

The Nitty Gritty on Salt

The medical community remains deadlocked on whether humans crave salt to satisfy physiological needs or to fulfill acquired taste preferences. Equine behavior is not nearly so perplexing. **Salt is the only mineral for which horses have an indisputable appetite**, thereby displaying a degree of nutritional wisdom regarding its consumption. If salt is available, **most horses will consume sufficient amounts** to meet their needs without overindulging.

Common salt is composed of approximately 60% sodium and 40% chloride. Both minerals are integral in the regulation of body fluids and in the creation of electrical impulses that fire nerves and allow muscles to contract and flex.

How Do Horses Acquire Salt?

Natural feedstuffs such as pasture grasses contain little sodium, often less than 0.1%. Therefore, **sodium chloride is often added to concentrates** at a rate of 0.5 to 1.0%. Horses are also offered **free-choice sodium chloride** as plain or trace-mineralized salt. The most popular way to feed salt ad libitum is a **salt block**. These were originally designed for cattle, which possess a rough tongue, but are suitable for most horses. Occasionally a horse may be seen biting or gnawing at the corners of the block. These behaviors indicate that the horse is not receiving enough salt through typical licking. In these instances, the preferable way to feed salt is **loose**. Although there are formulations on the market designed especially for horses, plain white table salt is acceptable. If a stall or run-in shed is used to house horses, loose salt can be offered in a hanging bucket. For horses that do not have access to a stall or run-in shed, the loose salt should be placed in a covered feeder in the pasture.

Pecking order becomes a factor in herd situations. If many horses are kept in a pasture together, timid horses may be kept away from the salt by more aggressive horses. Placing salt in two distant locations will **ensure that all horses have access** to the mineral.

Do horses prefer loose salt or block salt? A study conducted by Kentucky Equine Research measured the voluntary intake of loose versus block salt over time and evaluated how salt intake affects water consumption. Results of the trial indicated that **salt intake was more consistent from week to week when horses were offered a block, though total consumption of the loose form was greater**. Water consumption was significantly increased when horses were given access to loose salt.

Trace-Mineralized Salt

Trace-mineralized salt is often given to horses to provide them with several key minerals. In addition to sodium chloride, trace-mineralized salt often contains zinc, iron, manganese, copper, iodine, and cobalt. When trace-mineralized salt is consumed at the rate recommended to supply horses with adequate sodium chloride, other **minerals are not necessarily ingested in sufficient quantities to**

satisfy recommended daily allowances. One popular trace-mineralized salt block, for instance, contains only 4%, 6%, and 9% of the recommended daily allowances of copper, manganese, and iron, respectively. **Horses should be offered a fully fortified concentrate or a vitamin and mineral supplement pellet to ensure mineral requirements are met.**

Although typically not a concern due to low inclusion of minerals in trace-mineralized blocks, unlimited access to trace-mineralized salt may pose a problem with hypernutrition. The majority of horses will readily consume trace-mineralized salt in order to satiate sodium requirements. **When horses are being fed a fortified grain ration (i.e., complete with all necessary minerals and vitamins) in addition to a trace-mineralized salt block, overconsumption of some nutrients, including copper, zinc, and manganese, may occur.** This is usually a problem only when excessive amounts of a trace-mineralized block are being ingested.

Requirements

In *Nutrient Requirements of Horses*, the National Research Council suggests that **horses at rest need approximately 25 grams of sodium chloride per day.** Researchers have determined that **heavy work increases the sodium requirement** substantially with equine athletes requiring eight or nine times the amount (up to 200 grams) needed by horses at rest.

Intense, sustained exercise and elevated environmental temperature and humidity increase the sodium requirement because sweating causes significant losses of sodium, chloride, and other electrolytes. An **endurance horse**, for example, may lose 25 liters of sweat during a 100-mile competition; this amount of sweat would contain approximately 93 grams of sodium and 163 grams of chloride. When electrolytes are forfeited in sweat and not replaced throughout an exercise bout with an electrolyte preparation, horses may exhibit fatigue and muscle weakness.

Salt Toxicity and Deficiency

Although horses may develop **salt toxicosis or hypernatremia** (excessive sodium in the blood), the condition is rare. Toxicosis is usually the result of overconsumption of salt water when alternative water sources are unavailable; overfeeding salt to salt-deficient horses; or offering a ration with 2% or more salt with inadequate water supply. Signs of salt toxicosis include colic, diarrhea, frequent urination, weakness, recumbency, and death.

Salt blocks often become toys for bored stalled horses. If a stall-kept horse spends an inordinate amount of time licking or gnawing at its salt block, horse owners should **consider leaving the block in the stall for short periods of time** such as between two meals. A toxic condition may develop if the horse is allowed to ingest large quantities of salt daily.

Salt deficiency happens only when horses do not have access to the mineral, and the insufficiency generally develops over a period of weeks or months. Horses with a deficiency may develop an abnormal appetite (called "pica") and lick objects that may have traces of salt on them such as pieces of wood or stones. **Eating soil or bark** has also been observed. It must be noted, however, that the occurrence of pica **does not necessarily indicate a salt deficiency.** If a horse is observed licking or eating unusual objects, the ration should be checked for sodium chloride adequacy. If a deficiency is found and not addressed, weight loss, weakness, reduced growth, and dehydration may occur. Horses may also exhibit a decreased appetite, and severe deficiency may lead to complete anorexia.

When left on their own, horses have the innate ability to regulate sodium chloride equilibrium within their bodies. Therefore, **all horses should be offered ad libitum salt.** Special attention should be given to the salt consumption of horses that exercise and sweat frequently.