

# EQUINE CUSHING'S DISEASE OR PITUITARY PARS INTERMEDIA DYSFUNCTION (PPID)

## ETIOLOGY

- Etiology of PPID includes hypertrophy, hyperplasia and adenoma formation of the pars intermedia lobe of the pituitary gland, which results in excessive adrenocorticotropic hormone (ACTH) secretion and subsequent increased secretion of cortisol from adrenal glands.
- High circulating levels of cortisol may result in insulin resistance and dysregulation of carbohydrate metabolism.
- With a compromised immune system, challenges with chronic inflammation and/or infection may occur: foot abscesses, dental infections, pneumonia, parasitism, and chronic laminitis, episodes.
- 70% of horses over 20 years of age may be affected.

## SYMPTOMS

- Horses with Equine Cushing's Disease tend to be older and may display the following symptoms or conditions:
  - Regional adiposity (supraorbital fat pads, cresty neck, fat pockets at tailhead, prepuce or mammary gland)
  - Prone to or recurrent bouts of laminitis, hirsutism (long curly hair growth that does not shed out in the spring)
  - Inappetence
  - Weight loss
  - Potbellied appearance
  - Hyperhidrosis (excessive perspiration; may be due to hirsutism)
  - Polydipsia (excessive drinking)
  - Polyuria (excessive urination)
  - Chronic infections or delayed wound healing
- Some present as obese but others may be thin and debilitated.
- Decreased muscle mass and tone can give an appearance of weight loss but may actually mask excess body fat as evidenced by regional adiposity.

## MANAGEMENT RECOMMENDATIONS

- Treatment with pergolide or cyproheptadine may be appropriate. Veterinarian diagnosis and prescription are required.
- Routine exercise and regular turnout are extremely important as both will help to improve insulin sensitivity and overall well-being.
- Horses that have excessive hair (hirsutism) may be body clipped to prevent overheating, wet or matted hair coats.
- Excellent management practices such as regular dental care, hoof care, grooming, parasite control, blanketing during cold weather, protection from inclement weather and a routine vaccination program are required for these horses.

## DIETARY RECOMMENDATIONS

- Feed a balanced ration, the bulk of which should be a good quality grass or mixed hay with low nonstructural carbohydrate (NSC; starch + sugar) content. The remaining nutrient balance that forage alone cannot provide may be supplied with a controlled starch and sugar concentrate containing calories from highly digestible fibre, vegetable fat, high-quality protein, and balanced vitamins and minerals.
- If additional energy or calories are needed, they should come primarily from highly digestible fibre (soluble fibre), and fat, with limited calories coming from nonstructural carbohydrates.
- Having hay tested for nutrient content is recommended to ensure that total dietary (hay or forage + grain or supplement products) starch and sugar are not in excess for horses affected by PPID, and that any nutrient deficits (essential amino acids, fat, vitamins and minerals) can be filled via an appropriate concentrate.
- Horses should be kept off “lush” pastures, new pasture growth (leaves less than 6” high from the ground) and pasture that has been under stress (drought, frost). Depending on management or facility logistics, horses can be muzzled to limit grass intake. These animals can be fed hay and a protein, vitamin/mineral supplement if additional calories from fat and fibre are not necessary.
- Chromium and/or a source of omega-3 polyunsaturated acids (EPA/DHA) may be useful supplements as chromium potentiates the action of insulin and omega-3 polyunsaturated fatty acids support the immune system and balanced inflammatory responses.
- Magnesium deficiency may cause decreased insulin secretion, and many horses with PPID have low circulating levels of serum magnesium.
- Provide ad libitum access to salt and fresh, clean water.

## SUGGESTED PURINA PRODUCTS

### FEED NOTES

- Feed a low, controlled starch and sugar diet with highly digestible fibre and adequate magnesium. A supplemental chromium source may be added.

Recommended (if the horse is not insulin resistant or does not need to lose weight):

### EVOLUTION SENIOR or SUPERFIBRA INTEGRI-T

are excellent choices because they have controlled levels of NSCs and are high in omega-3s.



Alternative (if weight control is needed):

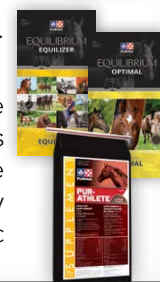
### SUPERFIBRA PLUS SUPERFIBRA ULTRA SUPERFIBRA CLASSIC



### Supplements:

If the horse needs to lose weight and/or is insulin resistant, **EQUILIBRIUM EQUILIZER** is recommended. If the hay or pasture is below 12% protein, **EQUILIBRIUM OPTIMAL** is proven to be a better option.

In both these cases, the addition of an omega-3 source is recommended. This can be served as a digestible oil or a processed product such as the **PUR-ATHLETE**. The amount given should be based on the horse's body condition score. If the horse is not given a complete feed and has a high body condition score, the Pur-Athlete supplement is not recommended. When the horse is fed a complete feed, Pur-Athlete may replace some or all of the complete feed ration and promote weight loss by lowering the overall caloric intake.



**NOTES:** When deciding on a feed or supplement, consideration should be given to the body condition of the animal, the necessary muscle mass gain, the stage of Cushing's disease, hyperinsulinemia and associated blood glucose levels, as well as other observed symptoms that require special attention. Monitoring the health of the animal and its evolution, as well as laboratory tests following dietary changes are highly recommended for its welfare. Subsequent dietary changes may be necessary.

#### FEED RATE PROTOCOL NOTICE

This feeding protocol described here pertains only to Cargill Limited Horse Feeds. There is not established feeding protocol that all feed companies must follow. Purina provides two feeding rates on their tag a “Minimum” and a “Purina Superior”. The “Minimum” meets the levels established by the NRC Nutrient Requirements of Horses (2007), which will prevent all classic nutritional deficiencies. The “Purina Superior” is a greater level of fortification that promotes an optimal level of performance and immunity. By no means does that imply “Minimum” is subpar, and for the non-competitive horse, that stays home year round and has no health issues there is probably no need to exceed this level. However, if you are feeding a true equine athlete, with all the immune stresses associated with that level of competition, then the “Purina Superior” level is paramount to ensure an optimal level of performance and immunity.