



**Endocrine issues—
including PPID—are not
limited to old horses
with shaggy hair coats.**

Key Takeaways from the 5th GEES

The Global Equine Endocrine Symposium (GEES) highlighted new research that continues to broaden the understanding, diagnosis and treatment of these diseases and management of client horses.

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By Kimberly S. Brown

Focal points of the 5th Global Equine Endocrine Symposium (GEES) held in January 2023 in Bern, Switzerland, were diagnosis of endocrine diseases, treatment and monitoring of pituitary pars intermedia dysfunction (PPID) in the daily routine, and management of horses with obesity and EMS.

In this article, we will highlight some

key takeaways from the 37 presentations and multiple discussions. The main objectives of the Symposium were to review relevant science, including some research that had not been published at the time of the meeting.

Key discussions at the GEES meeting centered around equine metabolic syndrome (EMS), PPID, ACTH (adrenocorticotrophic hormone, which

is released from the pituitary gland), thyrotropin-releasing hormone stimulation test (TRH is a hormone synthesized in the hypothalamus that stimulates secretion of thyroid-stimulating hormone—TSH—by the anterior lobe of the pituitary gland), leptin (a hormone expected to be increased in EMS horses), and insulin (insulin levels are used to determine if a horse is considered insulin

(Editor's note: The GEES meeting was hosted by Boehringer Ingelheim, Inc., which sponsored this coverage of the presentations.)

dysregulated and at a higher risk of laminitis, such as in horses with EMS and approximately 30-47% of PPID horses).

Diagnosis of Endocrine Disorders

According to the AAEP, the most common endocrine disorders dealt with

today by equine practitioners and owners are pituitary pars intermedia dysfunction (PPID or equine Cushing's disease) and equine metabolic syndrome (EMS).

It's fairly simple to find the horse that has hirsutism (long, non-shedding hair-coat) or hypertrichosis often associated with PPID. (*Editor's note: Hypertrichosis*

is considered the more correct term for acquired increase in hair length and lack of shedding that often occurs when horses have disease of the pars intermedia.)

It can become more difficult when signalment of endocrine disease is less obvious or specific. Aside from failure to shed properly and a long, curly hair coat, horses with PPID can have increased water intake and urination (polyuria/polydipsia or PU/PD), laminitis (often recurring), hoof abscesses, lethargy, chronic infections, excessive or inappropriate sweating, loss of muscle mass, pot-bellied appearance and reproductive issues.

Equine metabolic syndrome can have some similar clinical signs in horses as PPID, including laminitis. EMS-affected horses usually also have insulin resistance (IR) and excess fat deposits, especially a cresty neck and fat pads at the tailhead.

There were multiple presentations at the GEES meeting that discussed diagnosis of endocrine diseases. Those discussions centered around ACTH/TRH and insulin (oral sugar) testing.

One presentation discussed PPID and insulin dysregulation (ID) in horse breeds classified by genetic clade (*Prevalence of Pituitary Pars Intermedia Dysfunction and Insulin Dysregulation in Horse Breeds Classified by Genetic Clade*, authored by Rachel Lemcke, MS, of Amwell Data Services LLC, in New Jersey; Steve Grubbs, DVM, PhD, DACVIM; and Kelly Graber of Boehringer Ingelheim Animal Health USA).

This retrospective analysis was performed on veterinarian-provided data from a 2016-2020 study in the United States on 6,266 ponies and horses with suspected endocrine disorders (primarily PPID). This study did not include Quarter Horses or Paints due to the high risk of breed misclassification. The enrolled horses were separated by



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 product 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).

Table 1 Dosing Table		
Body Weight	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 half for 3 to 5 days 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, orally 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 1.6% of owners reported a history of inappetence or decreased appetite as compared to the 32.8% 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. Behavior 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 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 (strangulating lipomas, large colon volvulus). One mare was inadvertently enrolled in the study while pregnant and experienced dystocia resulting in the death of the foal.

Table 2 Summary of the most common adverse reactions (N=122)		
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

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 (stod-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. 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/reportanimalae>.

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 (0X, 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 Proopiomelanocortin Peptide and Cortisol Levels

Basally and in Response to Diagnostic Tests. *Endocrinology*, 104(4):1430-41

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

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Reference: Product Insert 448901-02 Revised 05/2021

breed into 13 clades, which is a branch of a genetic cladogram that includes a single common ancestor and all of that individual's descendants. Several clades included closely related breeds. Frequency of endocrine-associated clinical signs were also compared among endocrine classifications and clades.

The research showed that both the highest rates of PPID (61.52%) and ID (72.22%) occurred in Clade 3, which included Miniature Horses, Shetland ponies and dwarf ponies.

The lowest rate of PPID (21.70%) was found in Clade 2 (Lusitano and Andalusian). Clade 7 (Percheron and Belgian Draft) had the lowest rate of ID (24.84%).

In addition, endocrine disorders were identified in over half the horses 10 years old and younger in the majority of clades, highlighting the need for endocrine testing in younger horses.

Decreased athletic performance was not statistically associated with any endocrine classification or combination evaluated, although it was less prevalent in Clade 2 than in Clade 6 (Clydesdale and Shire).

Laminitis, however, was statistically associated with horses that had both PPID and ID, as well as those with ID only. Clades 1 (Peruvian Paso and Paso Fino) and 3 had statistically higher rates of laminitis than several other clades.

Horses in this data set were more likely to have both PPID and ID rather than only PPID. In fact, horses were more likely to have only ID or no identified endocrine disorder than only have PPID. It is important to note that the majority of these horses and ponies were not tested using dynamic testing, suggesting these frequencies of endocrine disorders might be underestimated.

This research highlights the continued need for equine practitioners to evaluate younger and older horses and ponies with clinical signs for endocrine disorders, preferably using dynamic testing



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Researchers and veterinarians were invited from around the world to present at the 2023 GEES meeting on the latest equine endocrine-related studies.

(which is more sensitive than static testing). Testing for only PPID or ID might lead to an oversimplification of the endocrine dynamic within patients, inadvertently allowing undiagnosed endocrine comorbidities to cause further clinical signs and negatively impact patient health.

This work can also help inform veterinarians of likelihoods of endocrine disorders within a variety of specific horse and pony breeds.

That same group also reported on *Exploring Endocrine Disorders within Warmblood Breeds: Frequency of PPID and ID*. This study used the same group of horses as above, but they compared rates of endocrine disorders among nine Warmblood breeds. A second comparison was performed examining the frequency of endocrine-associated clinical signs in three specific Warmblood breeds (Dutch Warmblood, Hanoverian and Oldenburg) versus non-breed-specific Warmbloods.

The study results showed that endocrine disorders were identified in 55-85% of specific Warmblood breeds

versus 69% of non-breed-specific. There was not a significant difference in endocrine disorder prevalence among any Warmblood breed evaluated.

Of the three Warmblood breeds compared to non-breed-specific Warmbloods, regional adiposity was the only endocrine-associated clinical sign statistically different among the comparisons. Oldenburgs had a lower rate of regional adiposity regardless of endocrine classification versus non-breed-specific Warmbloods.

Among all Warmblood breeds evaluated, regional adiposity rates were highest in Warmbloods with PPID and ID versus those with PPID alone. Rates of decreased athletic performance and laminitis were not statistically associated with any endocrine classification.

Therefore, veterinarians who work with Warmbloods should be on the lookout for PPID and/or ID in their patients and utilize dynamic testing methods. The researchers noted that, "Hair coat changes were statistically associated with horses with PPID as well as those without endocrine disorders, suggest-



SHELLEY PAULSON

It's fairly simple to find the horse with the shaggy hair coat, but there are many horses with endocrine issues that require veterinary involvement to determine the cause of issues such as muscle atrophy and regional adiposity.

ing many horses in this study may have undiagnosed PPID. Rates of regional adiposity were lowest in PPID-only horses, further highlighting the need for dynamic testing.”

A study titled *Muscle Atrophy Scores in a Population of Aged Horses and Ponies With and Without PPID* was reported on by Pat Harris MA, PhD, DipECVCN, VetMB, MRCVS. She is head of the Equine Studies Group at Waltham Petcare Science Institute in the United Kingdom and Director of Science for Mars Horsecare.

Harris shared, as background information, some recent survey results from more than 2,000 owners of senior horses in the USA. The survey had been carried out in collaboration with the Gluck Equine Research Center in Kentucky. The owners had reported that nearly 20% of their older horses had low muscle mass. While age was a major contributor, PPID was also an important risk factor. She also introduced the new Muscle Atrophy Scoring system (MASS) that had recently been developed for use

in horses by the Gluck Equine Research Center in collaboration with Waltham (Herbst et al 2022). She explained that this required users to first determine for each of the assessment areas whether the lean MASS or the adipose MASS scoring chart should be used in order to minimize any confusion between adipose tissue and muscle.

Harris went on to describe in more detail the study undertaken in collaboration with Melbourne University, together with the Queensland University of Technology and Boehringer Ingelheim. This evaluated, in Australia, the utility of the new MASS in a group of 31 animals (18 ponies and 13 horses more than 15 years old) with and without PPID. A PPID-positive diagnosis was established in 12 animals based on clinical signs, baseline ACTH and a TRH stimulation test.

All animals were assessed and body condition (BCS: 1-9), cresty neck (CNS: 0-5) as well as MASS (4-1: using lean or adipose charts as appropriate) scores were obtained.

Overall, the PPID animals had significantly more muscle atrophy than the non-PPID animals. The majority of the non-PPID animals showed no signs of muscle atrophy. Seven of the PPID animals had a MASS of 7 or more. Only one non-PPID animal had such a value (a 32-year-old mare with marked atrophy and chronic weight loss). These differences in MASS were found despite there being no overall difference in BCS or CNS between the two groups.

In her conclusions, Harris stated: “The results confirm that muscle atrophy is a common feature of PPID; and that the scoring system developed in horses is also applicable to ponies, including Shetland/Miniature ponies. The majority of non-PPID animals (of a similar age to the PPID group) showed no evidence of muscle atrophy, indicating that old age per se is not automatically associated with muscle loss in healthy animals. As the PPID animals had similar BCS and CNS to the non-PPID cohort, there appears to be no loss of adiposity due to this condition (assuming they are other-

wise healthy). Rather, PPID appears to be associated with a specific loss of muscle tissue. These findings warrant further investigation and may have important implications for optimizing the nutrition of horses and ponies with PPID.”

She emphasized that the MASS therefore could be an important muscle atrophy monitoring tool for owners and veterinarians, although she recommended concentrating just on the neck, back and hindquarter regions.

Veterinarians examining older horses and ponies should pay specific attention to monitoring muscle atrophy, especially in animals with, or suspected of having, PPID. [For more information on the MASS scoring system see Herbst, A.C.; Johnson, M.G.; Gammons, H.; Reedy, S.E.; Urschel, K.L.; Harris, P.A.; and Adams, A.A. 2022 Development and evaluation of a muscle atrophy scoring system (MASS) for horses. *JEVS*, p.103771.]

New and Possible Treatments

There were several exciting presentations that offered initial research on medicines used to treat insulin dysregulation in horses. The specific drugs that were researched were velagliflozin (researched for horses) and canagliflozin (Invokana for humans).

Velagliflozin and canagliflozin are both sodium-glucose co-transport 2 (SGLT2) inhibitors that reduce renal glucose reabsorption, promote glucosuria, and consequently, decrease blood glucose and insulin concentrations.

In horses, Velagliflozin has been researched to counteract the effects of insulin dysregulation, including the development of laminitis. The study presented at the GEES meeting was ***The sodium-glucose cotransporter-2 inhibitor velagliflozin decreases basal plasma insulin concentrations in horses with moderate-severe insulin dysregulation*** and was presented by Kristen Thane, DVM, DACVIM (Large Animal),

of Tufts. She noted that velagliflozin decreased plasma insulin concentrations in horses with moderate/severe hyperinsulinemia. She said that serum triglyceride concentrations increased in all horses treated with velagliflozin. This hypertriglyceridemia typically improved gradually during the 40-week trial. However, development of marked hypertriglyceridemia was observed in some horses after starting treatment with velagliflozin. Therefore, serum triglycerides should be monitored when initiating therapy with an SGLT2 inhibitor. No laminitis developed while horses were receiving velagliflozin treatment.

Canagliflozin in previous research showed it had the ability to lower insulin levels in horses, reverse or reduce fat pads and eliminate laminitis pain in horses with refractory hyperinsulinemia and laminitis (https://www.ncbi.nlm.nih.gov/pmc/articles/PMC9473365/#:~:text=Once%20daily%20administration%20of%20the,with%20refractory%20hyperinsulinemia%20and%20laminitis.)).

At the GEES meeting, Drs. Sanna Lindase and Johan Brojer of the Department of Clinical Sciences, Swedish University of Agricultural Sciences, each presented on studies looking at canagliflozin.

Lindase noted that short-term treatment with canagliflozin decreased excessive hyperinsulinemia 65% compared to placebo, but there were no differences between the study doses (0.6 vs 1.2 mg/kg). The horses treated with canagliflozin decreased in body weight and had higher serum triglyceride concentrations. She could not find a correlation between decrease in body weight and increase in triglyceride concentrations.

Brojer studied how canagliflozin affected the beta-cells in the pancreas compared to placebo. The striking finding was that canagliflozin changed the function of the beta-cells. He

concluded that the marked decrease in insulin response seen in insulin dysregulated horses treated with canagliflozin is caused by lower blood glucose concentrations since glucose is lost by urine, but more importantly, because the beta-cells produce less insulin in response to increases in blood glucose concentrations.

The study ***Factors influencing owner decision-making regarding the management and treatment of pituitary pars intermedia dysfunction*** was presented by Jo L. Ireland, BVMS, PhD, Cert AVP(EM), FHEA, FRCVS, of the University of Liverpool's School of Veterinary Science. This study investigated owner understanding of PPID and treatment. What the study found was that:

- Where horses were not exhibiting typical signs of PPID, the disease became “abstract and difficult to comprehend.”
- Owners with horses that had concurrent health issues such as EMS and PPID found it difficult to differentiate between the diseases.
- Owners believed they knew their horses best.
- Balancing management and treatment was complex, i.e., for weight management horses need to be kept off grass but if they had arthritis then movement was needed.
- Owners wanted horses to have time to be out with other horses.
- The vet-owner relationship was important in the care of the horse.
- Small improvements in veterinary-to-owner communication could have a large impact on treatment compliance.
- Cost of treatment was not the main consideration, but it was a concern.
- Health and happiness go hand-in-hand, and owners think horses can't have one without the other.
- The perceived risk of laminitis was troubling to owners.

The study ***Long-Term Response of***



One study looked at long-term response to pergolide by equids with PPID.

Equids with Pituitary Pars Intermedia Dysfunction to Treatment with Pergolide

was presented by Hal Schott, DVM, DACVIM, of Michigan State University. He said PPID is being increasingly recognized and treated. However, there is limited data on long-term response to treatment with pergolide. This study determined that long-term treatment of equids with PPID produced clinical improvement in nearly all affected animals. Horses might not need progressively increasing drug doses. Endocrine test results can improve in PPID horses treated with pergolide over a prolonged period of time. Treatment with pergolide improves the quality of life but does not prolong life.

Schott said that overall, there is high client satisfaction with extended use of Prascend® (pergolide tablets). He said most owners are willing to spend \$1,000 annually to treat horses, but that willingness drops off at \$1,500 per year.

Management of Obesity and EMS

Alfredo Sanchez-Londoño, DVM, MS, DACVIM (Large Animal), of Auburn University, created a web-based *Survey of Knowledge of Equine Endocrine Dis-*

eases by Farriers/Hoof Professionals.

The survey was distributed world-wide through farrier associations, farrier magazines and social media. Of the 179 participants who completed the survey, 141 were familiar with the term PPID and all of those had heard of equine Cushing's disease.

A total of 167 were familiar with the term EMS, and all respondents were familiar with the term "easy keeper." Since foot maintenance is critical in managing horses affected with PPID or EMS, farriers were asked about owner compliance with those issues. It was considered "good" for 72 respondents and "average" compliance by 57.

The foot care professionals said emphasis needs to be on prevention of EMS. Many recommended boots in the acute phase of laminitis. There needs to be more basic information available for horse owners. Owner compliance is good initially, "but then they go backward." He said more vets should be working together with farriers, and that veterinarians should talk with horse owners about diet and nutrition of their horses.

The same researcher conducted a *Survey of Knowledge of Equine Endocrine*

Diseases by Horse Owners. A total of 1,972 respondents completed the survey, the vast majority of which were based in the United States. Of that total, 1,286 participants were familiar with the term PPID, 679 were not and 7 did not respond. From the 1,972 participants, 955 had heard about the diseases but had not had a horse diagnosed with them, 511 had a horse diagnosed with PPID, 251 had a horse diagnosed with both EMS and PPID, and 202 had a horse diagnosed with EMS.

Sanchez-Londono said owners want earlier diagnoses of these diseases. They also want other treatments/management strategies for affected horses. There is need for more information about these diseases in donkeys, plus education on nutritional management in all equids. In "other" responses on this survey, there were write-in comments from about 250 owners who felt their veterinarians needed to be more "up-to-date" on information about these diseases.

Take-Home Message

There is a lot that is and is not known about endocrine diseases in equids. More research is being conducted, but it is hard for busy veterinarians, farriers and owners to get that new information and put it to use.

Veterinarians should be in the forefront of educating themselves, their lay colleagues and their clients about updates in diagnosing, treating and long-term care and management of equids that have endocrine disease.

For more information from the 2023 GEES meeting, search for this article on EquiManagement.com and download the *Proceedings from the 5th Global Equine Endocrine Symposium*. 

IMPORTANT SAFETY INFORMATION: PRASCEND treatment may cause loss of appetite. Most cases are mild. Adverse reactions may occur if animals other than horses ingest PRASCEND tablets. Not for human use. Do not ingest the product. Refer to the package insert for complete product information.

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