

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).

Symptoms of laminitis

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 (>80 bpm?), respiration (> 60bpm?), trembling, sweating, depressed, off food

Symptoms of chronic laminitis/founder – rotation/sinking

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
- support the feet if the bedding isn't sufficient to do this
- 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 (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 > 20µIU/ml)
- Predisposition to laminitis

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

Diagnosis.

1. Screening tests: fasting insulin (normal range <20µIU/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

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 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 – 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 >20µIU/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)

WBC change (lymphopaenia with relative neutrophilia)

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