



BROUGHT TO YOU BY:

COSEQUIN® Joint Health Supplement

NUTRITION

- Supplement shopping
- Getting the most from feeds
- Nutrients horses need

WHEN PERFORMANCE MATTERS, CHOOSE

COSEQUIN® RSU

OUR PELLETS STAND OUT



SO YOUR HORSE CAN STAND OUT!





Cosequin® ASU Joint & Hoof Pellets contain quality ingredients to support joint and hoof health and leave out the fillers molasses and alfalfa — all while delivering the taste horses love. The colors of our ingredients shine through for a difference you can see.

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uying a supplement for your horse doesn't seem complicated.

Visit a store, open a catalog or browse the Internet for a few minutes, and you'll find an array of options in a variety of price ranges, all ready to be sprinkled over your horse's ration or dropped in his feed tub.

But, of course, there's more to it than that. If you don't do a bit of research beforehand, you might end up with the wrong supplement for your horse's needs. That, at best, is a waste of money. At worst it could create nutritional imbalances that adversely affect your horse's health. "Trial and error" may work for buying some things, but it isn't the way to go when purchasing a feed supplement for your horse.

This doesn't mean, however, that supplement shopping needs to make you feel anxious or overwhelmed. Proceed with confidence by breaking the process into three simple steps: Identify the need, educate yourself on ingredients and compare your options. Follow these steps, and you'll end up with the best supplement for your horse and avoid wasting money or creating nutritional imbalances.



STEP ONE: CLARIFY THE NEED

There are a lot of good reasons to feed supplements and a few misguided ones. For example, it's not wise to purchase a particular supplement for your horse just because someone else at the barn feeds it to her horse, who "looks great." As valuable as testimonials from trusted friends can be, your horse—and his nutritional needs—are unique, and he may need something completely different than the horse in the stall across the aisle.

So start your supplement search by clarifying why you think your horse needs one and what you're hoping the results will be. Is his hoof quality poor? Is he losing weight? Is he anxious most of the time? Do his joints seem increasingly stiff when you warm him up for a ride? Be as specific as you can. There are so many targeted supplements available today that you can't really be too narrow in your intent. If you have trouble getting beyond wanting your horse to "look great" or "be healthier," try brainstorming on a piece of paper exactly what that means to you. There are general multivitamin supplements available, but if you're seeking a specific



improvement in your horse's health or performance, a targeted product

will probably be a better choice.

Once you've identified the issue you want a supplement to address, consult with your veterinarian to determine if there is an underlying issue that might be at play. For instance, your horse's dull coat might actually be a sign of illness that needs to be addressed medically instead of nutritionally. Or his fractious behavior

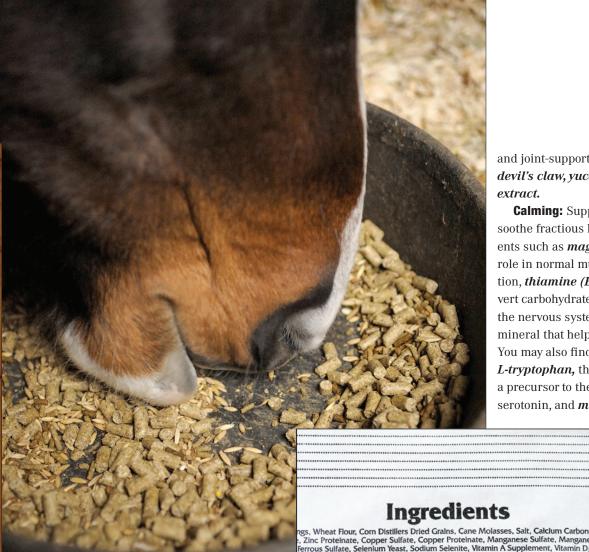
might be due to excess energy in his regular ration. Your veterinarian might also have suggestions for measures you can take in addition to feeding a supplement. A horse with arthritis, for example, may do well on a joint supplement but even better when that supplement is combined with a well-conceived exercise program. If the problem is hoof-related, pull your farrier in on the conversation as well.

Once you've given this some thought and gathered information, you will be able to focus your shopping efforts on a specific category. Chances are it will be one of the five most common supplement categories: joint health, calming, digestive support, hoof growth or coat improvement.

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STEP TWO: **GET AN INGREDIENT EDUCATION**

Once you've identified the type of supplement your horse needs, you'll find no shortage of options. In any category, however, most products will have some common ingredients. The next step in your supplement search is to learn more about these ingredients and how each product is formulated to help your horse.

Joint support: Many joint supplements feature *glucosamine*, a building block of cartilage production and repair. You'll also find *chondroitin sulfate*, a protein molecule that is a constituent of connective tissues and cartilage,

in many joint products. *Hyaluronan*, also called *hyaluronic acid*, is another ingredient commonly used to support joint health because it's a key structure in synovial fluid, connective tissue and cartilage. The fibrous protein *keratin* may also be included.

ns supplemental copper. Do not feed to sheep.

Soybean Hulls, Oat Mill By-Product.

le, Riboflavin, d-Calcium Pantothenate, Niacin, Folic Acid, Biotin, Vitamin B₁₂ Supple enadione Sodium Bisulfite Complex (Source of Vitamin K Activity), L-Ascorbyl-2-Po

gned specifically to be fed to horses in accordance with the following suggested fe

Methylsulfonylmethane (MSM) is an organic compound necessary for the production of collagen that may also have anti-inflammatory properties. Avocado/soybean unsaponifiables (ASU) are increasingly popular in joint supplements because they are thought to prevent destruction of existing cartilage while stimulating tissue repair. Rounding out the ingredients most often found in joint supplements are herbal products with anti-inflammatory

and joint-supporting action such as devil's claw, yucca and grape seed extract.

Calming: Supplements intended to soothe fractious horses contain nutrients such as *magnesium*, which plays a role in normal muscle and nerve function, *thiamine (B1)*, which helps convert carbohydrates to fat and supports the nervous system, and *chromium*, a mineral that helps regulate blood sugar. You may also find products that contain *L-tryptophan*, the amino acid that is a precursor to the neurotransmitter serotonin, and *melatonin*, the hormone

that helps regulate circadian rhythms. Calming supplements may also contain herbal ingredients such as *valerian*, which has been used since the days of the ancient Greeks to treat restlessness and insom-

nia; *chamomile*, a traditional remedy for anxiety; and *raspberry leaf*, thought to regulate hormone fluctuations.

Digestive support: Supplements designed to optimize a horse's gut function often contain *probiotics*, combinations of specific bacteria and yeasts that support beneficial intestinal flora. *Prebiotics*, sugars and nutrients that feed these bacteria, are also common ingredients. In addition, *yeast cultures* are often included in digestive supplements to assist in the activity of bacteria in the hindgut.

You may also notice *alfalfa meal* listed on the label, a source of highly digestible fiber; *lecithin*, a lipid thought to protect the lining of the stomach; and the amino acids

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glutamine, threonine and L-carnitine.

Hoof health: If your goal is to improve your horse's hooves, the products at the top of your list will contain biotin, a B vitamin that has been shown in multiple studies to improve the quality of hoof horn by supporting the production of keratin. Also found in hoof supplements are the amino acids methionine, which has a similar keratinsupporting action, and lysine, which plays a role in the formation of collagen. The minerals zinc, copper and manganese are critical to the formation of hoof

horn, and hoof

The next step takes some work but is crucial: **Compare the ingredients** in the product vou've selected to the nutritional makeup of the rest of vour horse's diet.

addition, coat supplements may contain acid *lysine*, which contribated acid *lysine*, acid *lysine* tissue growth and repair, as well as the amino acid methionine.

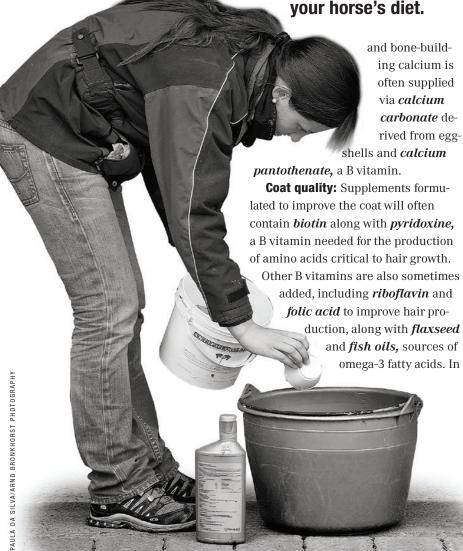
STEP THREE: **SELECT A PRODUCT**

Once you're familiar with the ingredients common in a supplement category, it's time to select a specific product. The Food and Drug Administration does not regulate supplements as strictly as it does medications—the efficacy of supplements does not have to be provenso you'll need to be a savvy shopper to identify the products likely to be more worthwhile than others.

Start by inspecting the labels of potential purchases. Look for one that lists ingredients clearly, along with amounts of each. There is no requirement for supplements to display this information, but reputable companies will. Also look for a lot number, which allows companies to keep track of each batch; it's a sign of quality control. Finally, look for a phone number. A reliable supplement manufacturer will make it easy for consumers to get their questions answered.

Also look for the National Animal Supplement Council (NASC) Seal of Quality. A nonprofit corporation, the NASC allows only manufacturers who meet certain standards to display the NASC Seal on their labels. Among the requirements are an independent quality audit, an adverse-event reporting system and labels that are consistent with the requirements for nutritional or health products.

The next step takes some work but is crucial: Compare the ingredients in the product you've selected to the nutritional makeup of the rest of your horse's diet. This means collecting all his other





Even if you've selected the ideal nutritional supplement for your horse, it may not be effective if you don't feed it properly. Here are guidelines to ensure your horse gets the most from his supplement:

Follow the label dosing instructions.

SILVA/ARND

Some product instructions recommend starting with a large "loading" dose for the first few days or even a week, then tapering down to a maintenance dose. Following this schedule can produce the desired effects sooner.

• Use the included scoop. All scoops are not created equal. Using the wrong scoop in a product can lead to an under- or overdose of nutrients. If you've misplaced or broken a scoop, call the manufacturer for a

replacement or the exact measurement of how much of the product to feed, then break out the kitchen measuring scoops to provide it.

• Watch for expiration and spoilage. Supplements can expire and go "off" like any other product in your feed room. Examine the fresh product closely when it arrives so you can learn what it is supposed to look, smell and feel like. Any change in that is cause to contact the company and/ or dispose of the remainder of the product.

Some products come with an expiration date. Find it and circle it in red so you'll remember to check it often. If your product doesn't have a date, call the manufacturer and ask how long it should

be good for and write that on the lid.

• Reorder early.

Most supplements work best when they are given consistently. Waiting for a reorder to arrive can set a horse back. To help remind you to reorder, bury a red poker chip deep in the supplement bucket. When you've used enough to reveal the chip, it's time to reorder before you run out.

• Reassess the situation periodically.

Feeding a supplement purely out of habit isn't smart. Ask yourself at least once a year: Does my horse still need a supplement, and is this one still the best choice? You'll want to ask yourself the same questions anytime you make significant changes to your horse's diet and management.

supplements and the label off a bag of his feed and comparing the ingredients in each. You need to avoid overloading your horse with any one nutrient, which could be dangerous. In many products, grains are fortified with vitamins and other nutrients, so the chance of an overlap is significant and increases with each additional supplement in your horse's diet. This is where multivitamin supplements can be helpful. Instead of feeding three separate products, which risks overloading on some nutrients, you may be able to find one product that covers all your nutritional bases safely. Your veterinarian or an equine nutritionist can offer you some guidance if you have a lot of variables to consider.

Finally, of course, price is a consideration. You don't want to strain your budget with spending on supplements, but cheaper isn't always better, especially if the product that saves you money lacks label information, a method to contact the manufacturer or any evidence of quality-control measures.

ost conscientious horse owners are savvy shoppers, ready to take on the multifaceted process involved in purchasing the right supplement. It takes a bit of work, but the payoff comes when you've selected a product that perfectly rounds out your horse's diet.



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AVAILABLE IN PELLETS FOR EASY FEEDING!

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Joint Health Supplements





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80 SERVINGS

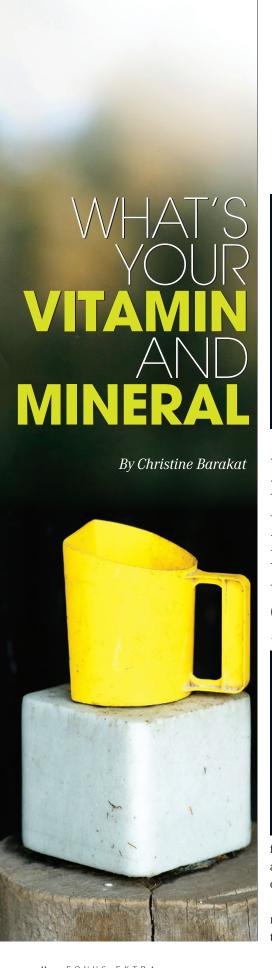
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AT
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How much do you really know about these essential micronutrients that keep your horse healthy? Take this quick quiz to find out.

> f it has been a while since you've given any serious thought to the vitamin and mineral levels in your horse's feed ration, you need not feel too guilty. Nutritionists work hard to formulate equine feeds to perfectly balance these essential micronutrients for virtually all types of horses.

All you have to do is pick a product designed for your horse's age, work level or situation and deliver it according to the instructions on the label. And it's just as easy for horses who don't receive grain: Simply allow them free access to quality grass and/or hay, with a mineral or salt block, and their nutritional needs will, with very few exceptions, be met. Of course, some horses do need vitamin or mineral supplements—when recovering from an illness, for instance, or if local forage is lacking any crucial nutrients—and a wide array of products are avail-

able. An equine nutritionist or your veterinarian can help you sort through the options to pick the right one to address any deficiencies in your horse's diet.

Still, it's good to know the basics about the vitamins and minerals your horse needs. To see whether you've got all the facts, and perhaps to learn a few more in the process, take our 10-question quiz.

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1.

MANE PHOTO

Which vitamin is the chief component of the light-sensitive pigment in the rods and retina of the eye, making it important to vision, particularly at night?

- ☐ vitamin A
- □ vitamin B
- □ vitamin K

2.

Which is the only vitamin more abundant in dried forage than fresh?

- ☐ vitamin B
- ☐ vitamin C
- ☐ vitamin D

3.

What do vitamins C and E have in common?

- ☐ They are synthesized in the liver of the horse.
- ☐ They are antioxidants.
- ☐ They can't be obtained from pasture alone.

4.

What is a potential adverse effect of oversupplementing horses with vitamin C?

- ☐ The horse may become agitated.
- ☐ His teeth may become discolored and soft.
- ☐ He can become deficient in the vitamin.

5.

What is the ideal balance between calcium and phosphorus in a horse's diet?

- □ 1:1
- 2:1
- ☐ 5:1



BOB LANGERISH

Supplementation with which micronutrient, that used to be called "Vitamin H," has been clinically shown to improve hoof health, even in horses who were not deficient in the nutrient?

 \square copper

sulfur

☐ biotin

7.

What mineral plays a role in the production of hemoglobin and transporting oxygen to muscles, making it a popular supplement to give to horses in an effort to boost their endurance potential?

 \square iron

□iodine

☐ zinc

8.

What is the only mineral a horse can overdose on while grazing his own pasture?

☐ phosphorus

sodium

selenium

9.

Which three minerals are also electrolytes?

☐ sodium, chloride and potassium

☐ copper, calcium and phosphorus

☐ zinc, manganese and iodine

OUSTY PERIN

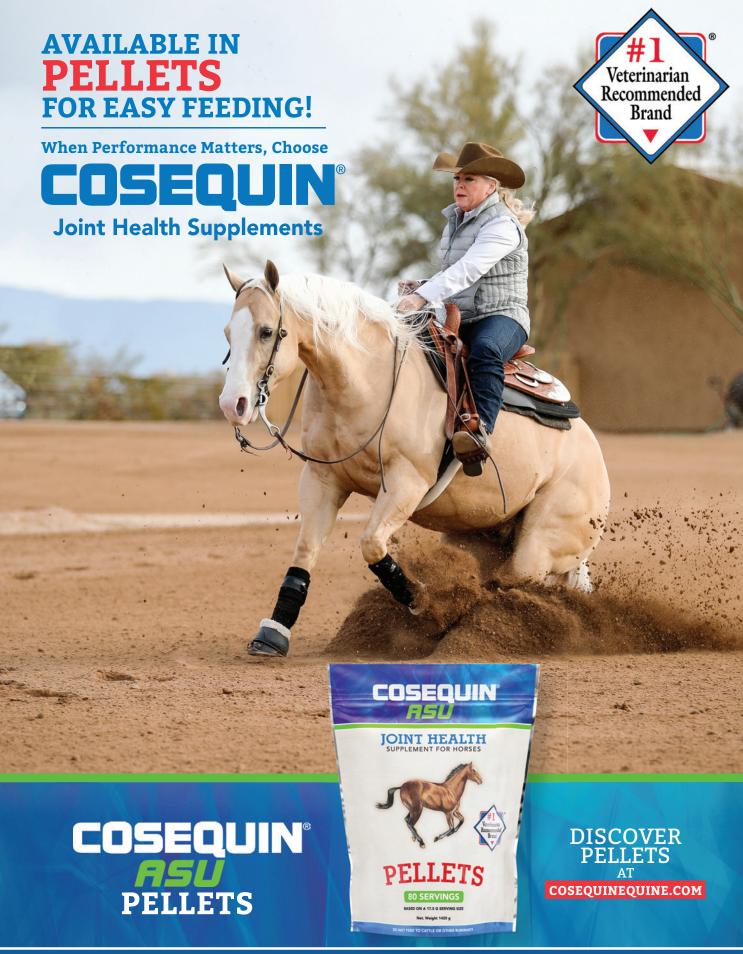
A foal might be born with a deficiency of what vitamin?

□ vitamin D

uitamin E

□ vitamin K

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1. vitamin A

In addition to contributing to bone and muscle growth and production of skin tissue, vitamin A combines with proteins in a horse's retina to form rhodopsin ("visual purple"), a substance necessary for vision. Vitamin A is found in plants and forage in abundance in the form of the yellow pigment beta carotene. Stored hay loses about 9.5 percent of its vitamin A content per month, but the good news is that a horse on green pasture for six weeks can store up to six months' worth of this nutrient in his liver.

2. vitamin D

Ultraviolet (UV) rays from the sun trigger synthesis of vitamin D from various forms of cholesterol. This conversion happens both in your horse's body and in the leaves of plants. However, chlorophyll in living plants blocks UV rays, so the process occurs only when the plants have been cut and then dried in the sun—in other words, when grass becomes hay. Any horse who spends a few hours each day outside and is fed hay will get sufficient levels of vitamin D. In fact, deficiencies have been induced only in a clinical setting.

3. They are antioxidants.

Vitamins C and E are antioxidants, substances capable of inhibiting the oxidation of other molecules. Oxidation is a chemical reaction that releases altered atoms called "free radicals," which are thought to play a role in many disease processes. Vitamin A is often also listed as an antioxidant, but it is more accurately described as an antioxidant precursor. Only vitamin C can be produced in the liver, while vitamin E is found in green grasses.

4. He can become deficient in vitamin C.

A horse can synthesize the vitamin C he needs from glucose in his own liver. If the nutrient is provided in a supplement,

however, that natural process will slow or stop, and if the supplement is discontinued suddenly the process may not restart promptly enough to compensate. That is how vitamin C supplementation can lead to a deficiency in the vitamin.

5. a 2:1 ratio

The ratio between calcium and phosphorus is critical. Excessive amounts of phosphorus can interfere with the absorption of calcium. To compensate, the body draws calcium out of bones, which can cause serious orthopedic disorders. On the other hand, high calcium levels that are not balanced with phosphorus have been linked to physitis, inflammation and swelling of the growth plates above and below the joints.

A good target for the balance of the two is two parts calcium to one part phosphorus (a 2:1 ratio), although adult horses may tolerate ratios as high as 5:1 or as low as 1:1. Growing horses are less tolerant of excess calcium, and the recommendation is to keep the ratio below 3:1. To determine the balance in a horse's diet, all components need to be considered. For example, alfalfa hay can be as much as eight times richer in calcium than phosphorus, and bran mashes are high in phosphorus. If you're concerned about the calcium-phosphorus ratio in your horse's diet, your best resource is your veterinarian or an equine nutritionist.

6. biotin

If you tend to be wary of beneficial claims about vitamin and mineral supplements, you can believe what you read about biotin. Several studies have shown that the addition of therapeutic amounts of biotin to a horse's diet can improve hoof quality over the course of several months. Interestingly, other studies have shown that horses with poor hooves do not necessarily have lower levels of the nutrient in their

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blood than horses with good hooves. Furthermore, no naturally occurring biotin deficiencies have ever been documented. So the benefits of biotin are clear, but it's action isn't fully understood. It's thought, however, that the single sulfur atom found in the biotin chemical structure may be the key to its action because that mineral is an essential part of hoof horn.

7. iron

Iron does play an important role in muscle function and endurance, but most forages and grains supply an ample amount for healthy horses, even in hard work. A horse stores iron in his liver, spleen and bone marrow and can pull from those resources in times of need, making a deficiency even more unlikely. There are a few instances, however, when an adult horse may need an iron supplement—after acute blood loss or long-term parasite infestation, for instance. Horses with chronic anemia may also benefit, but it's important to have this diagnosis made by a veterinarian. Supplementing a sluggish horse with iron on a hunch he might be anemic can lead to toxicity and associated problems, such as an increased risk of bacterial infection. The liver is good at storing iron but not at getting rid of excess when large amounts are fed. Excessive iron intake can cause death in foals.

8. selenium

LANGRISH

Horses require only a very tiny amount of selenium—about 0.1 parts per million (PPM) of their total diet. Most forages

contain this trace mineral, but the levels can vary greatly with the soil condition. Soils in some parts of Colorado, Montana, Wyoming and the Dakotas contain toxic amounts of selenium, leading to elevated levels in both growing grass and locally grown hay. Horses with acute selenium poisoning—blood levels of more than 72 PPM—develop colic-like signs as well as increased heart and respiratory rates and neurological symptoms. Long-term grazing on plants that contain between five and 50 PPM can lead to chronic toxicity that manifests as anemia, loss of hair on the mane and tail, and brittle, malformed hooves. The real culprits are certain plants called "selenium accumulators," which contain extremely high levels of the trace mineral, but horses tend to avoid them unless there is insufficient other forage or during a drought.

9. potassium, sodium and chloride

Potassium, sodium and chloride (the combination of the last two are salt) are essential electrolytes in your horse's diet. In their broadest definition, electrolytes are any substances that are able to conduct electricity when dissolved in a liquid. Nutritionally speaking, these are the nutrients that allow cells to generate energy to contract muscles, move fluid around the body and perform many other critical functions.

Horses lose electrolytes rapidly in sweat—much more quickly than people do—putting them at risk of depletion in very hot weather or during extreme exertion. Low electrolyte levels can lead to fatigue,

muscle stiffness, the hiccup-like diaphragm twitches known as "thumps" and even collapse. By simply putting a mineralized salt block (which will contain all the necessary electrolytes) in your horse's stall or field, you can easily and safely meet his electrolyte needs. Just make sure you also supply fresh water at all times.

There are times when a horse may need additional electrolyte supplementation, however, such as after an illness or heat stress. In these cases, your veterinarian will be involved in treating the horse and can guide you on the proper use of electrolytes in the process.

10. vitamin K

Two forms of vitamin K are important to your horse's health. One is found in fresh and dried green forage, and the other is produced in the gut by bacteria. Vitamin K is instrumental in blood clotting and the activation of a number of proteins for use by the body. Occasionally, foals are born with a vitamin K deficiency simply because in the womb they may not produce enough. An adult horse may develop a vitamin K deficiency if given blood-thinning drugs or after eating moldy sweet clover. These situations may correct themselves in time, but a veterinarian may opt to give a vitamin K injection if she feels the foal or horse is in danger of hemorrhaging from a lack of clotting ability. Any injections will be given with caution, however, because giving a large dose of vitamin K to a horse who is not deficient can lead to renal failure, laminitis and even death within 12 hours.



If you got all 10 answers correct, your knowledge of the vitamins and minerals in your horse's diet is first-rate. Congratulations! If you scored between 6 and 9, you still have a solid foundation of nutritional knowledge. If you scored between 3 and 5, you could probably stand to review some feeding basics to ensure you're doing the best by your horse. Visit www.EquusMagazine. com to re-read some archived EQUUS articles on the topic. If you got fewer than three questions correct, start that review immediately!

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