

# Management Considerations for the Cribbing Horse

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## What is Cribbing?

Cribbing is a stereotypy (seemingly functionless repetitive behavior) characterized by grabbing an upright object with the teeth and pulling against the object with an arched neck and sucking air. Horses often lick a surface they are about to use for cribbing (Whisher et al., 2011). Horses that crib can spend anywhere from 15% - 65% of their day performing this stereotypy (Wickens & Heleski, 2010). Approximately 4.4% of horses in the US are cribbers (Albright et al., 2009).

Example cribbing video: <https://youtu.be/SvV24tE21pY>



## Causes

Cribbing has not been reported in free ranging feral horses (Wickens & Heleski, 2010), therefore aspects of human management may cause cribbing behavior. Specific causes of cribbing are yet to be determined and the behavior may be due to a combination of factors. Diet, genetics, boredom, stress, and copying another horse have all been suggested as causes of cribbing (Litva et al., 2010).

Horses that have more grain in their diet have an increased risk of developing stereotypies, while increased roughage in the diet has been associated with a decreased risk of developing stereotypies (Redbo et al., 1998). This holds true for cribbing, as one study found that feeding concentrate to young horses immediately after weaning was associated with a four-fold increase in the manifestation of cribbing (Waters et al., 2002). Type of grain can also play a role as horses cribbed more when fed sweet feed than oats (Whisher et al., 2011).

Horses learning cribbing behavior from horses that already crib has not been substantiated. In a survey of horse owners, only 1% of horses were reported to have developed a cribbing habit after exposure to another cribbing horse (Albright et al., 2009) making it appear that horses are unlikely to learn cribbing behavior from one another.

Genetics can have an impact too, as Thoroughbreds and warmbloods are more likely to crib compared to other breeds (Wickens & Heleski, 2010). A study of horses in Finland found the heritability of cribbing has been estimated at 0.68, that means cribbing is likely to be passed onto offspring (Hemmann et al., 2014).

## Potential Ramifications for Cribbing Horses

Horses that crib will have increased wear on their incisors. This wear can not cause problems for the horse until they are older, and those teeth are in danger of falling out. The extra wear on these teeth can ultimately shorten the life of the horse because of a reduced ability to eat when the teeth fall out. Additionally, cribbing horses can be harder keepers because they spend time cribbing instead of eating and the act of cribbing requires energy (Wickens & Heleski, 2010).

Cribbing is a risk factor for a variety of conditions. Most notably cribbing horses are at risk for colic (Archer et al., 2008; Malamed et al., 2010; Scantlebury et al., 2015) and stomach ulcers (Nicol et al., 2002). Cribbing is even a risk factor for equine motor neuron disease (De la Rua-Domenech et al., 1997) and temporohyoid osteoarthropathy (Saito & Amaya, 2019). All of these issues contribute to the unpopularity of cribbing horses and a potential reduction in market value (McGreevy & Nicol, 1998c).

### **Preventing the Onset of Cribbing Behavior**

Without knowing the exact cause for cribbing behavior in horses, prevention can be difficult. We know that cribbing begins in young horses, typically around 20 weeks old (Waters et al., 2002) and many of these horses exhibited wood chewing behavior before starting to crib (Waters et al., 2002). Additionally, reduced risk of cribbing is associated with more time spent outside, social contact with other horses, and keeping foals solely on grass through the weaning process (Wickens & Heleski, 2010). Once cribbing behavior is established, it is unlikely that a horse will ever completely cease to exhibit the behavior.

### **Cribbers are Different**

There are some studies that suggest that cribbing horses can have some physiological and mental differences from their non-cribbing peers.

Horses that crib have atypical hormone levels when compared to non-cribbing horses. They have lower plasma levels of leptin, which is a hormone involved in regulating appetite and the reward center of the brain (Hemmann et al., 2013). Crib-biting horses have also been shown to have altered dopamine receptors in the brain, with increases in some areas of the brain and decreases in others, compared to their non-crib biting counterparts. These changes suggest that cribbing alters brain function as an adaptation to chronic stress (McBride & Hemmings, 2005). These horses were also found to have higher circulating levels of gastrin, a hormone involved in triggering the production of stomach acid (Wickens et al., 2013). However, stomachs of crib-biting horses are not anatomically different from typical horses (Daniels et al., 2019). These hormone levels can explain differences found between cribbing and non-cribbing horses in learning and stomach ulceration.

Horses that exhibit cribbing behavior can react to situations differently than their non-cribbing counterparts. One study suggests that cribbers learn differently than non-cribbing horses (Parker et al., 2008). However, owners responding to a survey reported that cribbing horses had less anxious temperaments and were equally trainable when compared to non-cribbing horses (Nagy et al., 2010). Further studies by Kirsty and associates (2015) demonstrated that horses with either oral stereotypes (cribbing) and locomotor stereotypes (weaving) learned specific tasks faster than control horses, however, extinction of a learned behavior took longer in horses that cribbed compared to either control horses or horses that weaved. Thus, the importance of error-free training is especially important for horses with oral stereotypic behaviors.

Cribbers may make more use of sweetened licks than non-cribbers (Moore-Colyer, et al., 2016). Another study found that cribbers tend to engage in oral activity when stressed, whereas non-cribbing horses toss their heads or paw when similarly stressed (Nagy et al., 2009). When the cribbing horses were prevented from cribbing, some engaged in other oral activity.

Cribbing can be a way horses cope with stress. Cribbing horses experience a slowing heart rate during cribbing (Lebelt et al., 1998). Levels of plasma cortisol, a hormone associated with stress, in cribbers was found to be greater than that in non-cribbers (McGreevy & Nicol, 1998a; Briefer Freymond, et al., 2015). Researchers have conflicting opinions on whether preventing a horse from cribbing is stressful for the horse.

These differences should be considered when developing a management plan for these horses.

### **Managing a Horse that Cribbs**

The decision on whether to inhibit a horse's ability to crib should weigh the possibility of increasing stress on the horse against the risk of colic and other health issues associated with cribbing. Also consider the destructive nature of cribbing behavior on barns and fences (*Figure 1*).



Figure 1: Despite wearing a cribbing collar, this horse has damaged much of the surfaces he can reach. (Photo credit: Mastellar)

Cribbers are motivated to crib and will work as hard for an opportunity to crib as they will for a chance to eat sweet feed (Haupt, 2012). This can be in part due to the altered brain chemistry particularly when horses are in an enhanced motivational state, often associated with feeding or anticipation of feeding behaviors (McBride and Hemmings, 2005). This motivation makes keeping an established cribber from engaging in cribbing behavior particularly difficult. Many horse managers have tried to prevent horses from cribbing and their creativity can be seen through the sheer variety of methods for preventing a horse from cribbing.

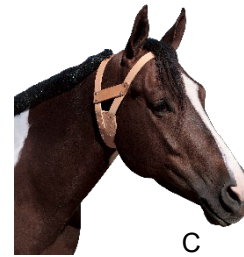
The cribbing collar is the most used method (*Figure 2*). These collars generally consist of two straps – one goes in front of the ears and the other behind. The straps hold a piece of galvanized steel under the horse's neck. With the piece of steel in position, it is uncomfortable to flex the neck and perform cribbing behavior. The collar must be properly fitted to reduce tissue damage. Cribbing collars are effective in preventing cribbing in most horses (McGreevy & Nicol, 1998b), but are only effective when the horse is wearing the collar. Horses allowed to crib, after being prevented from cribbing for some time, may increase their cribbing rate (McGreevy & Nicol, 1998b) as if to make up for lost time. Not all cribbers increase their cribbing rate after being inhibited (Albright et al., 2016).



A



B



C

Figure 2: Cribbing collars (A-C) are often padded (B) for horse comfort and do not interfere with normal eating and drinking when fitted properly (C). Photos courtesy of Weaver Leather.

Several studies have shown that pharmacological agents can reduce or eliminate cribbing behaviors, however, they are only effective for an hour or less (Renden, et al., 2001), and thus are not practical solutions.

Feeding management is another way the horse's manager can affect how often a horse cribs. Cribbing rates increase after a concentrate meal (Gillham et al., 1994). If possible, formulating diets that contain more forage and less grain can help mitigate cribbing behavior. Although feeding horses little and often is recommended, cribbing horses fed many small concentrate meals may crib more because cribbing is associated with feeding time (McCall et al., 2009). Horses fixate on the feeders and spend more of their time cribbing. The energy and time spent cribbing can make them harder keepers than other horses. Excessive tooth wear may also affect the ability of older cribbers to utilize their diet.

Cribbers should have access to turnout and the opportunity to socialize with other horses. Although, cribbing behavior is not eliminated by providing turnout and companion horses, cribbing rates are reduced (Wickens, 2009). Some cribbers are isolated for fear of the behavior spreading to other horses but, it is unlikely for one horse to learn cribbing from another. The cribber's welfare will benefit from having other horses with which to socialize. If there is a need to keep a cribber stabled, providing a toy has been shown to slightly reduce cribbing rates (Whisher et al., 2011). Turnout, socialization, and prevention of boredom are all forms of stress reduction for these horses.

Other methods of preventing cribbing that are effective, but require intensive management include: elimination of cribbing surfaces, taste deterrents, electrification of cribbing surfaces, pharmaceuticals, oral antacids for foals (Nicol et al., 2002), surgery (Krisová, et al., 2015), and increasing the time spent eating.

## In Closing

Cribbing in horses is likely a permanent behavior pattern once established. The exact cause of cribbing remains to be determined, but can be related to management, nutrition, and genetics. Consider not breeding to a horse that cribs, providing plenty of forage at weaning, and allow horses plenty of turnout and interaction with other horses to reduce the chances of a horse becoming a cribber. Cribbers are more prone to certain health issues, including colic. They can have differences in their learning and how they cope with stressful situations when compared to non-cribbing horses. The decision to inhibit a horse from cribbing should weigh the possibility of increasing stress against the possible health risks of cribbing. Besides inhibiting cribbing behavior, a manager can adjust feeding and turnout conditions to reduce cribbing rates.

Summary radio interviews prompted by this publication:

1. <https://brownfielddagnews.com/hoofbeat/cribbing-horses-part-1/>
2. <https://brownfielddagnews.com/hoofbeat/cribbing-horses-part-2/>

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