

Equine Metabolic Syndrome/Insulin Dysregulation: Don't Forget About Protein

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When we think about ideal diets for horses with equine metabolic syndrome (EMS) and/or insulin dysregulation (ID), the first things that come to mind for many are to avoid grain and to minimize the nonstructural carbohydrate (NSC) content in the food.

Current recommendations suggest that NSC should be kept at <10-12% to avoid triggering an insulin spike that could lead to a bout of laminitis.¹ To maintain a low NSC and yet allow the diet to have appropriate amounts of vitamins and minerals, owners often opt to feed a ration balancer vs. traditional grain.

This small volume of pellets can be fed at an NSC of less than 12% and is often recommended by veterinarians to supplement primarily hay diets.

Lowering insulin blood concentrations at rest and after meals is a goal to minimize laminitis risk, and owners are rightly frustrated when they don't see improvements. "I'm soaking the hay, they aren't on grain except for a ration balancer, they live on a dry lot, they are getting appropriate exercise, but I just can't seem to budge the baseline or oral sugar test insulin concentrations" are common refrains in these instances.

While this issue could be related to the horse's pituitary pars intermedia (PPID) status, the amount and type of exercise they are getting, the actual tested NSC content of the hay, and the presence of other chronic illnesses, another possible cause of the persistently high insulin levels that has been overlooked until as of late is the ration balancer's protein content.

While not as important as overall NSC content in triggering insulin responses (Macon et al., 2022²), recent work has shown that ration balancers with protein concentrations of above 30% can themselves cause insulin spikes (Loos et al., 2019³).

In fact, EMS horses fed a ration balancer with 31% protein had a "9-fold greater insulinemic response" as compared to healthy control horses.

As some ration balancers are produced with protein in the 15% range, for EMS/ID horses that are having issues improving insulin regulation, a change to the lower protein ration balancer may be part of the solution to improving metabolic health.

REFERENCES:

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* Manfredi JM, Stapley ED, Nash D. Effects of a dietary supplement on insulin and adipokine concentrations in equine metabolic syndrome/insulin dysregulation. In J Equine Vet Sci 2020;88:102930.



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