

**Endocrine
Franchise**

**Learn more about PPID –
improving welfare**

The goal is to improve the welfare of horses with a metabolic disorder by focusing on prevention and treatment.

Which horses should be tested?

Routine Dental check-up: if the horse shows parodontitis, sinusitis. test for PPID (ACTH test)

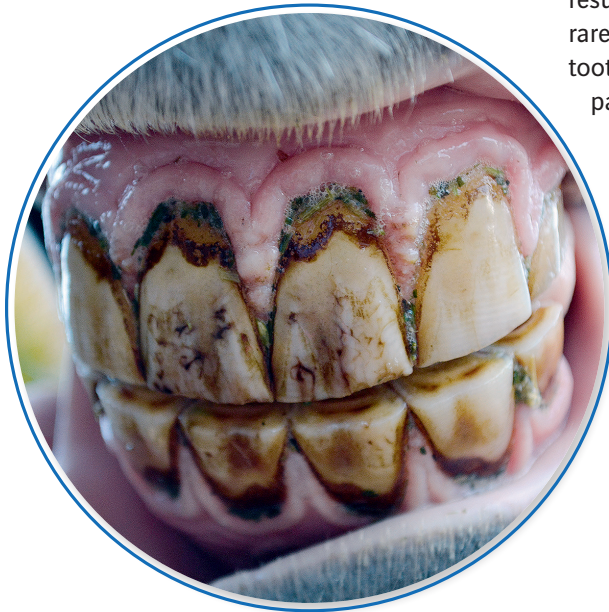
Equine Guelph Oct 2017: Fall is an ideal time for senior horse dental checkups

Dental health is so essential to good health. With winter around the corner, now is the time for a dental check-up and nutritional status assessment, especially for older horses.

Compared to spring and summer, horses burn significantly more calories through the autumn and winter simply to stay warm. As a result, they need to eat more, which places increased strain on the teeth and jaw. Furthermore, with the dietary shift from pasture to hay, the horse will have to chew with more force to meet its nutritional requirements.

Aside from the natural expiration of teeth, geriatric horses are also prone to dental disease that can result in teeth falling out or being extracted by a veterinarian. Because each set of premolars and molars erupts at a different age, they also expire at different ages. These can lead to gaps between teeth and teeth of varying heights (“wave mouth”) which causes abnormal chewing patterns and uneven tooth wear.

These variations in dentition, combined with forage’s rough nature and the mouth’s natural bacterial population, can lead to secondary tooth infections below the gum line, at the tooth root. Bacterial tooth root infections typically result in loose and/or fractured teeth. Dental infections rarely lead to systemic disease, dental abnormalities or tooth root infections but often result in ineffective or painful chewing which results in decreased feed intake, weight loss, and increased risk of esophageal obstruction (“choke”). If the horse shows parodontitis and/or sinusitis, test for **PPID** (ACTH test).



Suspensory ligament degeneration associated with pituitary pars intermedia dysfunction in horses

Sina Hofberger – The Veterinary Journal 203 (2015) 348–350

In older horses, pituitary pars intermedia dysfunction (PPID) and suspensory ligament (SL) degeneration are common.

Equine degenerative suspensory ligament desmitis (DSLDD) is a debilitating condition that has a limited response to rest and stall confinement. The cause of DSLDD is thought to be multi-factorial.

A similar association between Achilles tendon rupture and Cushing's disease in humans has been documented. In humans, corticosteroid treatment is regarded as a risk factor for Achilles tendinopathy due to a reduction in tensile strength.

Although cortisol concentrations are not consistently elevated in horses with PPID, degeneration of the SL may also be associated with long-term exposure to intermittently high cortisol levels.

SLs of four horses with clinical signs of PPID (17–26 years of age) were compared with SLs from four old horses (18–31 years of age) and three young horses (4–9 years of age).

Proteoglycans contribute to tendon viscoelasticity and play a key role in the structure and function of the extracellular matrix; altered quantities and composition of proteoglycans can contribute to the disruption of the collagen network. The SL of horses affected by PPID had reduced LF (longitudinal arrangement of collagen fibres), and increased vascularisation and PA (proteoglycan accumulation), as well as thickened IS (interstitial connective tissue septa); these changes are present in humans with Achilles tendon rupture and degeneration caused by Cushing's disease or by long-term high dose corticosteroid treatment.

In horses with PPID, there was reduced longitudinal arrangement of collagen fibres in SLs, along with inclusions of cartilage, extracellular matrix and haemorrhage, as well as significant proteoglycan accumulations between SL fibres.

Good health care and management with PPID horses

Deworming: do not forget to deworm more frequently → parascaris equorum

Faecal egg counts after anthelmintic administration to aged horses and horses with pituitary pars intermedia dysfunction

Dianne McFarlane - Journal of the American Veterinary Medical Association (2010) - Vol.236 - No.3 pg. 330-334

Objective ● To determine the effects of pituitary pars intermedia dysfunction (Cushing's disease) and age on faecal egg count and time to egg reappearance after anthelmintic treatment in horses residing in similar environments.

Design ● Cross-sectional study.

Animals ● 29 healthy horses (4 to 35 years old) and 13 horses with PPID (13 to 33 years old).

Procedures ● Faecal egg counts were performed by use of a modified Wisconsin flotation method at 2-week intervals before and after ivermectin treatment.

Results ● Horses with PPID had higher faecal egg counts before and 8, 10, and 12 weeks after ivermectin treatment, compared with counts for site-matched healthy horses. There was no difference in the period for 90% reduction in faecal egg counts between the 2 groups. Age did not affect faecal egg counts at any time.

Conclusions and Clinical Relevance ● For similar environmental conditions, horses with PPID were more likely to have higher faecal egg counts than were healthy horses. Therefore, horses with PPID may need to have a more aggressive parasite prevention program than do healthy horses. Age did not affect faecal egg counts or time to egg reappearance after anthelmintic treatment, which suggested age alone does not likely require special consideration when designing a parasite control program for adult horses.

Immunosenescence in Horses

Dianne McFarlane, 2013 – Vol. 59 – AAEP PROCEEDINGS-pg. 316, 318

Immunosenescence is an important risk factor for morbidity and mortality of the aged horses and contributes to development of the infectious, neoplastic, and inflammatory diseases.

Several studies have investigated lymphocyte populations in aged horses and ponies. Total lymphocyte populations decrease in aged horses.

Other observations include a decrease in the total number of CD4, CD8, and B-cell21 and an increase in the percentage of CD4 lymphocytes in aged horses.

One study comparing younger and older horses found that there was “a decreased gross response to vaccination with equine influenza” in the older horses.

Brosnahan and Paradis go on to cite another study that found horses greater than 20 years old had lower total lymphocyte (a type of white blood cell that plays a central role in directing and coordinating immune response) concentrations than younger horses. Again, this suggests that these older horses might have an increased susceptibility to infection.

In healthy aged horses, neutrophil adhesion, oxidative burst, and phagocytosis were all found to be unchanged, whereas chemotaxis was increased compared to what was observed in healthy adult horses.

In contrast, the preliminary data suggest that horses with **PPID** have impaired neutrophil function, perhaps contributing to the increased frequency of bacterial diseases such as abscesses and sinusitis.

Because of the difficulty of making an early diagnosis of **PPID**, it may be necessary to consider all aged horses at higher risk for neutrophil impairment unless proved otherwise.

Bertone and Frank agree that loss of immunity can sometimes be caused by diseases such as Cushing’s syndrome (pituitary pars intermedia dysfunction), which tends to affect older horses more than younger ones. Cushing’s disease may suppress their response to vaccination, so it may be justified to vaccinate more frequently in these cases. Years of exposure to inhaled allergens (dust, pollens, and molds) can also compromise the respiratory tract ability to fend off infectious agents.

Similarly, Bertone in his book cites the 2001 outbreak of the West Nile virus, noting that analysis of the data showed a statistically higher number of older horses was confirmed as having the virus. “In addition, a statistically higher mortality rate occurred in these horses,” he states in the book. Data from the 2002 outbreak also suggests that vaccine “breaks” (vaccinated horses becoming ill) might be more likely to occur in older horses.

So do not decrease the frequency of vaccination if the patient is older: enhanced risk of infectious disease may be minimised by a complete and appropriately administered vaccination schedule.