

Understanding Insulin Dysregulation



What Is Insulin Dysregulation?

Insulin dysregulation (ID) is a metabolic disorder in horses characterized by an abnormal insulin response to glucose (sugar) in the bloodstream. In healthy horses, the pancreas releases insulin in response to rising blood glucose levels (typically after eating), helping cells absorb glucose for energy. In horses with insulin dysregulation, this process doesn't function properly. Insulin dysregulation is a significant concern because it's a risk factor for laminitis, a painful and potentially crippling hoof condition. While ID can affect horses of any age, it's more common in middle-aged to older horses. It often affects easy keepers and ponies but can occur in any breed.



Clinical Signs

Insulin dysregulation usually develops gradually and might go unnoticed until complications arise. Common clinical signs include:

- Abnormal fat deposits, particularly at the crest of the neck (cresty neck), around the tail head, behind the shoulders, and above the eyes.
- Difficulty losing weight despite diet restrictions.
- Obesity, or a body condition score of 7 or higher on the 9-point scale.
- Hoof rings that are wider at the heel than the toe, indicating previous laminitis episodes.
- Increased thirst and urination.

Many horses with ID don't show obvious external signs, especially in the early

stages. Also, not all ID horses are obese. Regular veterinary screening is recommended for at-risk horses, even if they appear normal.



Diagnosis

Diagnosing insulin dysregulation involves a combination of clinical assessment and laboratory tests. During the physical exam, your veterinarian will perform body condition scoring, assess the horse's regional fat deposits, and evaluate hoof health. Then, he or she will perform blood testing—most commonly, a basal (resting) insulin test or an oral sugar test after the horse consumes a standardized amount of sugar. Note that season, recent meals, and stress can affect test results.

Your veterinarian will determine which tests are appropriate based on your horse's specific situation and clinical signs. Multiple tests might be needed for a definitive diagnosis, and repeat testing is recommended to monitor the condition over time.



Treatment and Management

Insulin dysregulation management focuses on diet, exercise, and in some cases medication. Nutrition and exercise strategies include:

- Reducing nonstructural carbohydrates (NSCs, which are sugars and starches) in the horse's diet by feeding a mature hay or hay alternatives, soaking hay before feeding, and avoiding concentrate feeds that aren't formulated for metabolic horses.
- Testing hay for NSC content (aim for

no more than 10% NSC).

- Restricting access to lush pasture via grazing muzzles and drylots.
- Regular exercise if the horse is sound (building up to at least 30 minutes of exercise 5-6 days per week).
- Achieving and maintaining a body condition score of 4 or 5.

If diet and exercise alone do not control your horse's hyperinsulinemia, your vet might prescribe a medication such as:

- Sodium-glucose cotransporter-2 (SGLT2) inhibitors.
- Metformin.
- Thyroid supplements such as levothyroxine.

Horses with ID also require regular farrier care to maintain proper hoof balance and support laminitis cases.



When to Call Your Vet

Have your veterinarian perform regular testing (once or twice a year outside seasonal spikes in fall and spring) so he or she can monitor the horse's insulin levels and make treatment adjustments if necessary. Outside of those exams, contact your veterinarian if you observe:

- Signs of laminitis.
- Refusal to eat or changes in appetite.
- Difficulty controlling weight despite dietary restrictions.
- Development or worsening of abnormal fat deposits.
- Questions about diet changes or supplementation.
- Increased thirst or urination.

Insulin dysregulation is a chronic condition that requires lifelong management. With proper care, most horses can lead comfortable, active lives.