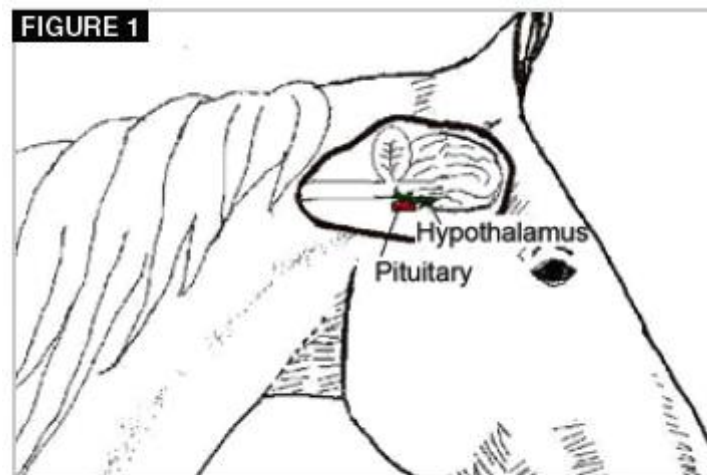


EQUINE CUSHING'S DISEASE ALSO KNOWN AS PITUITARY PARS INTERMEDIA DYSFUNCTION (PPID)



PPID is a common neurodegenerative endocrine (hormonal) disease associated with the ageing horse, although has been reported in horses as young as 7. In the healthy horse, hormones exist in a fine balance and play an important role in maintaining and controlling bodily functions. Those with PPID have an imbalance of these hormones.

The hypothalamus and pituitary gland, which sit at the base of the brain, are the command centre to produce hormones. (fig 1) In horses that show signs of PPID, neurons (nerves) in the hypothalamus undergo progressive degeneration and produce insufficient quantities of a nerve transmitter called dopamine. Dopamine is important in controlling the secretions of a part of the pituitary gland called the pars intermedia, which in turn is responsible for controlling the secretion of hormones including ACTH (adrenocorticotrophin hormone) and cortisol, which results in the symptoms of PPID.



Anatomic diagram showing the location of the equine hypothalamus and pituitary.

Symptoms of PPID

Horse and ponies suffering from PPID may display one or more of several symptoms.

- The best known, and probably the easiest to spot, is a long or curly coat that fails to shed fully.
- A pot-bellied appearance, usually as a result of muscle loss over the topline and abnormal fat distribution (above eyes, crest and above tail head).

- Excessive sweating.
- Increased water intake so often thirsty and, as a result, urinate more frequently.
- Prone to laminitis or become at risk before the above symptoms present themselves.

If you suspect that your horse or pony has one or more of these symptoms, contact your vet for a diagnosis. They will conduct one or more tests to detect ACTH and/or cortisol levels in the blood. PPID can be controlled with medication and most vets prescribe Pergolide, which stimulates dopamine receptors in the brain and thereby replaces the activity of the damaged nerve supply to the pituitary gland. This results in reduction of hormone production to normal levels. The dose range is wide and the improvement in clinical signs and ACTH levels is often used to determine the best dose rate for each horse. As the disease is degenerative, it will progressively become worse over time, although many horses or ponies on medication can lead very normal lives.

Diet Management

Horses with Cushings can become either overweight or underweight. In the case of overweight Cushings horses resulting from insulin resistance, they will generally exhibit regional adiposity (seen as fat deposits along the shoulders and tailhead, a cresty neck, etc.) Reducing the circulating insulin levels is key to managing the diet and, consequently, the condition. Research has shown that the macro-mineral magnesium can effect a reduction in fat deposits, especially on the crest and base of the tail.

The overriding factor when managing diets for equines suffering from PPID is the increased risk of laminitis due to the hormone imbalances. Whilst this may be reduced for those being managed with Pergolide, it should always be considered, whether you are trying to promote weight gain/maintain condition or encourage weight loss/avoid weight gain. Decisions about the diet may also be dependent on whether the horse or pony has suffered from laminitis in the past.

Pergolide, especially at higher doses, can affect appetite, with horses going off their food and eating something for a while before going off it. Rather than constantly changing the overall diet, it is worth adding extras to tempt them, like cinnamon, fenugreek, mint, apple juice or blended or grated apples, carrots or bananas. It may also be wise to give medication separately from their main concentrate feed.

Promoting Weight Gain/Maintaining Condition

Forage

- In order to help control sugar intake, forage (hay/haylage) should ideally have a water-soluble carbohydrate (wsc) content of below 10% yet this can only be confirmed by having it scientifically analysed. As a rule, later cut, coarser hay/haylage is generally lower in wsc.
- Soaking hay for an hour or two before feeding will help to reduce the wsc content, any longer and there is the risk of nutrients being lost. Be mindful that soaking can reduce palatability and be careful in warm weather to avoid fermentation or bacterial growth.
- Providing these precautions have been taken, forage may be fed ad lib to provide fibre calories and support gut health.
- As later cut forages tend to be less nutritious, soaked beet pulp can be fed as an additional source of highly digestible fibre as well as some quality protein and other nutrients.
- Time at grass in Spring time will need to be carefully managed to control fructan (sugar) intake. Turning out very late at night, when grass fructan levels are lowest, and ensuring they are brought in by mid-morning, is safest. In winter, avoid turning out onto pastures during cold, bright conditions, such as frosty mornings, when the fructan levels increase.

Concentrates

- Whilst calories are required to promote or maintain condition, many traditional conditioning feeds must be avoided as they are based on cereals supplying starch, intake of which must be kept to a minimum.
- Fibregenix Lami Low-Cal or Platinum Pro performance balancer may be fed to provide quality protein, vitamins and minerals without the starch or calories associated with a mix or cube. "Safe" calories can then be added to the balancer in the form of beet pulp or oil.

Encouraging Weight Loss/Waistline Control

As with laminitics, since the body releases insulin in response to elevated blood glucose levels, it's important to avoid feeds that are high in sugar and starch. However, if your Cushing's horse is overweight, avoid restricting his diet entirely. Remove concentrates, but never restrict hay as hunger will stress your horse.

Forage

- As for those requiring weight gain (see notes above), forage should contain less than 10% water soluble carbohydrates (wsc) and may need soaking to reduce this.
- To encourage weight loss, forage intake should be restricted to the equivalent of 1.5% of the horse's bodyweight per day. Weigh all forage before soaking and use small-holed nets to make a small amount last longer and keep the horse chewing.
- In addition to the above guidelines regarding turnout, access to grass may need restricting by use of strip grazing, muzzling etc.
- Soaked beet pulp may be fed as low-calorie alternative or additional fibre sources if overall fibre/calorie intake is controlled.

Concentrates

- The best way to provide a balanced diet is to feed Lami Low-Cal diet feed balancer which has a starch/sugar combined feed value of just 8.8%. and will supply those nutrients likely to be lacking in forage but without unwanted calories.
- White chaff can be fed with the balancer, to encourage chewing, as can small amounts of soaked beet pulp.

As each horse is an individual, if you have any queries about feeding your PPID equine, do contact Anita on 0408 920707 or e-mail anita@fibregenix.com.au