



Equine Metabolic Syndrome

What is EMS?

- ▶ A collection of risk factors for endocrinopathic laminitis.
- ▶ The consistent feature is insulin dysregulation, a disturbance of the relationships between insulin, glucose and lipids in the blood.
- ▶ Commonly associated with generalised or regional adiposity.
- ▶ A separate condition from PPID (Cushing's disease), which can occur at the same time.

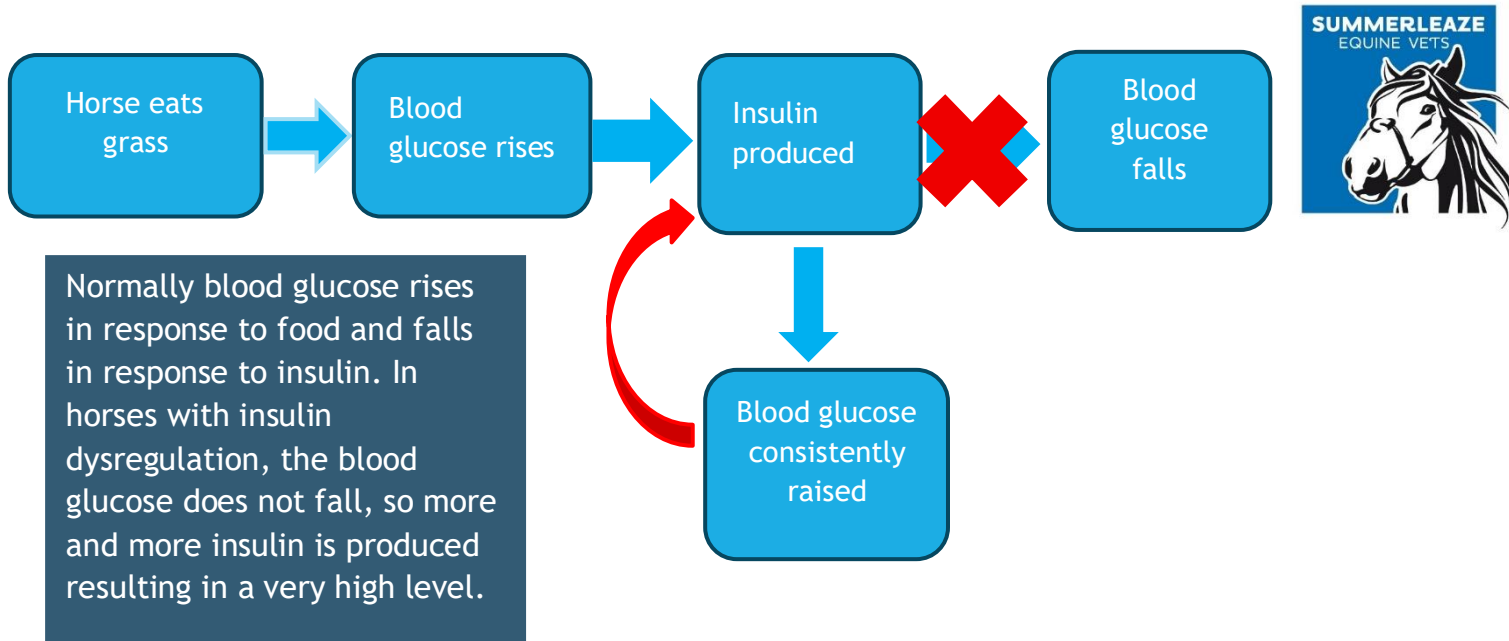
What are the risk factors?

- ▶ Certain breeds have naturally lower insulin sensitivity, including pony breeds, Arabians and Andalusians.
- ▶ Although genetics play a role, current evidence suggests it is not as straightforward as inheriting EMS from a parent.
- ▶ Insulin sensitivity decreases with age, so older horses are more likely to develop insulin dysregulation.
- ▶ Obesity and physical inactivity
- ▶ Diet- a diet high in sugar favours development of insulin dysregulation.



Fat pads are commonly seen on the shoulders, tailhead and above the eyes, as well as a cresty neck.

- ▶ Prevalence of obesity: 21-45% of UK equines are overweight
- ▶ Insulin dysregulation reported in 10-15% of healthy horses and up to 40% of ponies
- ▶ Estimate 90% of laminitis cases associated with high insulin levels.



Diagnosis

- ▶ ID is identified by measuring insulin levels in blood
- ▶ Horses with EMS may have either a high baseline, or an excessive response to eating sugars.
- ▶ If the baseline insulin is normal, we sometimes give a dose of corn syrup and measure again to gauge the response.
- ▶ Importantly, we can test horses to assess their risk before they show signs of laminitis.

Medical treatment:

- ▶ Sodium-glucose co-transporter 2 inhibitors (SGLT2i: ertugliflozin/Steglatro)- used to rapidly decrease insulin levels. Side effects include hyperlipaemia and increased liver enzymes, so monitoring is recommended whilst treatment is ongoing.
- ▶ Metformin
Reduces glucose absorption from the gut, but does not have any effect on systemic insulin sensitivity. Oral bioavailability is poor in horses, and results vary based on the individual.

Nutritional management:

- ▶ Aiming to reduce insulin levels by reducing the amount of sugar in the diet.
- ▶ Soaked hay is an ideal base for the diet; low-sugar balancers can be used for additional vitamins and minerals.
- ▶ Controlled grazing may form part of the long-term management plan as long as horses are carefully monitored.

Track systems:

- ▶ At its most basic a track system is a fenced off strip around the edge of a field, where hay, water and shelter are provided in different locations to encourage horses to move between them.
- ▶ Tracks may have grass, or can be bare earth or surfaced depending on the horse's tolerance for grazing.
- ▶ Track systems allow horses to express natural behaviour in line with the 5 freedoms of animal welfare, and offer an alternative to continuous stabling for horses at risk of laminitis.
- ▶ The increased movement achieved in the track system can help horses to lose weight.



5 freedoms of animal welfare



European Commission: Animal Welfare

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Take Home Message:

Medication **does not** replace the need for dietary and exercise management.