

## Laminitis, EMS and PPID

For successful treatment

1. Is it laminitis?
2. **Diagnose and remove/treat the cause** (history, clinical signs, blood tests) – 3 categories of causes:
  - a. Systemic Inflammatory Response Syndrome – horse systemically ill with temperature, laminitis is secondary – primary illness must be treated, e.g. colitis, septicaemia, retained placenta, grain overload.
  - b. Supporting Limb Laminitis – severe lameness in another leg for length of time, e.g. fracture, joint infection.
  - c. **Endocrine – around 90% of all laminitis and all grass-associated laminitis is either EMS or PPID.**
3. **Support and realign the feet** (x-rays, trim) – see: <http://www.thelaminitissite.org/feet.html>

**Symptoms of laminitis – see: <http://www.thelaminitissite.org/laminitis.html>**

Unlikely to see all these signs – consider laminitis (and call vet) if your horse shows any of these symptoms:

- Shifting weight from foot to foot (padding)
- Bounding digital pulse
- Feeling “footy”/short stride on hard ground - preference for soft ground
- Reluctance to turn
- Stiff gait - walking on heels
- Reluctance to move leading to total refusal to move
- Abnormal stance – depends on feet affected and whether rotation or sinking
- Reluctance/refusal to pick up feet
- Feet feel hotter than usual (but may feel colder than usual)
- Muscle tension in the shoulders, back, quarters - AST & CK may be slightly elevated
- Pain on sole pressure between apex of frog and toe
- Lying down more than normal
- Signs of pain - pulse (e.g. >80 bpm), respiration (e.g. > 60bpm), trembling, sweating, depressed, off food

**Symptoms of chronic laminitis/founder – rotation/sinking – see: <http://www.thelaminitissite.org/chronic-laminitis.html>**

Only some of these signs are likely to be seen and they may appear weeks after laminitis has occurred:

- Hoof rings wider at the heel (concentric hoof rings with sinking)
- Abnormal hoof growth - heels grow quicker
- Stretched white line OR deep black groove between wall and sole OR laminar wedge
- Bruising/blood in white line or wall
- Change in hoof wall angle
- Flared hoof wall, wall cracks
- Depression just above the coronet - swelling at the coronary band
- Bruising on the sole in front of the frog (below tip of P3)
- Thin sole (or may be thickened sole particularly in ponies)
- Bulging/convex/dropped sole
- Penetration of sole by pedal bone (P3)
- Collateral grooves much deeper at back of frog than at apex

### Emergency treatment for laminitis

- call vet (and farrier/trimmer)
- remove horse from grass (but move as little as possible/support feet before moving)
- confine on deep supportive bedding e.g. sand, sawdust, pea gravel (or shavings - not so supportive)
- support the feet with pads if the bedding isn't sufficient to do this – frog should be weight bearing
- give NSAIDs e.g. Bute, Danilon, Equioxx for the inflammation & pain (for as short a time as possible)
- apply cold therapy to the feet to reduce inflammation and pain (not if cold-induced laminitis/feet cold)

### Management of laminitis

- Feed 1.5-2% bodyweight low NSC (<10%) diet based on grass hay (+ protein, minerals, vitamins, linseed) - **do not starve**
- Diagnose the cause – test blood for insulin & glucose EMS plus ACTH for PPID
- Treat the cause - pergolide for PPID, diet and possibly Metformin for EMS
- lateral x-rays to assess damage and movement of the pedal bone
- trim hooves & realign any rotation ASAP

### Equine Metabolic Syndrome – see: <http://www.thelaminitissite.org/irems.html>

(IR = inability of normal levels of insulin to stimulate tissues to take up glucose)

#### Symptoms

- Obesity or regional adiposity – crest, tail head, above eyes (supraorbital fossae), sheath/udder
- Insulin resistance (fasting insulin > 20 $\mu$ IU/ml)
- Predisposition to laminitis

Plus “easy keeper”, ravenous appetite (leptin resistance), poor exercise tolerance.

#### Diagnosis.

1. Screening tests: fasting insulin (normal range <20 $\mu$ IU/ml (Liphook)), fasting glucose (normal range approx. <110 mg/dl or 6.11 mmol/L). Pain and food affect insulin and glucose results.
2. Dynamic tests: oral glucose test (use lowest possible amount of glucose)

#### Treatment

Diet – low sugar/starch (<10% NSC) based on grass hay with adequate protein, vitamins & minerals

Weight loss if necessary – no more than 1% bodyweight loss per wk – feed 1.5% bodyweight (DM)

Exercise - only if/when feet are stable

Drugs are not substitutes for diet & exercise but Metformin (or Thyro-L) could be considered.

### PPID – Pituitary pars intermedia dysfunction – see: <http://www.thelaminitissite.org/ppid.html>

– symptoms vary greatly between horses and stage of disease

#### Early symptoms of PPID

Decreased athletic performance

Change in attitude/behaviour →

Delayed coat shedding

Patches of longer hair (legs, neck)

Weight loss

Autumn laminitis

Insulin Resistance (fasting insulin >20 $\mu$ IU/ml) →

Regional adiposity (crest, eyes, sheath/udder) →

#### Advanced symptoms of PPID

lethargy

loss of coat shedding

long curly coat (hypertrichosis/hirsutism)

pot-bellied appearance, muscle loss

year round laminitis

Abnormal sweating (excess, patchy, none)

Excess drinking/urination

Recurrent/chronic infections (e.g. sinusitis, abscesses, skin problems), increased worm burden, wounds slow to heal

Abnormal/loss of seasons in mares/infertility

Hyperglycaemia (fasting glucose >110 mg/dl or 6.11 mmol/L)

Neurological disorders e.g. blindness, ataxia, narcolepsy, seizures

#### Diagnosis

1. ACTH (normal range <29 pg/ml Nov-Jul, <47 pg/ml Aug-Oct (Liphook)), plus insulin & glucose as for EMS
2. Retest ACTH Aug – Oct or TRH stimulation test measuring ACTH for borderline/unexpected results

#### Treatment

Pergolide (Prascend) plus diet & exercise for IR, and good health management (clip, teeth, feet, worm, vit E)

**This is a brief summary - for more information and support: [www.thelaminitissite.org](http://www.thelaminitissite.org)**

*This document is provided for information purposes only and should not be relied upon nor replace professional veterinary advice.  
If you suspect your horse has laminitis or is ill, please consult your vet.*