

# CARBOHYDRATES: the good, the bad, and the ugly

Carbohydrates are a hot topic in the horse industry. Carbohydrates are essential in all horse's diets. There are, however, different kinds of carbohydrates found in horse feeds.

**THE GOOD:** The most common kind of carbohydrate is cellulose present in forages. Cellulose is digested by microbes that reside in the horse's hindgut. The microbes break the cellulose down into individual sugars; using the sugars themselves. As a by-product of that process, they produce volatile fatty acids which the horse can absorb and use as its primary energy source. In many cases, all of a horse's energy requirements can be met by forages.

**MORE GOOD:** Another common kind of carbohydrate is starch; present in high quantities in cereal grains, like oats, corn and barley. Starch is digested into individual sugars by enzymes produced by the horse in its foregut. There, the individual sugars can be absorbed by the horse and used as an energy source if the horse requires more energy than can be provided from forages alone.

**THE BAD:** If the horse's capacity to digest and absorb the sugars from starch is not adequate, the sugars pass from the foregut to the hindgut. The amount of starch that can be digested and absorbed in the foregut depends primarily on the amount of starch fed and the amount of time it spends in the foregut, before it is pushed along the gastrointestinal tract and into the hindgut. A general rule of thumb is that no more than 0.5% of the horse's

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body weight in cereal grains should be fed in one meal. For a 1,000 pound horse, it can digest and absorb the sugars from 5 pounds of cereal grains at one time. To feed more than that amount runs the risk of overwhelming the horse's digestive and absorptive capacity of the foregut and consequently having starch overflow into the hindgut. If more than 5 pounds of grain is necessary per day, it should be divided into two feedings per day.

**THE UGLY:** If starch overflows the foregut and enters the hindgut where microbes utilize it as their personal energy source, the by-products produced in this scenario result in a more acid environment that alters the microbe population and the integrity of the lining of the hindgut. Both of these changes are hazardous to the health of the horse and can potentially lead to laminitis and founder.

Take home message: it is usually the amount of carbohydrates fed at one time, not the inclusion of carbohydrates that causes problems in the healthy horse.

Courtesy of...  
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