



REVIEW >

Research Backed Horse Treats: Feeding Treats to Metabolic Horses

A SUMMARY OF RESEARCH CONDUCTED AT THE PURINA ANIMAL NUTRITION CENTER EVALUATING THE GLUCOSE AND INSULIN RESPONSE TO FEEDING PURINA® LOW STARCH AND SUGAR TREATS TO HORSES.¹

< INTRODUCTION >

Certain horses may benefit from feeds that have a controlled level of dietary starches and sugars. Metabolic conditions such as insulin dysregulation, Equine Metabolic Syndrome and Equine Cushings (PPID) can be exacerbated by diets that contain high levels of these dietary components. As such, Purina Animal Nutrition has conducted extensive research into the development of feeds with controlled levels of starches and sugars. While the concentrate portion of a horse's diet is routinely evaluated for the levels of starch and sugar it contains, other portions of the diet, namely the treats fed as a reward or training aid, are often overlooked. To that end, Purina Animal Nutrition has developed a new treat designed to be very low in starch and sugar and suitable for consumption by carbohydrate sensitive horses. The objective of this trial was to evaluate the glucose and insulin response to a feeding of these Low Starch and Sugar Horse Treats.

< MATERIALS AND METHODS >

Three trials were conducted to evaluate the glucose and insulin response to feeding of 1) Timothy hay, 2) Alfalfa hay, and 3) Purina® Low Starch and Sugar Horse Treats. In trial 1, ten horses (558.7 ±7.3 kg BW) were offered 1.5% BW of Timothy hay (11.03% CP, 36.23% ADF, 58.37% NDF, 0.20% Starch, 8.57% ESC). In trial 2, ten horses (587.27 ±.745 kg BW) were offered 1.5% BW of Alfalfa hay (25.30% CP, 28.67% ADF, 35.33% NDF, 0.60% Starch, 5.43% ESC). In trial 3, five horses (545.53 ± 2.5 kg BW) were offered 0.45 kg (approximately 120 treats) of Purina® Low Starch and Sugar Horse Treats. For all trials, horses were catheterized in the jugular vein approximately 30 min prior to feeding. Diets were offered and blood samples were obtained at 0 min, 30 min, 60 min, 90 min, 120 min, 180 min, 240 min, 300 min, 330 min, and 360 min post feeding. Samples were immediately processed into the appropriate tubes for the collection of serum and plasma. Glucose was determined from plasma via COBAS analysis and insulin was determined from serum utilizing an equine specific ELISA (Mercodia, Sweden).

¹HR 294. Low Starch and Sugar Glycemic Response.

²BS Perron, RD Jacobs, et al. Glucose and insulin response to feeding Standlee Premium Western Forage® Alfalfa hay vs a locally sourced alfalfa hay. *Journal of Equine Veterinary Science*. June 2019.

³RL Stewart, RD Jacobs, et al. A comparative assessment of Standlee Premium Western Forage Timothy Hay versus locally sourced grass hay using nutrient composition, glucose and insulin response, and palatability. *Journal of Equine Veterinary Science*. 52:55-56. May 2017.

< RESULTS >

For all trials, horses remained clinically healthy. Additionally, horses consumed all hay or treats offered during the sampling period. For all three trials, both the glucose and insulin responses to feeding remained very low (Figures 1 and 2) with peak glucose levels of 101.30 mg/dL (Timothy hay), 91.70 mg/dL (Alfalfa hay) and 81.80 mg/dL (Low Starch and Sugar Treats) respectively. Peak insulin values were 0.33 ng/mL (Timothy hay), 0.39 ng/mL (Alfalfa hay) and 0.26 ng/mL (Low Starch and Sugar Treats) respectively. Peak glucose and insulin values were reached earlier in sampling for the Low Starch and Sugar Treats likely due to the quicker consumption of the treats relative to the sampling timepoint.

< IMPLICATIONS >

The glucose and insulin response to a feeding of the Purina® Low Starch and Sugar Horse Treats was very low. In fact, the values were like those of a typical daily ration of both Timothy hay and Alfalfa hay, both forage sources that are traditionally fed to horses with metabolic concerns. While treats should remain a relatively small component of the horse's daily ration, it is still important to account for them in the overall diet and as such, a treat low in starch and sugar, resulting in a similarly low glucose and insulin response to feeding would be ideal.

FIGURE 1

Glucose levels in response to feeding of a meal of Timothy hay, Alfalfa hay, or Purina® Low Starch and Sugar Horse Treats.

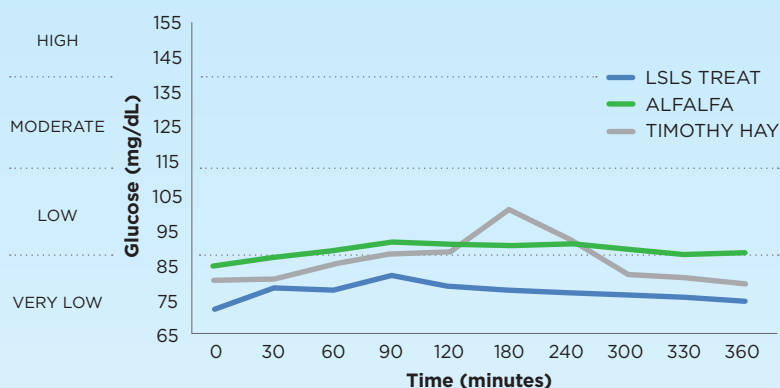
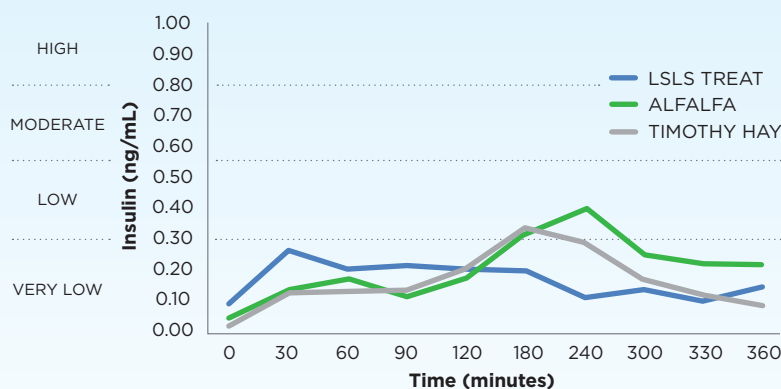


FIGURE 2

Insulin levels in response to feeding of a meal of Timothy hay, Alfalfa hay, or Purina® Low Starch and Sugar Horse Treats.



< AVAILABLE UPON REQUEST > Contact your local Purina representative if you would like more information about this study.