

Feeding Horses With Special Needs

The do's and don'ts of feeding horses with 4 common health conditions

The sneezy, runny-nosed gelding in the barn sleeps on special dust-free bedding. A laminitic pony next door wears custom wedged shoes, and the ulcer-prone Thoroughbred across the aisle lives on a panoply of medications. Veterinary care, pharmaceuticals, and management play crucial roles when addressing disease. But we often overlook an equally powerful player: nutrition.

Many studies have proven a direct link between diet and disease in horses. Moreover, research shows many maladies have a nutritional component, meaning adjusting the diet can improve the condition. Here we'll describe feeding practices that can help—or hinder—horses with four common diseases.

1. Gastric Ulcers

For decades scientists have known that stomach ulceration is prevalent in horses of all disciplines (McClure et al., 1999). Racehorses top that list, with up to 80-100% of those actively racing having gastric ulcers (Sykes et al., 2015). Even pleasure horses get ulcers—as many as 40-60% are affected. Luckily, we can adjust the diet to help. What to feed:

Free-choice forage Unlike humans, horses continuously secrete digestive enzymes and acidic juices in the stomach, including hydrochloric acid—a compound corrosive to eyes, skin, and mucous membranes. Horses have evolved to consume small amounts of fiber-based feeds around the clock, justifying this constant gastric fluid production. Offering free-choice forage helps prevent ulcers because fiber helps buffer the acidity. Otherwise, in the absence of feedstuffs to digest, gastric juices have nothing but the stomach lining itself to break down, leaving it inflamed, eroded, and ulcerated.

Alfalfa This and other legume hays are valuable sources of protein and calcium, making them particularly effective at



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buffering the stomach from its own acidic contents. Researchers have shown feeding alfalfa can help prevent and manage gastric ulcers (Lybbert, 2007).

Gastroprotective supplements Choose those backed by science, and offer them judiciously based on your vet's advice.

What to avoid feeding:

Lots of concentrates Feeds high in non-structural carbohydrates (NSC) increase volatile fatty acid (VFA) production. While VFAs are essential for fermenting fiber in the hindgut (the cecum and large colon), an abundance of VFAs in the foregut damages the stomach's protective mucosal lining, leaving it prone to inflammation and ulceration (Nadeau et al., 2003).

Low-fiber diets The bulk of the equine diet should be forage; horses consuming < 1% of their body weight in forage daily are at increased risk of gastric ulcers.

Straw This grain crop byproduct has long been blamed for ulcers when fed in large amounts (Galinelli et al., 2019) or as the only forage source (Luthersson et al., 2009). But in a 2021 study researchers couldn't correlate good-quality wheat

straw as 50% of horses' daily forage allowance with ulcer development. This suggests good-quality straw might be a suitable dietary component but should not replace hay or grass as forage sources.

2. Metabolic disorders

These include insulin dysregulation (ID), equine metabolic syndrome (EMS), and the hoof disease laminitis. Obesity is the top cause of metabolic dysregulation, so diet has the single biggest impact on prevention/management. What to feed:

Enough to meet nutritional requirements Don't starve obese and laminitic horses out of fear that eating will kill them. If you restrict a horse's feed intake too much, you could end up dealing with an array of secondary health problems: gastric ulcers, colic, nutritional deficiencies, weight loss, muscle wasting, and behavioral issues, to name a few.

Low-NSC forage Prioritize good-quality hay over grass, as fresh grass generally has high sugar levels. Depending on the severity of your horse's metabolic dysregulation, your vet might recommend

limiting grass intake or steering clear of it altogether. “If blood insulin concentrations are high, test the hay to ensure NSC levels are low enough that you can safely feed it to your metabolically challenged horse,” says Nicholas Frank, DVM, PhD, Dipl. ACVIM, a professor of large animal internal medicine at Tufts University’s Cummings School of Veterinary Medicine, in North Grafton, Massachusetts.

Soaked hay Soaking hay for 30 minutes (and tossing the water before feeding) reduces its sugar content. This simple practice can be an effective way to reduce NSC intake. “If you soak the hay for longer periods of time (two-plus hours), however, you are likely to leach vitamins and minerals out of the hay,” Frank cautions.

Ration balancer instead of concentrates If your horse doesn’t need extra calories from grain, you can complement his forage-based diet and meet his vitamin and mineral requirements by feeding a small amount (about 1-2 pounds daily, depending on body size) of a ration balancer.

Frequent small meals If he does need concentrates to meet calorie needs, break his rations into small meals (< 1.1 gram/kilogram of body weight per meal) to avoid hyperinsulinemia, or high levels of insulin in the blood (Vervuert et al., 2009).

Fat for additional calories Unlike NSC, dietary fat is not associated with an increased risk of developing laminitis. Fat does not contribute to ID or EMS, either.

What to avoid feeding:
More calories than necessary, based on the National Research Council’s *Nutrient Requirements of Horses*. A calorie surplus can lead to obesity and fuels metabolic disorders. Overweight horses should operate at a caloric deficit to shed excess pounds. Consider all dietary components—forage, concentrates, and supplements—when calculating total daily caloric intake.

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DR. NICHOLAS FRANK

Lots of concentrates, because the starch and sugar rush translates to an insulin spike that can lead to ID. “The degree to which the diet needs to be managed depends upon the severity of ID and whether blood insulin concentrations decrease when initial management changes are made,” says Frank. “The severely affected animal with profound hyperinsulinemia has to be handled carefully, and all feeds must be low in NSC.”

Lots of sugar-rich treats Let’s not forget those peppermints—in abundance, they, too, can contribute to ID in at-risk horses.

What about horses with equine Cushing’s disease (pituitary pars intermedia dysfunction, PPID)? This is often, but not automatically, associated with ID.

“If he does not have ID, the horse with PPID can be fed like a regular senior citizen,” Frank says, noting that PPID horses tend to be older than 15. But the horse with both conditions needs a diet adapted first and foremost to ID. Therefore, when planning your PPID horse’s diet, Frank recommends starting by assessing his insulin status (via blood test) to determine whether he also suffers from ID.

3. Respiratory problems

Management and medication are the primary ways we manage equine respiratory conditions such as equine asthma, but certain dietary adjustments can also help horses breathe easier. What to feed:

Fresh grass, assuming your horse doesn’t have pasture-associated asthma. “One of the advantages of fresh pasture is it generally contains high levels of two important antioxidants: beta-carotene (a vitamin A precursor) and vitamin E, which is known to prevent inflammation,” says Laurie Lawrence, PhD, professor of equine science and nutrition at the University of Kentucky, in Lexington.

Soaked or steamed hay to reduce dust and mold particles that irritate your horse’s airway mucosa.

What to avoid feeding:

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Round bales, which are notorious for being dusty in the middle.

Hay directly on the ground, especially in a dirt lot, which increases your horse's inhalation of dirt particles.

Pro-inflammatory ingredients "Diets that are high in some types of fat may be high in omega-6 fatty acids that are more pro-inflammatory than omega-3 fatty acids," Lawrence says. Cereal grains such as corn and oats contain much higher levels of omega-6 than omega-3, a ratio conducive to inflammation. In a horse with inflamed airways, it's vital to ensure the diet contains more antioxidants than pro-inflammatory agents, even though researchers haven't yet confirmed ideal numbers and ratios, says Lawrence. "If the horse is consuming plenty of fresh grass and receiving concentrates, his antioxidant status is probably good," she says. "However, if hay is his main forage source, adding a ration balancer fortified with trace minerals or a vitamin supplement that provides at 500 to 1,000 IU of vitamin E per day might be beneficial in terms of their antioxidant intake."

4. Dental problems

Horses of any age can have difficulty chewing their food because of sharp, loose, or broken teeth. Here's how to make mealtime easier for them. What to feed:

Soaked grain It's easier to slurp soup than chomp hard feed.

Processed forage like hay cubes/pellets, instead of long-stemmed hay that requires extensive chewing. Soak before feeding.

What to avoid feeding:

Dry beet pulp To avoid choke, soak this highly digestible, easy-to-chew fiber source thoroughly. Choke can affect any horse fed insufficiently soaked beet pulp.

A grain-only diet Don't skimp on forage because your horse struggles to chew hay. Again, turn to alternative forage sources. Complete feeds can also help horses that have trouble chewing long-stemmed fiber.

Take-Home Message

A holistic approach to disease management includes nutrition. Your veterinarian and nutritionist are well-informed when it comes to formulating a diet that can alleviate—or, at the very least, not aggravate—your horse's particular condition. And for the healthy equid, provide a diet designed for long-term health. 🐾

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