then returned to values similar to pre-treatment levels. No treatment related alterations were identified on histopathology evaluation of bone marrow.

Storage: Store at or below 25°C (77°F).
How Supplied: PRASCEND Tablets are available in 1 mg strength—packaged 10 tablets per blister and 60 or 160 tablets per carton.

NDC 0010-4489-01—60 tablets
NDC 0010-4489-02—160 tablets
Approved by FDA under NADA # 141-331

References:
Orth, D.N., Holscher, M.A., Wilson, M.G., et al. (1982) Equine Cushing's Disease: Plasma Immunoreactive Triptolipin, Cortisol and Cortisol Levels Basally and in Response to Diagnostic Tests. *Endocrinology*, 104(4):1430-41

Wright A., Gehring R., Coetzee H. (2008.) Pharmacokinetics of pergolide in normal horses. *American College of Veterinary Internal Medicine Forum*, Abstract #36, San Antonio, TX.

Marketed by:
Boehringer Ingelheim Animal Health USA Inc.
Duluth, GA 30096
Origin: Czech Republic
PRASCEND® is a registered trademark of [Boehringer Ingelheim Vetmedica GmbH](http://www.boehringer-ingelheim.com), used under license. ©2022 [Boehringer Ingelheim Animal Health USA Inc.](http://www.boehringer-ingelheim.com), Duluth, GA. All rights reserved. US-EQU-0113-2022
Reference: Product Insert 448901-03 Revised 05/2021

to one side or the other.” As their names indicate, saddles with adjustable trees can be modified, to some extent, to fit the horse. Traditional saddles—those without the built-in adjustable tree option—need to be replaced if the tree no longer fits the horse.

Billet alignment. The billets—the leather straps to which the girth connects on both sides of the saddle—should be perpendicular to the ground. Being pulled too far forward or too far back by the girth will alter the fit of the saddle and might also cause unnecessary pressure and movement at the front or back of the saddle. In Western saddles the same concept applies with the cinch strap or latigo.

Seat size. The pommel of the saddle must be at least 2 inches (or three fingers) behind the back of the scapula, providing enough freedom for the shoulder blades to move backward during extension. In both English and Western disciplines, the saddle panels should not extend farther back than the 18th thoracic vertebrae and last connecting rib into the lumbar spine region. A saddle of improper length, front to back, interferes with the balance of both horse and rider.

Tree integrity. This last one is easily overlooked. “If you buy a used saddle, or if your horse falls or rolls with the saddle on, have that piece of tack checked by a professional,” says Shipley. “Otherwise, a broken tree could go unnoticed for weeks or even months, causing damage to your horse’s back and risking the rider’s safety. On a related note, if a stirrup catches on something and pulls on the saddle, that stirrup bar can bend, putting sharp and uncomfortable pressure on the horse through the saddle.”

Addressing Back Pain: The Role of Therapeutic Modalities

To break the cycle of saddle-induced pain and dysfunction, rider and trainer must remedy the root cause of the problem—saddle fit—before any treatments can provide lasting results. “No therapeutic modality can fix poorly fitted tack,” says Shipley. “Massage is just a Band-Aid if the fit is not being simultaneously addressed. From



SHELLEY PAULSON

The panels help distribute the rider's weight evenly and should make full, even contact with the horse's back.

personal experience doing equine bodywork, I've worked on many sore backs that would improve by the end of the session, only to be braced, reactive, and sore after the very next ride in the ill-fitting tack.”

That's not to say therapeutic modalities such as massage and pulsed electromagnetic field therapy (PEMF) don't have value in detecting and mitigating ongoing problems,



Lack of wither clearance is one of the most common (saddle fit) issues I see in performance horses.”

JENNA SHIPLEY

our sources say. “Oftentimes it's actually these practitioners of therapeutic modalities who first discover the subtle signs of ill-fitting tack and can refer the client to a saddle fitter,” says Shipley. “By working on the horse, they can detect cues such as asymmetrical back pain, girth area sensitivity, or subtle changes of the hair over the back.”

Both Shipley and Contino encourage a holistic approach to rehabilitation from saddle-induced back pain. “In most cases the horse

has muscle dysfunction all throughout the body as a result of compensating for their painful backs and not using their bodies properly,” Shipley explains.

Contino adds that even once you remove the “nidus” (in this case, a poorly fitted saddle), these back muscles that have switched off as a result of pain don't switch back on automatically. Thus, the long-term physical consequences of ill-fitting saddles largely depend on what is done to reengage the back muscles. If you don't act, the horse might end up in a downward spiral where he continues to lose muscle mass and strength. But if you do introduce interventions such as core strengthening exercises, the back muscles can return to normal function and strength, limiting long-term consequences. Shipley goes as far as recommending a full rehabilitation program for horses that have had poor saddle fit for a considerable amount of time. Some severe cases might even require giving the horse time off from riding before starting again in new or properly fitted tack, she says.

Looking Ahead: Long-Term Impact of Poor Saddle Fit

“The majority of horses with poorly fitted saddles have pain, or at least soreness, in the muscles on either side of the withers,” says



THE HORSE STAFF

The tree points—pictured here at the front of a Western saddle tree—should mirror the angle of the horse, allowing the shoulders to rotate comfortably.

Contino, naming specifically the spinalis muscle and part of the trapezius muscle. “Fortunately, once the saddle fit issue has

been corrected the muscle soreness often resolves. However, in some instances, if a saddle or pad ... is actually directly contacting

the withers, a pressure wound can occur in which case, even when it is healed, scar tissue would remain. Scar tissue is less elastic than normal connective tissue and, thus, there may be limited gliding of the skin over the underlying tissue.”

Take-Home Message

Much like a pair of good shoes, good tack that fits your equine athlete properly makes all the difference in both comfort and performance. Learn to observe and advocate for your animal. “Feel his back regularly, and learn what’s normal for him,” says Shipley. “Reactivity over the back often indicates a tack fit issue.”

Many horses are stoic and show no outward, behavioral signs of pain. “But a high pain tolerance does not mean they are not feeling pain,” she says. Attentive examination and early intervention by a professional are the keys to resolving saddle fitting problems before they cause bigger issues. 🐾

Signs of lameness or joint issues? Take *control*.

Introducing Spryng™ with OsteoCushion™ Technology, a naturally-derived injectable veterinarian medical device that creates a shock-absorbing matrix — to work with synovial fluid and mimic the protective form and function of natural, healthy joint cartilage.



Learn more and order
SpryngHealth.com



Also available at
AmerisourceBergen 
MVI Animal Health™

 **spryng™**
with OsteoCushion™ Technology

Spryng™ is only available for use by or on the order of a licensed veterinarian.
Spryng™ with OsteoCushion™ Technology is a veterinary medical device by PetVivo, Inc.
© PetVivo, Inc. 2023 | SPAH-1-0323