

# Horse Tack

A Wikipedia Compilation  
by  
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# Chapter 1

## Horse tack

“Horse equipment” redirects here. For other uses, see [Equipment \(disambiguation\)](#).

**Tack** is a piece of equipment or accessory equipped on horses in the course of their use as domesticated animals. Saddles, stirrups, bridles, halters, reins, bits, harnesses, martingales, and breastplates are all forms of horse tack. Equipping a horse is often referred to as **tacking up**. A room to store such equipment, usually near or in a stable, is a **tack room**.

### 1.1 Saddles

Main article: [Saddle](#)

Saddles are seats for the rider, fastened to the horse's back by means of a *girth* (English-style riding), known as a *cinch* in the Western US, a wide *strap* that goes around the horse at a point about four inches behind the forelegs. Some western saddles will also have a second strap known as a *flank* or *back cinch* that fastens at the rear of the saddle and goes around the widest part of the horse's belly.<sup>[1]</sup>

It is important that the saddle be comfortable for both the rider and the horse as an improperly fitting saddle may create pressure points on the horse's back muscle (*Latissimus dorsi*) and cause the horse pain and can lead to the horse, rider, or both getting injured.

There are many types of saddle, each specially designed for its given task. Saddles are usually divided into two major categories: "English saddles" and "Western saddles" according to the riding discipline they are used in. Other types of saddles, such as racing saddles, Australian saddles, sidesaddles and endurance saddles do not necessarily fit neatly in either category.<sup>[1]</sup>

#### 1.1.1 Saddle accessories

- **Breastplate** or breastcollar: Prevents saddles of all styles from sliding sideways or backward on a horse's back
- **Surcingle**
- **Crupper**
- **Breeching**, also called “britching”

### 1.2 Stirrups

Main article: [Stirrup](#)

Stirrups are supports for the rider's feet that hang down on either side of the saddle. They provide greater stability for the rider but can have safety concerns due to the potential for a rider's feet to get stuck in them. If a rider is thrown



*A horse equipped with a saddle for mounted police.*

from a horse but has a foot caught in the stirrup, they could be dragged if the horse runs away. To minimize this risk, a number of safety precautions are taken. First, most riders wear riding boots with a heel and a smooth sole. Next, some saddles, particularly English saddles, have safety bars that allow a stirrup leather to fall off the saddle if pulled backwards by a falling rider. Other precautions are done with stirrup design itself. Western saddles have wide stirrup treads that make it more difficult for the foot to become trapped. A number of saddle styles incorporate a tapedero, which is covering over the front of the stirrup that keeps the foot from sliding all the way through the stirrup. The English stirrup (or “iron”) has several design variations which are either shaped to allow the rider’s foot to slip out easily or are closed with a very heavy rubber band.<sup>[2]</sup> The invention of stirrups was of great historic significance in mounted combat, giving the rider secure foot support while on horseback.

### 1.3 Headgear

*Bridles*, hackamores, *halters* or *headcollars*, and similar equipment consist of various arrangements of straps around the horse’s head, and are used for control and communication with the animal.



*A nylon halter/headcollar*

### 1.3.1 Halters

Main article: halter

A *halter* (US) or *headcollar* (BI) (occasionally *headstall*) consists of a noseband and headstall that buckles around the horse's head and allows the horse to be led or tied. The lead rope is separate, and it may be short (from six to ten feet, two to three meters) for everyday leading and tying, or much longer (up to 25 feet (7.6 m), eight meters) for tasks such as for leading packhorses or for picketing a horse out to graze.

Some horses, particularly stallions, may have a chain attached to the lead rope and placed over the nose or under the jaw to increase the control provided by a halter while being led. Most of the time, horses are not ridden with a halter, as it offers insufficient precision and control. Halters have no bit.<sup>[3]</sup>

In Australian and British English, a *halter* is a rope with a spliced running loop around the nose and another over the poll, used mainly for unbroken horses or for cattle. The lead rope cannot be removed from the halter. A show halter is made from rolled leather and the lead attaches to form the chinpiece of the noseband. These halters are not suitable for paddock usage or in loose stalls. An *underhalter* is a lightweight halter or headcollar which is made with only one small buckle, and can be worn under a bridle for tethering a horse without untacking.

### 1.3.2 Bridles

Main article: Bridle

Bridles usually have a *bit* attached to *reins* and are used for riding and driving horses.<sup>[4]</sup>



*An English bridle with cavesson noseband*

*English Bridles* have a *cavesson* style noseband and are seen in English riding. Their reins are buckled to one another, and they have little adornment or flashy hardware.<sup>[4]</sup>

*Western Bridles* used in Western riding usually have no noseband, are made of thin bridle leather. They may have long, separated “Split” reins or shorter closed reins, which sometimes include an attached *Romal*. Western bridles are often adorned with silver or other decorative features.<sup>[4]</sup>

*Double bridles* are a type of English bridle that use two bits in the mouth at once, a snaffle and a curb. The two bits allow the rider to have very precise control of the horse. As a rule, only very advanced horses and riders use double bridles. Double bridles are usually seen in the top levels of dressage, but also are seen in certain types of show hack and Saddle seat competition.<sup>[5]</sup>

### 1.3.3 Hackamores and other bitless designs



*A bosal hackamore*

Main articles: Hackamore and Bitless bridle

A *hackamore* is a headgear that utilizes a heavy noseband of some sort, rather than a bit, most often used to train young horses or to go easy on an older horse's mouth. Hackamores are more often seen in western riding.<sup>[5]</sup> Some related styles of headgear that control a horse with a noseband rather than a bit are known as bitless bridles.

The word "hackamore" is derived from the Spanish word *jáquima*. Hackamores are seen in western riding disciplines, as well as in endurance riding and English riding disciplines such as show jumping and the stadium phase of eventing. While the classic bosal-style hackamore is usually used to start young horses, other designs, such as various bitless bridles and the mechanical hackamore are often seen on mature horses with dental issues that make bit use painful, horses with certain training problems, and on horses with mouth or tongue injuries. Some riders also like to use them in the winter to avoid putting a frozen metal bit into a horse's mouth.<sup>[6]</sup>

Like bitted bridles, noseband-based designs can be gentle or harsh, depending on the hands of the rider. It is a myth that a bit is cruel and a hackamore is gentler. The horse's face is very soft and sensitive with many nerve endings. Misuse of a hackamore can cause swelling on the nose, scraping on the nose and jawbone, and extreme misuse may cause damage to the bones and cartilage of the horse's head.

### 1.3.4 Other headgear

A *longeing cavesson* (UK: *lungeing*) is a special type of halter or noseband used for longeing a horse. Longeing is the activity of having a horse walk, trot and/or canter in a large circle around the handler at the end of a rope that is 25 to 30 feet (9.1 m) long. It is used for training and exercise.<sup>[7]</sup>

## 1.4 Reins

Main article: Rein

Reins consist of leather straps or rope attached to the outer ends of a *bit* and extend to the rider's or driver's hands. Reins are the means by which a horse rider or driver communicates directional commands to the horse's head. Pulling on the reins can be used to steer or stop the horse. The sides of a horse's mouth are sensitive, so pulling on the reins pulls the bit, which then pulls the horse's head from side to side, which is how the horse is controlled.<sup>[8]</sup>

On some types of harnesses there might be supporting rings to carry the reins over the horse's back. When pairs of horses are used in drawing a wagon or coach it is usual for the outer side of each pair to be connected to reins and the inside of the bits connected by a short bridging strap or rope. The driver carries "four-in-hand" or "six-in-hand" being the number of reins connecting to the pairs of horses.

A rein may be attached to a halter to lead or guide the horse in a circle for training purposes or to lead a packhorse, but a simple lead rope is more often used for these purposes. A longe line is sometimes called a "longe rein," but it is actually a flat line about 30 feet (9.1 m) long, usually made of nylon or cotton web, about one inch wide, thus longer and wider than even a driving rein.<sup>[9]</sup>

Horses should never be tied by the reins. Not only do they break easily, but, being attached to a bit in the horse's sensitive mouth, a great deal of pain can be inflicted if a bridled horse sets back against being tied.

## 1.5 Bits

Main article: Bit (horse)

A bit is a device placed in a horse's mouth, kept on a horse's head by means of a headstall. There are many types, each useful for specific types of riding and training.<sup>[10]</sup>

The mouthpiece of the bit does not rest on the teeth of the horse, but rather rests on the gums or "bars" of the horse's mouth in an interdental space behind the front incisors and in front of the back molars. It is important that the style of bit is appropriate to the horse's needs and is fitted properly for it to function properly and be as comfortable as possible for the horse.<sup>[11]</sup>

The basic "classic" styles of bits are:





*A pelham bit with a jointed mouthpiece*



a curb and snaffle bit shown together on a double bridle

- Curb bit
- Snaffle bit
- Pelham bit
- Weymouth or Double Bridle

While there are literally hundreds of types of bit mouthpieces, bit rings and bit shanks, essentially there are really only two broad categories: direct pressure bits, broadly termed *snaffle* bits; and leverage bits, usually termed *curbs*.

Bits that act with direct pressure on the tongue and lips of the bit are in the general category of *snaffle* bits. Snaffle bits commonly have a single jointed mouthpiece and act with a nutcracker effect on the bars, tongue and occasionally roof of the mouth. However, regardless of mouthpiece, any bit that operates only on direct pressure is a “snaffle” bit.<sup>[12]</sup>

Leverage bits have shanks coming off the mouthpiece to create leverage that applies pressure to the poll, chin groove and mouth of the horse are in the category of *curb* bits. Any bit with shanks that works off of leverage is a “curb” bit, regardless of whether the mouthpiece is solid or jointed.

Some combination or hybrid bits combine direct pressure and leverage, such as the *Kimblewick* or *Kimberwicke*, which adds slight leverage to a two-rein design that resembles a snaffle;<sup>[13]</sup> and the four rein designs such as the single mouthpiece *Pelham* bit and the double bridle, which places a curb and a snaffle bit simultaneously in the horse’s mouth.<sup>[14]</sup>

In the wrong hands even the mildest bit can hurt the horse. Conversely, a very severe bit, in the right hands, can transmit subtle commands that cause no pain to the horse. Bit commands should be given with only the quietest movements of the hands, and much steering and stopping should be done with the legs and seat.

## 1.6 Harness

Main article: [Horse harness](#)

A horse harness is a set of devices and straps that attaches a horse to a cart, carriage, sledge or any other load. There are two main styles of harnesses - breaststrap and collar and hames style. These differ in how the weight of the load is attached. Most Harnesses are made from leather, which is the traditional material for harnesses, though some designs are now made of nylon webbing or synthetic biothane.

A breaststrap harness has a wide leather strap going horizontally across the horses' breast, attached to the traces and then to the load. This is used only for lighter loads. A collar and hames harness has a collar around the horses' neck with wood or metal hames in the collar. The traces attach from the hames to the load. This type of harness is needed for heavy draft work.

Both types will also have a bridle and reins. A harness that is used to support shafts, such as on a cart pulled by a single horse, will also have a saddle attached to the harness to help the horse support the shafts and breeching to brake the forward motion of the vehicle, especially when stopping or moving downhill. Horses guiding vehicles by means of a pole, such as two-horse teams pulling a wagon, a hay-mower, or a dray, will have pole-straps attached to the lower part of the horse collar.

## 1.7 Breastplates and martingales

Main articles: [Breastplate \(tack\)](#) and [Martingale \(tack\)](#)

Breastplates, breastcollars or breastgirths attach to the front of the saddle, cross the horse's chest, and usually have a strap that runs between the horse's front legs and attaches to the girth. They keep the saddle from sliding back or sideways. They are usually seen in demanding, fast-paced sports. They are crucial pieces of safety equipment for English riding activities requiring jumping, such as eventing, show jumping, polo, and fox hunting. They are also seen in Western riding events, particularly in rodeo, reining and cutting, where it is particularly important to prevent a saddle from shifting. They may also be worn in other horse show classes for decorative purposes.<sup>[15]</sup>

A martingale is a piece of equipment that keeps a horse from raising its head too high. Various styles can be used as a control measure, to prevent the horse from avoiding rider commands by raising its head out of position; or as a safety measure to keep the horse from tossing its head high or hard enough to smack its rider in the face.<sup>[16]</sup>

They are allowed in many types of competition, especially those where speed or jumping may be required, but are not allowed in most "flat" classes at horse shows, though an exception is made in a few classes limited exclusively to young or "green" horses who may not yet be fully trained.

Martingales are usually attached to the horse one of two ways. They are either attached to the center chest ring of a breastplate or, if no breastplate is worn, they are attached by two straps, one that goes around the horse's neck, and the other that attaches to the girth, with the martingale itself beginning at the point in the center of the chest where the neck and girth straps intersect.

Martingale types include:

- German martingale or Market Harborough: This design consists of a split fork that comes up from the chest, runs through the rings of the bit and attaches to the reins of the bridle between the bit and the rider's hand. It acts in a manner similar to a running martingale, but with greater leverage. It is not usually considered show legal and is used primarily as a training aid.
- Irish martingale: Unlike the previous designs, this very simple "martingale" does not control the height of the horse's head, but merely keeps the reins from going over the horse's head in the result of a fall. It consists of a piece of leather with a ring on each end through which each rein runs.<sup>[17]</sup>
- Running martingale: This design adds leverage to a bit and features a split fork beginning at the chest with a ring on each side of the fork through which the reins pass, enabling the rider to more easily keep the horse under control, but also allowing the horse freedom of movement when needed. Fitted correctly, the running



*An English-style breastplate with elastic and a running martingale attachment*



*Horse wearing a breastplate*

martingale only controls how high the horse carries its head when the rider tightens the reins. The standard adjustment of a running martingale is to set the rings at a height where they do not engage and add leverage to the reins when the horse carries its head at the proper height. Sometimes a running martingale may be adjusted at a greater or lesser length depending on the needs of the horse and rider.<sup>[16]</sup>

- Standing martingale: A design with one strap that runs from the girth or the chest and attaches to the noseband of the bridle. The standing martingale acts on the horse's nose and creates an absolute limit to how high a horse can raise its head. The term used in western riding for this piece of equipment is the *tie down*. Standard adjustment of a standing martingale allows enough slack to bring the strap to the horse's throatlatch when the animal has its head in a relaxed, natural position. However, it is sometimes adjusted shorter. Unlike the running martingale, it limits the freedom of the horse's head, no matter how long or short the reins may be. While standing martingales are common in show hunter and equitation classes, the limits placed on the horse's movement are dangerous for cross-country riding or show jumping. Therefore, in these disciplines, a running martingale is necessary for safety reasons, if a martingale is used at all.<sup>[16]</sup>

There are other training devices that fall loosely in the martingale category, in that they use straps attached to the reins or bit which limit the movement of the horse's head or add leverage to the rider's hands in order to control the horse's head. Common devices of this nature include the overcheck, the chambon, de Gogue, grazing reins, draw reins and the "bitting harness" or "bitting rig". However, most of this equipment is used for training purposes and is not legal in any competition. In some disciplines, use of leverage devices, even in training, is controversial.

## 1.8 Associated accoutrements

- Bell boots
- Crop



*a horse wearing a running martingale*

- Hoof boot
- Horseshoe
- Polo wraps
- Splint boots
- Spurs
- Whip

## 1.9 See also

- Glossary of equestrian terms
- Great Stirrup Controversy
- Equestrian helmet
- Riding boot

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## Chapter 2

# Saddle

This article is about saddles for animals. For other uses, see [Saddle \(disambiguation\)](#).

The **saddle** is a supportive structure for a rider or other load, fastened to an animal's back by a [girth](#). The most



*A dressage-style "English" saddle used for riding horses.*

common type is the equestrian saddle designed for a horse, but specialized saddles have been created for camels and other creatures.<sup>[1][2]</sup> It is not known precisely when riders first began to use some sort of padding or protection, but a blanket attached by some form of [surcingle](#) or [girth](#) was probably the first "saddle," followed later by more elaborate





*A saddle from the Yi ethnic minority province in Yunnan province, China. Saddle has a leather base with lacquer overlay.*

padded designs. The solid tree was a later invention, and though early stirrup designs predated the invention of the solid tree, the paired stirrup, which attached to the tree, was the last element of the saddle to reach the basic form that is still used today. Today, modern saddles come in a wide variety of styles, each designed for a specific equestrianism discipline, and require careful fit to both the rider and the horse. Proper saddle care can extend the useful life of a saddle, often for decades.

## 2.1 Etymology

The word “saddle” originates from the Proto-Germanic language *\*sathulaz*, with cognates in various other Indo-European languages,<sup>[3]</sup> including the Latin *sella*.<sup>[4]</sup>

## 2.2 History and development

There is evidence, though disputed, that humans first began riding the horse not long after domestication, possibly as early as 4000 BC.<sup>[5]</sup> The earliest known saddle-like equipment were fringed cloths or pads used by Assyrian cavalry around 700 BC. These were held on with a girth or surcingle that included breast straps and cruppers.<sup>[6]</sup> From the earliest depictions, saddles became status symbols. To show off an individual’s wealth and status, embellishments were added to saddles, including elaborate sewing and leather work, precious metals such as gold, carvings of wood and horn, and other ornamentation.<sup>[7]</sup>

The North Iranian Eurasian nomads known in Europe as Scythians and in Asia as Saka developed an early form of saddle with a rudimentary frame, which included two parallel leather cushions, with girth attached to them, a pommel and cantle with detachable bone/horn/hardened leather facings, leather thongs, a crupper, breastplate, and a felt shabrack adorned with animal motifs. These were located in Pazyryk burials finds.<sup>[8]</sup> These saddles, found in the Ukok Plateau, Siberia were dated to 500-400 BC.<sup>[6][7]</sup> Iconographic evidence of a predecessor to the modern saddle



*Western saddle at Garza County Historical Museum in Post, Texas, USA.*

has been found in the art of the ancient Armenians, Assyrians, and steppe nomads depicted on the Assyrian stone relief carvings from the time of Ashurnasirpal II. The Scythians also developed an early saddle that included padding and decorative embellishments.<sup>[6]</sup> Though they had neither a solid tree nor stirrups, these early treeless saddles and pads provided protection and comfort to the rider, with a slight increase in security. The Sarmatians also used a padded treeless early saddle, possibly as early as the seventh century, BC.<sup>[9]</sup> and depictions of Alexander the Great depict a saddle cloth.<sup>[6]</sup>

Early solid-treed saddles were made of felt that covered a wooden frame. Asian designs appeared during the Han dynasty approximately 200 BC.<sup>[6]</sup> One of the earliest solid-treed saddles in the west was the “four horn” design, first used by the Romans as early as the 1st century BC.<sup>[10]</sup> Neither design had stirrups.<sup>[6]</sup>

The development of the solid saddle tree was significant; it raised the rider above the horse’s back, and distributed the rider’s weight on either side of the animal’s spine instead of pinpointing pressure at the rider’s seat bones, reducing the pressure (e.g. pounds per square inch or kilopascals) on any one part of the horse’s back, thus greatly increasing the comfort of the horse and prolonging its useful life. The invention of the solid saddle tree also allowed development of the true stirrup as it is known today.<sup>[11]</sup> Without a solid tree, the rider’s weight in the stirrups creates abnormal pressure points and makes the horse’s back sore. Thermography studies on “treeless” and flexible tree saddle designs have found that there is considerable friction across the center line of a horse’s back.<sup>[12]</sup>

The stirrup was one of the milestones in saddle development. The first stirrup-like object was invented in India in the 2nd century BC, and consisted of a simple leather strap in which the rider’s toe was placed. It offered very little support, however. The nomadic tribes in northern China are thought to have been the inventors of the modern stirrup, but the first dependable representation of a rider with paired stirrups was found in China in a Jin Dynasty tomb of about AD 302.<sup>[13]</sup> The stirrup appeared to be in widespread use across China by 477 AD.<sup>[14]</sup> which then spread to Europe. This invention gave great support for the rider, and was essential in later warfare.



*Reconstructed Roman military saddle (4-horn design)*

### 2.2.1 Middle Ages

Main article: [Horses in the Middle Ages](#)

Saddles were improved upon during the Middle Ages, as knights needed saddles that were stronger and offered more support. The resulting saddle had a higher *cantle* and *pommel* (to prevent the rider from being unseated in warfare) and was built on a wooden tree that supported more weight from a rider with armor and weapons. This saddle, a predecessor to the modern Western saddle, was originally padded with wool or horsehair and covered in leather or textiles. It was later modified for cattle tending and bullfighting in addition to the continual development for use in war. Other saddles, derived from earlier, treeless designs, sometimes added solid trees to support stirrups, but were kept light for use by messengers and for horse racing.

### 2.2.2 Development of the modern saddle

The saddle eventually branched off into different designs that became the modern English and Western saddles.

One variant of the English saddle was developed by François Robinchon de la Guérinière, a French riding master and author of “Ecole de Cavalerie” who made major contributions to what today is known as classical dressage. He put great emphasis on the proper development of a “three point” seat that is still used today by many dressage riders.

In the 18th century, fox hunting became increasingly popular in England. The high-cantle, high-pommel design of earlier saddles became a hindrance, unsafe and uncomfortable for riders as they jumped. Due to this fact, Guérinière’s saddle design which included a low pommel and cantle and allowed for more freedom of movement for both horse and rider, became increasingly popular throughout northern Europe. In the early 20th century, Captain Frederico Caprilli revolutionized the jumping saddle by placing the flap at an angle that allowed a rider to achieve the forward seat necessary for jumping high fences and traveling rapidly across rugged terrain.



*A saddle commonly seen in the 16th and 17th centuries.*

The modern Western saddle was developed from the Spanish saddles that were brought by the Spanish Conquistadors when they came to the Americas. These saddles were adapted to suit the needs of vaqueros and cowboys of Mexico, Texas and California, including the addition of a horn that allowed a lariat to be tied or dallied for the purpose of holding cattle and other livestock.

### 2.3 Parts of an equestrian saddle

- **Tree:** the base on which the rest of the saddle is built. Usually based on wood or a similar synthetic material, it is eventually covered in leather or a leatherlike synthetic. The tree size determines its fit on the horse's back as well as the size of the seat for the rider. It provides a bearing surface to protect the horse from the weight of the rider. The solid saddle tree raises the rider above the horse's back, and distributes the rider's weight, reducing the pounds per square inch carried on any one part of the horse's back, thus greatly increasing the comfort of the horse and prolonging its useful life.<sup>[15]</sup>
- **Seat:** the part of the saddle where the rider sits, it is usually lower than the pommel and cantle to provide security
- **Pommel** or **Pommel** (English)/ **Swells** (Western): the front, slightly raised area of the saddle.
- **Cantle:** the back of the saddle
- **Stirrup:** part of the saddle in which the rider's feet go; provides support and leverage to the rider.
- **Leathers** and **Flaps** (English), or **Fenders** (Western): The leather straps connecting the stirrups to the saddle tree and leather flaps giving support to the rider's leg and protecting the rider from sweat.
- **D-ring:** a "D"-shaped ring on the front of a saddle, to which certain pieces of equipment (such as breastplates) can be attached.
- **Girth** or **Cinch:** A strap that goes under the horse's barrel that holds the saddle on.



*The English hunting saddle.*

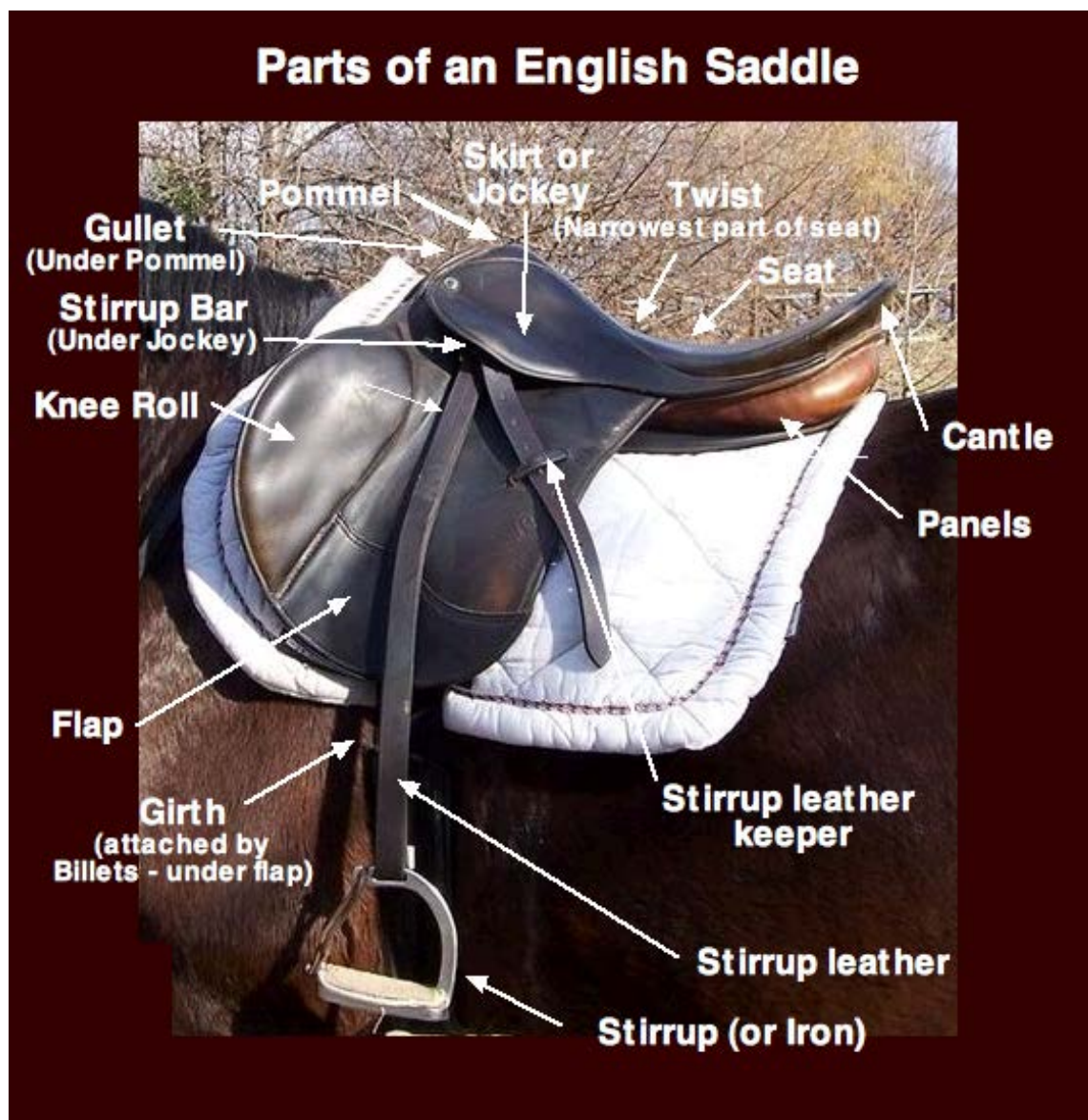
- **Panels, Lining, or Padding:** Cushioning on the underside of the saddle.

In addition to the above basic components, some saddles also include:

- **Surcingle:** A long strap that goes over a saddle and around the horse's barrel to hold the saddle on.
- **Monkey grip** or less commonly **Jug handle:** a handle that may be attached to the front of European saddles or on the right side of Australian stock saddle. A rider may use it to help maintain their seat or to assist in mounting.
- **Horn:** knob-like appendage attached to the pommel or swells, most commonly associated with the modern western saddle, but seen on some saddle designs in other cultures.
- **knee rolls:** Seen on some English saddles, extra padding on the front of the flaps to help stabilize the rider's leg. Sometimes **thigh rolls** are also added to the back of the flap.

## 2.4 Types of modern equestrian saddle

In the Western world there are two basic types of saddles used today for horseback riding, usually called the English saddle and the "Stock" Saddle. The best known stock saddle is the American western saddle, followed by the



*Parts of an English Saddle*

Australian Stock Saddle. In Asia and throughout the world, there are numerous saddles of unique designs used by various nationalities and ethnic groups.

### 2.4.1 English saddle

Main article: English saddle

English saddles are used for English riding throughout the world, not just in England or English-speaking countries. They are the saddles used in all of the Olympic equestrian disciplines. The term English saddle encompasses several different styles of saddle, including those used for eventing, show jumping and hunt seat, dressage, saddle seat, horse racing and polo.

To the casual observer, the major distinguishing feature of an English saddle is its flatter appearance, the lack of a horn, and the self-padding design of the *panels*: a pair of pads attached to the underside of the seat and filled with wool, foam, or air. However, the length and angle of the flaps, the depth of the seat and height of the cantle all play a role in the use for which a particular saddle is intended.

Although to the untrained eye all saddles of a similar design look alike, the “tree” that underlies the saddle is usually



*A Hunt Seat style English saddle*

one of the defining features of saddle quality. Traditionally, the tree of an English saddle is built of laminated layers of high quality wood reinforced with spring steel along its length, with a riveted gullet plate. These trees are semi-adjustable and are considered “spring trees.” They have some give, but a minimum amount of flexibility.

More recently, saddle manufacturers are using various materials to replace wood and create a synthetic molded tree, (some with the integrated spring steel and gullet plate, some without). Synthetic materials vary widely in quality. Polyurethane trees are often very well-made, but some cheap saddles are made with fiberglass trees with limited durability. Synthetic trees are often lighter, more durable, and easier to customize. Some designs are intended to be more flexible and move with the horse.

Several companies offer flexible trees or adjustable gullets that allow the same saddle to be used on different sizes of horses.

## **2.4.2 Stock saddles**

Main article: [Western saddle](#)

Main article: [Australian Stock Saddle](#)

Western saddles are saddles originally designed to be used on horses on working cattle ranches in the United States. Used today in a wide variety of western riding activities, they are the “cowboy saddles” familiar to movie viewers, rodeo fans, and those who have gone on tourist trail rides. The Western saddle has no padding of its own, and must be used with a saddle blanket or pad in order to provide a comfortable fit for the horse. It also has sturdier stirrups and uses a cinch rather than a girth. Its most distinctive feature is the horn on the front of the saddle, originally used to dally a lariat when roping cattle.

Other nations such as Australia and Argentina have stock saddles that usually do not have a horn, but have other



*A western saddle*

features commonly seen in a western saddle, including a deep seat, high cantle, and heavier leather.

The tree of a western saddle is the most critical component, defining the size and shape of the finished product. The tree determines both the width and length of the saddle as it sits on the back of the horse, as well as the length of the seat for the rider, width of the swells (pommel), height of cantle, and, usually, shape of the horn. Traditional trees were made of wood or wood laminate covered with rawhide and this style is still manufactured today, though modern synthetic materials are also used. Leather is stretched and molded around the tree, with minimal padding between the tree and the exterior leather, usually a bit of relatively thin padding on the seat, and a sheepskin cover on the underside of the skirts to prevent chafing and rubbing on the horse.

Though a western saddle is often considerably heavier than an English saddle, the tree is designed to spread out the weight of the rider and any equipment the rider may be carrying so that there are fewer pounds per square inch on



the horse's back and, when properly fitted, few if any pressure points. Thus, the design, in spite of its weight, can be used for many hours with relatively little discomfort to a properly conditioned horse and rider.

### 2.4.3 Military saddles



*WWI military saddle*

British Universal Pattern military saddles were used by the mounted forces from Australia, Britain, Canada, New Zealand and South Africa.<sup>[16]</sup>

The *Steel Arch Universal Pattern Mark I* was issued in 1891. This was found to irritate riders and in 1893 it was discontinued in favour of the *Mark II*. In 1898 the *Mark III* appeared, which had the addition of a V-shaped arrangement of strap billets on the sideboards for the attachment of the girth. This girthing system could be moved forward or back to obtain an optimum fit on a wide range of horses.

From 1902 the *Universal Military Saddle* was manufactured with a fixed tree, broad panels to spread the load, and initially a front arch in three sizes. The advantage of this saddle was its lightness, ease of repair and comfort for horse and rider. From 1912 the saddle was built on an adjustable tree and consequently only one size was needed. Its advantage over the fixed tree 1902 pattern was its ability to maintain a better fit on the horse's back as the horse gained or lost weight. This saddle was made using traditional methods and featured a seat blocked from sole leather, which maintained its shape well.<sup>[17]</sup> Military saddles were fitted with metal staples and dees to carry a sword, spare horse shoes and other equipment.

In the USA, the McClellan saddle was introduced in the 1850s by George B. McClellan for use by the United States Cavalry, and the core design was used continuously, with some improvements, until the 1940s. Today, the McClellan saddle continues to be used by ceremonial mounted units in the U.S. Army. The basic design that inspired McClellan saw use by military units in several other nations, including Rhodesia and Mexico, and even to a degree by the British in the Boer War.

Military saddles are still produced and are now used in exhibitions, parades and other events.

#### 2.4.4 Asian saddle

Saddles in Asia date back several thousand years to the time of the Scythians and Cimmerians. Modern Asian saddles can be divided into two groups: Saddles from Central Asia, which have a prominent horn and leather covering, and saddles from East Asia, which have a high pommel and cantle. Central Asian saddles are noted for their wide seats and high horns. The saddle has a base of wood with a thin leather covering that frequently has a lacquer finish. Central Asian saddles have no pad and must be ridden with a saddle blanket. The horn comes in particular good use during the rough horseback sport of *buskashi*, played throughout Central Asia, which involves two teams of riders wrestling over a decapitated goat's carcass.

Saddles from East Asia differ from Central Asian saddles by their high pommel and cantle and lack of a horn. East Asian saddles can be divided into several types that are associated with certain nationalities and ethnic groups. Saddles used by the Han Chinese are noted by their use of inlay work for ornamentation. Tibetan saddles typically employ iron covers inlaid with precious metals on the pommel and cantle and universally come with padding. Mongolian saddles are similar to the Tibetan style except that they are typically smaller and the seat has a high ridge. Saddles from ethnic minority groups in China's southwest, such as in Sichuan and Yunnan provinces, have colorful lacquer work over a leather covering.

#### Japanese saddles

Main article: *Kura* (Japanese saddle)

Japanese saddles are classified as Chinese style (*karagura*) or Japanese style (*yamatogura*). In the Nara period the Chinese style of saddle was adopted, gradually the Japanese changed the saddle to suit their needs and in the Heian period the saddle typically associated with the samurai warrior was developed, these saddles known as *kura* were lacquered as protection from the weather. Aristocratic saddles (*suikangura*) and war saddles (*gunjingura*) were used by the samurai. Early samurai warfare was conducted primarily on horseback and the *kura* provided a rugged, stable, comfortable platform for shooting arrows but they were not well suited for speed or distance. In the Edo period horses were no longer needed for warfare and Japanese saddles became quite elaborate and were decorated with mother of pearl inlays, gold leaf and designs in colored lacquer.<sup>[18][19]</sup>

#### 2.4.5 Other

- Sidesaddle, designed originally as a woman's saddle that allowed a rider in a skirt to stay on and control a horse. Sidesaddle riding is still seen today in horse shows, fox hunting, parades and other exhibitions.



*A Central Asian saddle from Kashgar, China.*

- **Trick (or stunt) riding saddles** are similar to western saddles and have a tall metal horn, low front and back, reinforced hand holds and extended double rigging for a wide back girth.
- **Endurance riding saddle**, a saddle designed to be comfortable to the horse with broad panels but lightweight design, as well as comfortable for the rider over long hours of riding over challenging terrain.
- **Police saddle**, similar to an English saddle in general design, but with a tree that provides greater security to the rider and distributes a rider's weight over a greater area so that the horse is comfortable with a rider on its back for long hours.
- **McClellan saddle**, a specific American cavalry model that entered service just before the Civil War with the United States Army. It was designed with an English-type tree, but with a higher pommel and cantle. Also, the area upon which the rider sits was divided into two sections with a gap between the two panels.
- **Pack saddle**, similar to a cavalry saddle in the simplicity of its construction, but intended solely for the support of heavy bags or other objects being carried by the horse.
- **Double seat saddles** have two pairs of stirrups and two deep padded seats for use when double-banking or riding double with a child behind an adult rider. The western variety has one horn on the front of the saddle.
- **Treeless saddle**, available in both Western and English designs, but not built upon a solid saddle tree, intended to be flexible and comfortable on a variety of horses, but also not always able to provide the weight support of a solid tree. The use of an appropriate saddle pad is essential for treeless saddles. (See *Controversy* section, below)
- **Flexible saddle**, uses a traditional tree, however the panels are not permanently attached to the finished saddle. These saddles use flexible panels (the part that sits along the horse's back) that are moveable and adjustable to provide a custom fit for the horse and allow for changes of placement as the horse's body develops.
- **Bareback pad**, usually a simple pad in the shape of a saddle pad, made of cordura nylon or leather, padded with fleece, wool or synthetic foam, equipped with a girth. It is used as an alternative to bareback riding to provide



*Antique Japanese (samurai) saddle (kura)*

padding for both horse and rider and to help keep the rider's clothing a bit cleaner. Depending on materials, bareback pads offer a bit more grip to the rider's seat and legs. However, though some bareback pads come with handles and even stirrups, without being attached to a saddle tree, these appendages are unsafe and pads with them should be avoided. In some cases, the addition of stirrups without a supporting tree place pressure on the horse's spinous processes, potentially causing damage.

## 2.5 Fitting

Main articles: [English saddle](#) and [Western saddle](#)

A saddle, regardless of type, must fit both horse and rider. Saddle fitting is an art and in ideal circumstances is performed by a professional saddlemaker or saddle fitter. Custom-made saddles designed for an individual horse and rider will fit the best, but are also the most expensive. However, many manufactured saddles provide a decent fit if properly selected, and some minor adjustments can be made.

### 2.5.1 Fitting the horse

Width of the saddle is the primary means by which a saddle is measured and fitted to a horse, though length of tree and proper balance must also be considered. The gullet of a saddle must clear the withers of the horse, but yet must not be so narrow as to pinch the horse's back. The tree must be positioned so that the tree points (English) or bars (Western) do not interfere with the movement of the horse's shoulder. The seat of the saddle must be positioned so that the rider, when riding correctly, is placed over the horse's center of balance. The bars of the saddle must not be so long that they place pressure beyond the last rib of the horse. A too-short tree alone does not usually create a problem, as shorter trees are most often on saddles made for children, though a short tree with an unbalanced adult rider may create abnormal pressure points.



*A sidesaddle*

While a horse's back can be measured for size and shape, the saddle must be tried on the individual animal to assure proper fit. Saddle blankets or pads can provide assistance to correct minor fit problems, but no amount of padding can compensate for a poor-fitting saddle.

One saddle simply cannot fit all animals. Nor will a saddle fit even the same horse forever without adjustments. As a horse advances in conditioning, age, and training, the back muscles and even the underlying skeletal structures change to some degree. Thus, particularly with English saddles, a saddle fitter needs to make periodic adjustments. Western saddles are more difficult to adjust, though use of shims and padding can compensate for some changes. A lower pressure per square inch of surface area is a bit more forgiving. In some cases, a horse will physically develop to a degree that a different saddle may have to be purchased.

### **2.5.2 Fitting the rider**

Method of fitting riders varies tremendously between designs. Length of the seat is the most common method by which saddles are fitted, though the length and placement of the flaps or fenders of the saddle also influence a person's leg position and thus the way an individual sits. While a too long or too short seat will cause considerable discomfort, and even interfere with the security of the rider on the horse, width is also a factor. Any well-fitting saddle should be wide enough to support the rider's seat bones, without being so wide as to cause discomfort. While saddles are not usually marketed by seat width, designs do vary, and the only way a rider can determine the proper fit of a saddle is to sit on one.

Balance is also a critical factor. A properly balanced saddle places the rider over the horse's center of balance for the equestrian discipline involved. A poor-fitting saddle often leaves a rider feeling that they are sliding backwards and constantly attempting to move "uphill." Less often, a poor-fitting saddle shifts the rider too far forward and creates a sensation of being pushed onto the horse's neck.

Stirrup fit varies greatly between disciplines, from the very short stirrup of the horse racing jockey to the long stirrup of the dressage or reining competitor. However, in all cases, the stirrup leather must be properly placed so that the rider remains in balance over the saddle and is not thrown ahead or behind the motion of the horse when putting



*A McClellan cavalry saddle, used by the United States Army in the late 1800s*

weight in the stirrups.

## 2.6 Care of a saddle

All saddles need to be kept clean and dry. They need to be stored under cover, away from weather and dust. Ideally they should be stored in an area where they are kept at a slightly cool but consistent temperature, though the practical need to keep saddles near horses may make temperature-controlled storage difficult. Saddles also need to be kept away from a direct heat source, such as a furnace duct or heater, as excess heat, especially driven by a fan, will dry out the leather. For the same reason, if leather gets wet, it must be allowed to dry naturally, away from a direct heat source. A properly cared-for saddle can last for many decades, even with regular use.

Cleaning is an important part of caring for tack. Tack that is not cleaned will start to build up sweat and dirt, which will cause uncomfortable rubbing on the horse. Sweat and dirt also tend to cause cracking in leather, which may result in breaking. This not only decreases the value of the saddle, but can be very dangerous if critical equipment, such as a stirrup leather, breaks mid-ride. Proper care and conditioning of the saddle will not only increase its useful life, but will also help to retain its value.

A saddle should be cleaned regularly if it used for work. It is usually easiest to clean a saddle when placed on a moveable saddle rack. Ideally, a rider should quickly wipe down the saddle after every ride with a slightly damp, but not wet, sponge or cloth, in order to remove any dirt and sweat. Once a week, or after every 5-7 rides, a more thorough cleaning should be performed.

Saddles are cleaned using saddle soap, followed by a conditioning (moisturizing) product that will restore the natural oils back into the leather. Saddle soap is used with only a minimal amount of water and suds or lather kept low, as getting the leather too wet may lead to a number of problems. In a dry climate, wet leather may dehydrate and crack, particularly if subjected to repeated wet-dry stresses. In a humid climate, excess water for cleaning creates an environment for rot and mold.



*Comparison of the undersides of a western saddle (back) and an English saddle (front)*

Once a saddle is clean, a conditioner is used to restore moisture removed by the cleaning process. While glycerine-based saddle soaps have conditioning properties, it is usually important to remove most soap residue before conditioning to prevent product buildup on the leather. Saddles kept in storage also benefit from occasional conditioning to restore natural oils. While conditioning a saddle is an important element of saddle care, and critical in dry climates, over-oiling may rot jute or other natural fiber stitching, particularly in humid climates. Neatsfoot oil is one traditional conditioner, and products containing beeswax are popular in some areas, but there are also many other commercial blends of conditioning products available. Oil products tend to darken leather from its natural color. Sometimes this

is desirable and sometimes not, depending on the desired shade of the leather.

Strap parts of the saddle, such as the stirrup leathers, *billets* (on an English saddle) and *latigo* (on a western saddle) also need conditioning, but it varies by climate. In a dry climate, failure to oil straps may result in cracking and weakening of the leather, and they can snap or break. In a more humid climate, too much oil may weaken the leather. Properly conditioned leather is neither brittle nor floppy in texture and flexibility.

Saddles made of synthetic materials can be cleaned using water and a mild cleaner and do not require conditioning. They will tolerate being washed with water without risk of drying out or damaging the material. While synthetics to date will not last as long as a well-cared for leather saddle, they withstand lack of cleaning and care as well as exposure to rain and dampness quite well.

Before a horse show or other competition, the rider should take extra care to clean the saddle and polish all metal parts, including the D-rings, stirrups, stirrup bars and nailheads on an English saddle; and the buckles, dees, and ornamental silver on a Western saddle.

## 2.7 Treeless saddle controversy

Treeless and flexible tree saddles in both English and Western styles are becoming popular today, though there are controversies surrounding their use. Proponents argue that treeless and flex-tree saddles move more easily with a horse's dynamic motion and add shock absorbency between horse and rider. Treeless saddles are also easier to fit the horse, particularly in the area of the horse's *scapula* (shoulder blade). Opponents of treeless saddles argue that they create abnormal pressure points and over time can cause as many problems as an ill-fitting treed saddle.

Flexible trees may be a compromise between the two camps, but manufacturing quality and design varies greatly. While flexible, adjustable trees are an alternate choice to traditional wooden trees, they carry limitations inherent in both solid tree and treeless designs.

Controversy arises in part because, while treeless and flexible tree saddles have benefits for horses with injuries related to poorly-fitted treed saddles, only a solid tree or very well constructed treeless saddle with correct padding can keep the rider off the horse's spine and distribute weight evenly across the horse's back without creating localized pressure points. Pressure should never be put directly on the spinuous processes of the horse nor on the ligament system that runs alongside the spine, and many treeless designs do result in rider-related pressure in this area. Furthermore, bareback pads, which are often confused with treeless saddles, provide grip but no structural support to protect the horse's spine. However, a growing number of treeless saddle designs are composed of a system of panels with a wide channel for the spine, thus keeping pressure off the spinuous processes.

Some treeless saddle designs may present problems for riders as well. Without a supportive tree over the horse's withers, a treeless saddle may place the rider behind the movement of the horse, creating pressure on the horse's *loin* and the rider's low back. Inadequate support may also lead to the rider's seat bones digging into the horse's back. Additionally, a solid tree supports the curvature of the rider's spine which is essential for communication between horse and rider.<sup>[20]</sup> On the other hand, many riders with preexisting back or hip problems are more comfortable in a treeless saddle due to the extra padding, adjustability and shock absorption. Treeless saddles have started to become popular in horse therapy and hippotherapy. for this reason.

## 2.8 See also

- Equestrianism
- Horse tack
- Bridle
- Domestication of the horse
- Stirrup
- Horses in warfare
- Howdah



### 2.8.1 Non-animal saddles

- Motorcycle saddle
- Bicycle saddle

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## 2.11 External links

- Clayton study on treeless saddles

## 2.12 External links

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- Saddle Fitting Guide
- How To Saddle a Horse With a Western Horse Saddle
- Saddle Fitting Articles and FAQs
- “The invention and influences of stirrup”

## Chapter 3

# Stirrup

This article is about the piece of equipment. For the bone, see stapes. For other uses, see Stirrup (disambiguation). A **stirrup** is a light frame or ring that holds the foot of a rider, attached to the saddle by a strap, often called a stirrup



*A modern working stirrup on an endurance riding saddle*

leather. Stirrups are usually paired and are used to aid in mounting and as a support while using a riding animal (usually a horse or other equine, such as a mule).<sup>[1]</sup> They greatly increase the rider's ability to stay in the saddle and control the mount, increasing the animal's usefulness to humans in areas such as communication, transportation and warfare.

In antiquity, the earliest foot supports consisted of riders placing their feet under a **girth** or using a simple toe loop. Later, a single stirrup was used as a mounting aid, and paired stirrups appeared after the invention of the treed saddle. The stirrup was apparently invented in China in the first few centuries A.D. and spread westward through the nomadic peoples of Central Eurasia.<sup>[2]</sup> The use of paired stirrups is credited to the Chinese Jin Dynasty and came to Europe during the **Middle Ages**. Some argue that the stirrup was one of the basic tools used to create and spread modern

civilization, possibly as important as the wheel or printing press.

Modern stirrups come in a wide variety of styles, sizes and materials and are attached to most saddles by means of adjustable stirrup leathers, which can be altered in length to fit both the size of the rider and the need to remain over the horse's optimal center of balance for a given equestrianism discipline. There are safety concerns associated with the use of stirrups, including a risk that a fallen rider may get their foot caught in the stirrup and be dragged by the horse, or that long hours of use without rest may cause problems in the human foot's *Peroneus Tertius* tendon. Stirrups are safer to use when riding boots are worn, and proper sizing and placement of the foot on the stirrup increases both safety and usability.



*Lady's Stirrup, late 18th-19th century.*

### 3.1 Etymology

The English word “stirrup” stems from Old English *stirap*, *stigrap*, Middle English *stirope*, *styrope*,<sup>[3]</sup> i.e. a mounting or climbing-rope. From Old English *stīgan* “to ascend”.

### 3.2 History

The stirrup, which gives greater stability to a rider, has been described as one of the most significant inventions in the history of warfare, prior to gunpowder. As a tool allowing expanded use of horses in warfare, the stirrup is often called the third revolutionary step in equipment, after the chariot and the saddle. The basic tactics of mounted warfare were significantly altered by the stirrup. A rider supported by stirrups was less likely to fall off while fighting, and could deliver a blow with a weapon that more fully employed the weight and momentum of horse and rider. Among other advantages, stirrups provided greater balance and support to the rider, which allowed the knight to use a sword more efficiently without falling, especially against infantry adversaries. Contrary to common modern belief, however, it has been asserted that stirrups actually did not enable the horseman to use a lance more effectively (cataphracts had used lances since antiquity), though the cantled saddle did.<sup>[4]</sup>

### 3.2.1 Early development



*Indus Valley seals showing an unidentified animal with some form of foot support, British Museum.*

The invention of the stirrup occurred relatively late in history, considering that horses were domesticated in approximately 4500 BC, and the earliest known saddle-like equipment were fringed cloths or pads with breast pads and cruppers used by Assyrian cavalry around 700 BC.<sup>[5]</sup>

The earliest manifestation of the stirrup was a toe loop that held the big toe and was used in India late in the second century BC,<sup>[6][7]</sup> though may have appeared as early as 500 BC.<sup>[8]</sup> This ancient foot support consisted of a looped rope for the big toe which was at the bottom of a saddle made of fibre or leather. Such a configuration was suitable for the warm climate of south and central India where people used to ride horses barefoot.<sup>[9]</sup> A pair of megalithic double bent iron bars with curvature at each end, excavated in Junapani in the central Indian state of Madhya Pradesh have been regarded as stirrups although they could as well be something else.<sup>[10]</sup> Buddhist carvings in the temples of Sanchi, Mathura and the Bhaja caves dating back between the 1st and 2nd century BC figure horsemen riding with elaborate saddles with feet slipped under girths.<sup>[11][12]</sup> In this regard Sir John Marshall described the Sanchi relief as “the earliest example by some five centuries of the use of stirrups in any part of the world”.<sup>[12]</sup> Later, a single stirrup was used as a mounting aid by a nomadic group known as the Sarmatians.<sup>[13]</sup>

The invention of the solid saddle tree allowed development of the true stirrup as it is known today.<sup>[14]</sup> Without a solid tree, the rider’s weight in the stirrups creates abnormal pressure points and make the horse’s back sore.<sup>[15]</sup> Modern thermography studies on “treeless” and flexible-tree saddle designs have found that there is considerable friction across the center line of a horse’s back.<sup>[16]</sup> A coin of Quintus Labienus, who was in service of Parthia, minted circa 39 B.C. depicts on its reverse a saddled horse with hanging objects. Smith suggests they are pendant cloths, while Thayer suggests that, considering the fact that the Parthians were famous for their mounted archery, the objects are stirrups, but adds that it is difficult to imagine why the Romans would never have adopted the technology.<sup>[17]</sup>

In Asia, early solid-treed saddles were made of felt that covered a wooden frame.<sup>[18]</sup> These designs date to approximately 200 BC.<sup>[19]</sup> One of the earliest solid-treed saddles in the west was first used by the Romans as early as the 1st century BC,<sup>[20]</sup> but this design also did not have stirrups.<sup>[19]</sup> The first dependable representation of a rider with paired stirrups was found in China in a Jin Dynasty tomb of about AD 322.<sup>[21][22][23]</sup> The stirrup appeared to be in widespread use across China by AD 477.<sup>[24]</sup>



*Depiction of a Kushan divinity using an early platform-style stirrup, circa AD 150. British Museum.*

### 3.2.2 Stirrups in Europe

By the late 6th or early 7th century, primarily due to invaders from Central Asia, such as the Avars, stirrups began spreading across Asia to Europe from China.<sup>[2]</sup> In terms of archaeological finds, the iron pear-shaped form of stirrups, the ancestor of medieval European types, has been found in Europe in 7th century Avar graves in Hungary.<sup>[25]</sup> A total of 111 specimens of early Avar-age, apple shaped, cast-iron stirrups with elongated suspension loop and flat, slightly inward bent tread had been excavated from 55 burial sites in Hungary and surrounding regions by 2005.<sup>[26]</sup> The first European literary reference to the stirrup may be in the *Strategikon*, traditionally ascribed to the Byzantine Emperor Maurice, and therefore written sometime between 575 and 628 AD, but this is widely disputed, and the work is placed in the eighth or ninth century by others.<sup>[27]</sup> Maurice's manual notes the appropriate equipping of Imperial cavalry: "the saddles should have large and thick clothes; the bridles should be of good quality; attached to the saddles should be two iron steps [*skala*], a lasso with a thong..."<sup>[28]</sup> Dennis notes that the lack of specific Greek word for stirrup evidences their novelty to the Byzantines, who are supposed to have adopted these from their bitter enemy the Avars, and subsequently passed them on to their future enemies, the Arabs.<sup>[29]</sup> An early 7th-century date is secured for most Hungarian finds of stirrups with elongated suspension loops, though some of these must even be dated to before 600.<sup>[30]</sup> Literary and archaeological evidence taken together may indicate that the stirrup was in common military use in South-Central Europe and the Eastern Mediterranean by the latter half of the 6th century, with the Byzantine Empire having them in use by the year 600.<sup>[31]</sup>

By the 8th century stirrups began to be adopted more widely by Europeans.<sup>[32]</sup> The earliest stirrups of western Europe, those of Budenheim and Regensburg, were either brought from the Avar Khaganate as booty or gifts, or were local imitations of stirrups in use at that time among Avar warriors.<sup>[33]</sup> However, the Avar-style stirrups were not as widely

adopted in western Europe. Stirrups do not appear in the Merovingian and Italo-Lombard milieu in large numbers, nor as frequently as within the Carpathian Basin.<sup>[33]</sup> Most other stirrups found in Germany that date to the 7th century do not resemble the iron Avar style commonly found in burial assemblages from Hungary and neighboring regions. Instead, hanging mounts occasionally found in burial assemblages in southern Germany suggest the use of wooden stirrups.<sup>[34]</sup> The scarcity of early-medieval stirrup finds in western Europe was noted by Bernard Bachrach: “Out of 704 eighth century male burials excavated in Germany until [sic] 1967, only 13 had stirrups.”<sup>[35]</sup>

The earliest stirrups in the Baltic region are replicas of those in existence in Germany during the 7th century.<sup>[36]</sup> In northern Europe and Britain the metamorphosis of earlier wood, rope and leather forms of stirrups to metal forms can be seen in the archeological record, “suggesting that one or more of the early forms have parallel development with those in Hungary, rather than being derived solely from the latter region.”<sup>[37]</sup> “In Scandinavia two major types of stirrups are discerned, and from these, by the development and fusion of different elements, some almost certainly of central European origin, most other types were evolved.”<sup>[38]</sup> The first main type, Scandinavian type I, appears to owe little to Hungarian forms. The earliest variety of this type can be dated to the 8th century in Vendel grave III in Sweden.<sup>[38]</sup> The second principal type in North Europe has, as its most characteristic feature, a pronounced rectangular suspension loop set in the same plane as the bow, as found amongst the Hungarian examples, and is predominantly centered in Denmark and England during the later 10th and 11th centuries.<sup>[39]</sup> A variant of this type, called the North European stirrup, has been dated to the second half of the 10th century in Sweden, found at the boat-burial cemetery at Valsgärde.<sup>[39]</sup>

In Denmark from the 920s to the 980s, during the reign of the Jelling kings, many leading Danes were buried with military honors and equipped with stirrups, bits and spurs, in what are called cavalry-graves, found mostly in north Jutland.<sup>[40]</sup> Into England, it is argued, stirrups were not introduced by the Scandinavian settlers of the 9th century but are more likely related to later Viking raids led by Cnut the Great and others during the reign of king Aethelred (978-1013).<sup>[41]</sup>

In what today is France, Charles Martel distributed seized lands to his retainers on condition that they serve him by fighting in the new manner, which some attribute to his recognizing the military potentialities of the stirrup.<sup>[42]</sup> Later, Charlemagne ordered his poorer vassals to pool their resources and provide a mounted and armed knight, though the system proved unworkable, and instead the system of distributing land to vassals based on a knight’s service was developed.<sup>[21]</sup>

### 3.2.3 Great Stirrup Controversy

Main article: [Great Stirrup Controversy](#)

The introduction of the stirrup not only made the mounted warrior supreme in medieval warfare, but may have initiated complex and far-reaching social and cultural changes in Europe. Some scholars credit this use of the stirrup to the birth of feudalism and its subsequent spread into Northern Italy, Spain, Germany and into the Slavic territories. It is argued that the rising feudal class structure of the European Middle Ages derived ultimately from the use of stirrups: “Few inventions have been so simple as the stirrup, but few have had so catalytic an influence on history. The requirements of the new mode of warfare which it made possible found expression in a new form of western European society dominated by an aristocracy of warriors endowed with land so that they might fight in a new and highly specialized way.”<sup>[43]</sup> Other scholars dispute this assertion, suggesting that stirrups may provide little advantage in shock warfare, but are useful primarily in allowing a rider to lean farther to the left and right on the saddle while fighting, and simply reduce the risk of falling off. Therefore, it is argued, they are not the reason for the switch from infantry to cavalry in Medieval militaries, nor the reason for the emergence of Feudalism.<sup>[44]</sup>

### 3.2.4 Japanese stirrups

Stirrups (*abumi*) were used in Japan as early as the 5th century. They were flat bottomed rings of metal-covered wood, similar to European stirrups. The earliest known examples were excavated from tombs. Cup-shaped stirrups (*tsuba abumi*) that enclosed the front half of the rider’s foot eventually replaced the earlier design.

During the Nara period, the base of the stirrup which supported the rider’s sole was elongated past the toe cup. This half-tongued style of stirrup (*hanshita abumi*) remained in use until the late Heian period when a new stirrup was developed. The *fukuro abumi* or *musashi abumi* had a base that extended the full length of the rider’s foot and the right and left sides of the toe cup were removed. The open sides were designed to prevent the rider from catching a foot in the stirrup and being dragged.



*10th century stirrup found in England*





*Haniwa horse statuette, complete with saddle and stirrups, 6th century, Kofun period, Japan.*

The military version of this open-sided stirrup (*shitanaga abumi*) was in use by the middle Heian period. It was thinner, had a deeper toe pocket and an even longer and flatter foot shelf. This stirrup stayed in use until European style-stirrup rings were reintroduced in the late 19th century. It is not known why the Japanese developed this unique style of stirrup.<sup>[45]</sup> The *abumi* had a distinctive swanlike shape, curved up and backward at the front so as to bring the loop for the leather strap over the instep and achieve a correct balance. Most of the surviving specimens from this period are made entirely of iron, inlaid with designs of silver or other materials, and covered with lacquer. In some examples there is an iron rod from the loop to the footplate near the heel to prevent the foot from slipping out. The footplates are occasionally perforated to let out water when crossing rivers, and these types are called *suiba abumi*. There are also *abumi* with holes in the front forming sockets for a lance or banner.<sup>[46]</sup>

### 3.3 Stirrup leathers

Because a rider must be able to move his or her legs while riding, stirrups cannot be attached on the body of the saddle itself, but rather must be attached in a manner that allows the rider's leg a full range of motion. Therefore, stirrups are attached to a saddle by means of adjustable straps, called stirrup leathers. Depending on the design of a saddle, stirrup leathers may be attached to a "stirrup bar," a small forged steel bar embedded into the saddle tree, or may be wrapped around the bars of the tree itself. Because different riders are of different heights, and stirrups also may need to be adjusted up or down to accommodate different types of activity, stirrup leathers have buckles and



*Antique Edo period Japanese (samurai) abumi (stirrup).*



*The stirrup bar on an English saddle, for the attachment of a stirrup leather*

holes that allow length to be adjusted.

On an English saddle, leathers are quite thin, only about one inch wide. On a western saddle, they are very heavy, three to four inches wide on the side closest to the horse, and even wider, expanded into a decorative “fender” on the outside (which also protects the rider’s legs from the sweat of the horse). Stirrup leathers on other saddle designs fall

in between the extremes represented by the English and western saddles.

Stirrup leathers are usually manufactured so that the smooth side of the leather faces the wearing surface, as the smooth side wears less quickly than the rough side. There are also modern alternatives to leather, including nylon, plastic covered nylon (biothane being one example) or leather over a nylon reinforced core. These new “leathers” may last longer and also resist stretching. On the other hand, they may chafe and rub the leg, and poorly made products may break more easily than leather.

As the rider’s whole weight must be carried at one side when mounting, on an **English saddle**, one stirrup leather often becomes stretched longer than the other, usually the left one, because most mounting occurs on that side. While a simple adjustment of the leather can even up the stirrups, to preserve the integrity and longevity of the leathers, they should be switched to the opposite sides from time to time. On a **western saddle**, with a heavier, permanently installed fender and stirrup leather that cannot be switched, stretching is slower and less extreme, though it also occurs in this type of saddle. Any unevenness in the leathers can be managed by adjusting the stirrup length, and if necessary, by adding extra holes in the leathers to allow them to be buckled at an intermediate point between the existing prepunched holes provided by the saddle manufacturer.

### 3.4 Adjustment and uses of stirrups



*The long stirrups of the dressage rider allow for a long leg, thus giving the greatest amount of communication*

There are two basic methods of using stirrups, a shorter stirrup to allow more mobility and a longer stirrup to allow greater control. The stirrup itself is similar, but the length of the stirrup leather is different. In each case, the stirrup length allows the rider to remain over the center of balance of the horse for the average speed characteristic of the discipline; the faster the horse travels, the more forward the rider must be positioned, and hence the shorter the stirrup.



*The short stirrups of a jockey allow the rider to stay over the galloping horse's center of balance and allow the horse to reach the maximum possible speed*

Long stirrups allow the rider to ride with a long leg, with the knee relaxed and only slightly bent, allowing a deep and stable seat in the saddle. When riding a long stirrup, the rider has excellent control of the horse and the greatest ability to feel and communicate with the horse via the riding aids. This provides a sturdy base for activities where precision is required or when the rider is at risk of being unseated. For both reasons, long stirrups were thus the choice of heavy cavalry such as the medieval knights, who fought in close quarters and used weapons such as the lance and long, heavy swords. Historically, this type of stirrup adjustment and the riding seat it produced was called *la brida*. Today it is the choice for dressage and many types of western riders.

Shorter stirrups require a rider to keep the knees bent at a greater angle. When riding in a short stirrup, the rider has the ability to partially stand up and get the seat clear of the saddle. This allows more mobility than a longer stirrup would, but at the cost of having less feel of the horse and less security. It is a position designed to help the horse achieve greater speed, and also allows the rider greater physical mobility in the saddle. When riding with short stirrups, the rider often adopts what is known as a forward seat, thus inhibiting the horse's balance and athletic maneuverings as little as possible. In the past, this style was preferred by light cavalry. These fighters required speed and needed the flexibility to turn their own bodies in any direction to use light weapons such as the bow, javelin, short swords, and later, the rifle and pistol. The horsemen of Central Asia, such as the Mongols, used this type of stirrup, as did the Islamic Bedouin and Moors of the Middle East and North Africa. Historically, this type of stirrup adjustment and the seat it produced was called *la jineta*. Modern Jockeys, eventers, and show jumping riders use this type of stirrup, as do some cowboys when performing certain jobs that require a forward position to allow agility of horse and rider, such as calf roping

While an inexperienced rider may feel more secure with a slightly too-short stirrup, in reality, it is actually easier to be thrown from the horse because the rider's legs act as a stabilizing agent, much in the same way the long pole of a tightrope walker balances the acrobat. Obviously, a stirrup leather so long that a rider cannot reach it is useless, and a stirrup length that does not allow a rider with a properly positioned leg to keep the heel lower than the toe is also easily lost. However, shortening the stirrup until the rider feels they will not lose the stirrup is counterproductive; the goal of correct equestrianism is to make maximum use of the leg. Lengthening the leg creates a more secure seat, while shortening the stirrup is done only to accommodate the needs of the horse to perform athletic movement. Thus correct stirrup length creates a balance between control and mobility that fits the discipline performed.

There are a spectrum of stirrup lengths, which the rider may chose depending on the purpose. For example, in

*dressage*, the longest possible stirrup length is used in order for the rider to have complete control over every nuance of the horse's movement. Likewise, a very long stirrup is used in the western sport of *cutting*, where, though the rider relinquishes control to the horse, requires maximum security to stay in the saddle during the rapid stops, turns and bursts of speed the horse uses when maneuvering *cattle*. For a comfortable ride over long hours at slow speeds, the long stirrup is also preferred by *trail riders*.

Riders jumping low fences may wish for an intermediate length stirrup that can allow the horse some freedom of movement, while supporting the rider over the fence, and still providing enough leg for excellent communication. A rider travelling rapidly cross-country, over varying terrain while *fox hunting* or *endurance riding*, will also have an intermediate stirrup, needing to strike a compromise between mobility for the horse and the need of the rider to not be unseated. In the western *rodeo* sport of *calf roping*, a moderately short stirrup is also required to help the horse to sprint quickly from the box, and to allow the *cowboy* the freedom to swing a *lariat*.

A *show jumping* rider will have a shorter stirrup than other *English riders*, in order to maximize the jumping effort of the horse. However, the rider also has the challenge of staying on over the fence and controlling the horse through rapid changes of pace and direction, so still needs some length of leg for stability.

Jockeys must be completely off their horse's backs, balanced well forward over the withers, to allow their mount optimum speed in a long, galloping stride. Therefore they have the shortest possible stirrup length. The cost for maximum speed is minimum control and security. Jockeys must be in superb muscular condition and possess outstanding balance; they cannot achieve the finesse of leg aids needed in other equestrian sports, and must rely primarily on the use of their seat and a *crop* for speed, and on their arm strength for directional control or slowing down. Their relative lack of control is clearly demonstrated by the use of "pony" horses to lead the race horse and jockey to the track, the use of assistants at the starting gate to load the horses, and the availability of outriders (all with much longer stirrups) to assist the jockey at the end of a race or in the event of an accident. If the horse does anything but run in essentially a straight line with long gradual curves, or if anything goes seriously wrong, jockeys can easily be thrown, as their high rate of injury so amply illustrates.

See also: [Horses in warfare and Equestrianism](#)

### 3.5 Weaknesses in design

The stirrup design does have two inherent design flaws. The first is a safety issue: even with a properly fitted stirrup, there are several ways in which the rider's foot can be trapped and cause the rider to be dragged in the event of a fall from the horse. The second is the potential negative impact on the health of the human foot.

One reason riders can become hung up is due to improper stirrup sizing. If the stirrup is too large, the foot can go through the stirrup opening and be caught. If the stirrup is too small, the foot can become trapped more easily as the foot cannot free itself. The main reason for a rider to become hung up in the irons is due to the 'closing door effect' of a lost stirrup trying to return to lie flat against the side of the horse. When the rider falls and the stirrup is free, it tends to return to its home position flat against the horse's side. As the stirrup returns to the horse, the opening for the foot gets smaller and smaller and can catch a falling rider's boot in that smaller opening. (see *Fitting the stirrup*, below). Proper stirrup placement, on the ball of the foot, instead of jammed "home" clear up to the arch, also lowers the risk of a rider being dragged.

Modern *English saddles* are designed with a stirrup bar that allows the stirrup leathers to fall from the saddle if the rider starts to be dragged. Some English stirrups are also designed with breakaway sides or non-standard designs intended to make it easier for the foot to come out of the stirrup when necessary.

*Western saddles* have significantly wider stirrups, particularly at the tread, to minimize this risk. Sometimes, they are equipped with *tapaderos*, leather covers over the toe that close each stirrup from the front. A *tapadero* prevents the rider's boot from slipping through and also prevents brush encountered while working cattle on the open range from poking through the stirrup, injuring or impeding the horse or rider. However, the *tapadero* is not common in modern times and is not allowed in most show competition.

The second design flaw of the stirrup affects the health of the human foot. The rider's whole weight is at times supported entirely by the stirrups. During these periods, excessive pressure can be exerted on the *peroneus tertius* tendon, which runs along the lateral side of the foot. In extreme cases, stirrups have been found to cause damage to the tuberosity of the fifth metatarsal bone. Over long periods of extreme use, this can cause various medical conditions ranging from simple impaired walking to severe pronation or supination of the foot. Normal riders, however, generally

have no related problems, even over a lifetime of riding. Disciplines that require long hours in the saddle, such as **endurance riding** and some types of **western riding** on a working ranch, often use a wider stirrup to provide more support to the foot.

For the comfort of the horse, all stirrups require that the **saddle** itself be properly designed. The solid tree of the saddle distributes the weight of the rider over a greater surface area of the horse's back, reducing pressure on any one area. If a saddle is made without a solid tree, without careful engineering, the rider's weight in the stirrups and leathers can create pressure points on the horse's back and lead to soreness.<sup>[15][47]</sup> This is especially noticeable with inexpensive bareback pads that add stirrups by means of a strap across the horse's back with a stirrup at each end.

### 3.5.1 Riding boots

Main article: [Riding boot](#)

The risk of being dragged by a foot caught in the stirrup spawned an adaptation in riding footwear: **Riding boots** have a raised heel of at least a half-inch, and in special designs like the western **cowboy boot**, often more. This "ridge" created by the raised heel will usually catch on the bottom of the stirrup, preventing the foot from slipping through the stirrup and dragging the rider. Riding boots also have a smooth sole that can easily slide in and out of the stirrup.

Footwear such as a **tennis shoe** or a **hiking boot** is considered inappropriate for riding both because the shoe has little or no raised heel and because the heavy tread that provides traction for athletic endeavors can cause the foot to catch in the stirrup and become trapped. Modern synthetic materials have allowed the design of riding boots that will slide from a stirrup but are also comfortable for walking, with a sole using varying hard and soft materials that provides reasonable traction with a minimal amount of raised tread.

## 3.6 Modern stirrups

The modern stirrup can be made from a variety of materials including metals, wood and certain synthetics. Stirrups with a wider tread tend to be more comfortable and a rider is less likely to become hung up in the event of a fall. Thinner stirrups provide greater security. Though the underlying design of a flat bottom and curved top have not significantly changed from the earliest artifacts, some modifications have made the stirrup safer and more comfortable.

One of the most dangerous problems with the stirrup is that the rider can get a boot stuck in it in the event of a fall, which would result in the person being dragged. Several different designs have been developed to allow the stirrup to break away, fall off or easily release the foot if the rider falls. Other modern stirrup designs have changed the angle or orientation of the tread, either permanently or by added hinges, supposedly to help the rider flex the ankle and get weight into the heels. Other experimental improvements have included a swivel feature at the top of the leather to keep the stirrup turned out to face the rider's foot.

### 3.6.1 English-style stirrups

Stirrups used on **English saddles** are usually made of metal. Though called "irons," they are no longer made of iron, as a rule, but instead stainless steel is the metal of choice, due to its strength, though when weight is an issue, such as for a **jockey**, they may also be made of aluminum. Inexpensive stirrups may be made of nickel, which can easily bend or break and should be avoided. Stirrups may also be made of synthetic materials and various metallic alloys. There are many variations on the standard stirrup design, most claiming to either be safer in the event of a fall or to make it easier for a rider to maintain a proper foot and leg position.

Some variations include:

- **Standard iron:** The most common stirrup iron, consisting of a tread, with two branches, and an eye at the top for the leather to run through. The main styles seen today include:
  - **Fillis:** A design with a heavy tread, and branches that rise to the eye in a rounded triangular shape.
  - **Prussian:** A rounder and lighter design.



*Modern fillis stirrups*

- **Safety stirrups.** There are a number of designs intended to release the foot more easily in the event of a fall. One style has an outside branch that is curved, rather than straight. Other designs feature a breakaway outer branch which will detach with sufficient pressure, freeing the foot.
- **Side-saddle stirrups:** usually have a slightly larger eye to accommodate the thicker stirrup leather on a sidesaddle.
- **Other designs:** have joints or hinges in the branches of the stirrups to allow for them to flex. However, one model was recalled in 2007 due to a tendency for the hinges to break.<sup>[48]</sup> A variation on the hinged stirrup is the Icelandic Stirrup, which has the eye fixed at a 90 degree rotation to allow for less stress on the tendons, and easier retrieval should a stirrup be lost. There are a number of other patented designs with various features that are usually intended to either increase comfort or to assist proper foot position.

### 3.6.2 Western-style stirrups

The stirrup of a **western saddle** is more difficult to remove or replace than the English stirrup and therefore, unless damaged or a different style is desired, the same stirrups usually are kept on for the life of the saddle itself. The tread is mostly flat, but may be curved at the sides to some degree. The branches are wide at the bottom and narrow at the top, where they are joined by a heavy **dowel** of wood, or rod of metal. The stirrup leather loops under the rod and a “keeper,” a strap with a buckle that wraps around the front and back of the stirrup leather, keeps the stirrup in place. Western stirrups are generally made of leather-covered wood, others of steel, aluminum, or even very strong fiber-reinforced plastic.

Western stirrups are designed to parallel the use intended by the design of the saddle itself; a **trail riding saddle** will have a wide, comfortable stirrup, a saddle for **saddle bronc riding** will have a narrow tread, to avoid being easily lost by the rider. A saddle for **barrel racing** or **reining** will have stirrups of a medium width, narrow enough to not be lost when a horse is moving at high speed, but with enough width to remain comfortable for a few hours. Stirrups on a saddle intended for **western pleasure** may be highly ornamented with silver. Stirrups on saddles used by people who



*A Western saddle has wide stirrups and heavy stirrup leathers*

use horses for hunting game in the forest are sometimes made of blaze orange for visibility to other hunters, and, because much big game hunting in the American West takes place late in the year when it is very cold, some “winter boot” designs are deliberately made extra large with an especially smooth bottom so that a person can wear heavy winter boots with a raised tread without as much risk of getting them caught up in the stirrup.

### **3.7 Fitting the stirrup**

It is very important that the stirrup be the correct width for the boot. A stirrup that is too narrow will increase the chance that the boot will get caught in it (which would be very dangerous should the rider fall), and a too-wide stirrup



makes it harder for a rider to keep it under the foot, and presents some risk that the foot might slip all the way through. It is generally suggested that the stirrup be no more than 1 inch larger than the widest part of the sole of the rider's boots.

Additionally, the rider's boot should have a heel (both English and Western-style riders).

### 3.8 Placement of the stirrup on the foot



*The stirrup "home" on a polo player, providing security, but little flexibility in the ankle.*

In general, the stirrup is placed on the **ball of the foot**, allowing the rider to let his weight flow down the back of the leg into the heel by way of the flexible ankle. This provides the rider with the support of the stirrup while still allowing for him to easily absorb the shock of the horse's motion. If the stirrup is too far forward, on the toes, the rider risks losing it if he pushes with too much pressure (forcing it off the foot) or too little (allowing it to simply slide off).

Some riders ride with the stirrup more "home," or shoved toward the heel. This is seen most often in sports such as polo and eventing, where the speed and sudden changes of direction of the former, and the great change in terrain and solid fences of the latter, make the rider more likely to be jarred loose from the saddle and increases the risk of losing a stirrup. However, this placement actually puts the stirrup on the arch of the foot, in a weaker position that leads to tension in the leg, stiffness in the knee and decreases the flexibility of the ankle, and therefore the shock-absorbing

ability of the rider; paradoxically increasing the risk of a fall. Additionally, it increases the chance that the rider's foot will become stuck in the stirrup during a fall, a very dangerous situation. This placement is often counterproductive and should not be used if it is not an absolute necessity. The "home" position has some value in saddle bronc riding, as a lost stirrup will almost inevitably result in the rider being thrown from the bucking horse, but because riders are thrown from the horse at a high rate even under normal circumstances, this event also has a high rate of riders being hung up in their stirrups and injured in the process.

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### 3.12 External links

- “The invention and influences of stirrup”
- “Saddle, Lance and Stirrup”
- “History of Chinese Invention - Stirrup”
- “Armies, 330 BCE - 1000 CE, Stirrups”
- “Treeless Saddles”
- “Treeless saddles”
- “The History of Western Leather Spurs and Spur Straps, Cuffs, Chaps, Chinks and Saddles.”
- “History of the Saddle.”

## Chapter 4

# Halter

This article is about the headgear for animals. For other uses, see [Halter \(disambiguation\)](#).

A **halter** (US) or **headcollar** (UK) is headgear that is used to lead or tie up livestock and, occasionally, other animals;



*A leather "Newmarket headcollar" (UK) or "stable halter" (US) for horses*

it fits behind the ears (behind the poll), and around the muzzle. To handle the animal, usually a lead rope or lead shank is attached. On smaller animals, such as dogs, a leash is attached to the halter.

### 4.1 History

Halters may be as old as the early domestication of animals, and their history is not as well studied as that of the bridle or hackamore. The word "halter" derives from the Germanic words meaning "that by which anything is held."

<sup>[1]</sup>



*Horse wearing a nylon web halter (US) or headcollar.*



*A show halter on a Murray Grey bull*

## 4.2 Uses

A halter is used to lead and tie up an animal.<sup>[2]</sup> It is used on many different types of livestock. Halters are most closely associated with Equidae such as horses, donkeys, and mules. However, they are also used on farm animals such as cattle and goats and other working animals such as camels, llamas, and yaks. Halters generally are not used on elephants or on predators, though there are halters made for dogs.

Halters are often plain in design, used as working equipment on a daily basis. In addition to the halter, a lead line, lead shank or lead rope is required to actually lead or tie the animal. It is most often attached to the halter at a point under the jaw, or less often, at the cheek, usually with a snap, but occasionally spliced directly onto the halter. A standard working lead rope is approximately 9 to 12 feet (2.7 to 3.7 m) long.

However, specially designed halters, sometimes highly decorated, are used for in-hand or “halter” classes at horse shows and in other livestock shows. When an animal is shown in an exhibition, the show halter is fitted more closely



*Horse shown in hand, wearing a Yorkshire halter.*

than a working halter and may have a **lead shank** that tightens on the head so that commands from the handler may be more discreetly transmitted by means of the leadline. A shank that tightens on the animal's head when pulled is not used for tying the animal.

Halters are designed to catch, hold, lead and tie animals, and nothing else.<sup>[2]</sup> However, some people ride horses using a halter instead of a bridle. In most cases, it is not safe to ride in an ordinary stable halter because it fits loosely and provides no leverage to the rider should a horse panic or bolt. It is particularly unsafe if the lead rope is used as a single rein, attached to the leading ring under the jaw.

### 4.3 Construction

Halters may be classified into two broad categories, depending on whether the material used is flat or round. Materials include cured **leather**, **rawhide**, **rope**, and many different fibers, including **nylon**, **polyester**, **cotton**, and **jute**. Leather and rawhide may be flat or rolled. Fibers may be woven into flat webbing or twisted into round rope. Flat or round dictates the construction method: flat materials normally are sewn to buckles or rings at attachment points; round materials are knotted or spliced. Knotted halters often are made from a single piece of rope.

### 4.4 Horse halters

Horse halters are sometimes confused with a bridle. The primary difference between a halter and a bridle is that a halter is used by a handler on the ground to lead or tie up an animal, but a bridle is generally used by a person who is riding or driving an animal that has been trained in this use. A halter is safer than a bridle for tying, as the bit of a bridle may injure the horse's mouth if the horse sets back while tied with a bridle, and in addition, many bridles are made of lighter materials and will break. On the other hand, a bridle offers more precise control.

One common halter design is made of either flat nylon webbing or flat leather, has a noseband that passes around the





*A rope horse halter*



*An Arabian horse in a stylized show halter*

muzzle with one ring under the jaw, usually used to attach a lead rope, and two rings on either side of the head. The

noseband is usually adjusted to lie about halfway between the end of the cheekbones and the corners of the mouth, crossing over the strong, bony part of the face. The noseband connects to a cheekpiece on either side that go up next to the cheekbone to meet with a ring on either side that usually is placed just above the level of the eye. These rings meet the throatlatch and the crownpiece. The crownpiece is a long strap on the right-hand side of the halter that goes up behind the ears, over the poll and is buckled to a shorter strap coming up from the left. The throatlatch goes under the throat, and sometimes has a snap or clip that allows the halter to be removed in a manner similar to the bridle. Many halters have another short strap connecting the noseband and the throatlatch.

The halter design made of rope also has the same basic sections, but usually is joined by knots instead of sewn into rings.<sup>[3]</sup> Most designs have no metal parts, other than, in some cases, a metal ring under the jaw where the lead rope snaps, or, occasionally, a recessed hook attachment where the crownpiece can be connected. However, in many cases, a loop is formed in the left side of the crownpiece and the right side of the crownpiece simply is brought over the horse's head, through the loop and tied with a *sheet bend*.<sup>[4]</sup>



*Sheep wearing a cotton rope halter.*

## 4.5 Leading

In addition to the halter, usually a *lead* (lead line, lead rope) or *leash* is used to lead or tie the animal. The lead is attached to the halter most often at a point under the jaw, less often at the cheek, and rarely above the nose.<sup>[5]</sup> On horses, a lighter version of a headcollar or headstall is also used to attach a fly veil of waxed cotton strands or light leather strips onto a browband. Some *Fly masks* are also made in a similar pattern to a headcollar and are often fastened with velcro tabs. These masks may also have ear and nose protection added to them. On both horses and dogs, halters may be used to attach a *muzzle*.

## 4.6 Safety and security issues

See also: *Lead (tack)*

For tying, it is disputed if a halter should be made strong enough not to break under stress, or if it should give way when tension reaches a certain point in order to prevent injury to the animal. Usually the issue is of minimal concern if a tied animal is attended and the lead rope is tied with a *slip knot* that can be quickly released if the animal panics.



*A modified sheet bend with the end falling away from the horse's head is used to secure a rope halter that lacks buckles*

However, in cases where a non-slip knot is tied, or if a soft rope is drawn tight and the knot cannot be released, or if the animal is left unsupervised, an animal panicking and attempting to escape can be seriously injured. Those who argue that the risk of injury is more of a concern than the risk of escape recommend halter designs that incorporate breakaway elements, such as a leather crownpiece, breakaway buckles, or easily detachable lead rope. Those who believe that escape is the greater danger, either due to concerns about escape or creating a recurring bad habit in an animal that learns to break loose that could become unable to be kept tied at all, recommend sturdy designs that will not break unless the handler deliberately releases a slipknot or cuts the lead rope. Between the two camps are those who recommend sturdy halters that will not break under normal pressure from a momentarily recalcitrant or frightened animal, but ultimately will break in a true panic situation, such as a fall. Some users have the animal wear a halter at all times, even when stalled or turned out. Others have the animal wear a halter only when being led, held, or tied. The advantages of leaving a halter on are that the animal is often easier to catch. The disadvantages are that an animal may catch the halter on an object and become trapped or injured in some fashion. While experts advise leaving halters off when animals are turned out, if halters are left on unattended animals, breakaway designs that still will hold for everyday leading are recommended.<sup>[6]</sup>

## 4.7 See also

- Horse tack
- Collar (animal)

## 4.8 References

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*Dog wearing a halter-style collar.*

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## Chapter 5

# Bridle

For other uses, see [Bridle \(disambiguation\)](#).

A **bridle** is a piece of equipment used to direct a horse. As defined in the Oxford English Dictionary, the “bridle”



*A hunt seat style English bridle*

includes both the headstall that holds a bit that goes in the mouth of a horse, and the reins that are attached to the bit. Headgear without a bit that uses a noseband to control a horse is called a **hackamore**, or, in some areas, a **bitless bridle**. There are many different designs with many different name variations, but all use a noseband that is designed to exert pressure on sensitive areas of the animal's face to provide direction and control.

### 5.1 Parts of the bridle

The bridle consists of the following elements:

- **Crownpiece:** The crownpiece, headstall (US) or headpiece (UK) goes over the horse's head just behind the animal's ears, at the poll. It is the main strap that holds the remaining parts of the bridle in place.



*The crownpiece runs over the horse's poll, and the browband across the forehead. The cheekpieces run down the sides of the horse's face.*

- **Cheekpieces:** On most bridles, two cheekpieces attach to either side of the crownpiece and run down the side of the horse's face, along the cheekbone and attach to the **bit rings**. On some designs, the crownpiece is a longer strap that includes the right cheek and crownpiece as a single unit and only a left side cheekpiece is added.
- **Throatlatch:** the throatlatch (US) or throatlash (UK) is usually part of the same piece of leather as the crownpiece. It runs from the horse's right ear, under the horse's throatlatch, and attaches below the left ear. The main purpose of the throatlatch is to prevent the bridle from coming off over the horse's head, which can occur if the horse rubs its head on an object, or if the bit is low in the horse's mouth and tightened reins raise it up, loosening the cheeks.
- **Browband:** The crownpiece runs through the browband. The browband runs from just under one ear of the horse, across the forehead, to just under the other ear. It prevents the bridle from sliding behind the poll onto the upper neck, and holds multiple headstalls together when a cavesson or second bit is added, and holds the throatlatch in place on designs where it is a separate strap. In certain sports, such as **dressage** and **Saddle seat**, decorative browbands are sometimes fashionable.
- **Noseband:** the noseband encircles the nose of the horse. It is often used to keep the animal's mouth closed, or to attach other pieces or equipment, such as **martingales**. *See also* **Noseband**.
- **Cavesson** also called Caveson or caves[s]on noseband, is a specific type of noseband used on **English** bridles wherein the noseband is attached to its own headstall, held onto the rest of the bridle by the browband. Because it has a separate headstall (also called sliphead), a cavesson can be adjusted with greater precision; a noseband that is simply attached to the same cheekpieces that hold the bit cannot be raised or lowered. In **Saddle seat** riding, the cavesson is often brightly colored and matches the browband. Variations on the standard English-style bridle are often named for their style of noseband. For use in polo, a **gag bridle** usually has a noseband plus a cavesson.
- **Frentera**, a strap running from the browband to the noseband, primarily seen on bridles of certain **South American** designs.
- **Fiador**, a form of throatlatch, is used with a **hackamore**.
- **Reins:** The reins of a bridle attach to the bit, below the attachment for the cheekpieces. The reins are the rider's link to the horse, and are seen on every bridle. Reins are often laced, braided, have stops, or are made of rubber or some other tacky material to provide extra grip.
- **Bit:** The bit goes into the horse's mouth, resting on the sensitive interdental space between the horse's teeth known as the "bars."

On a **double bridle**, where the horse carries two bits (a curb and small snaffle, often called a "bit and bradoon"), a second, smaller headstall, known as a 'bradoon hanger' or 'slip head' is used to attach the bradoon. A second set of reins is attached to the bradoon, and hence the rider carries four reins.

The bridle, depending on style, may also contain some of the following elements:

- **Bit guards:** Bit guards are optional fittings used on some bits.
- **Curb strap** or **curb chain**, used primarily on bridles with a curb bit, a small strap or chain, usually flat, that runs from one side of the bit to the other, and puts pressure on the chin groove when curb reins are tightened.
- **Lip strap:** a small strap used on a few curb bit designs, attaches between the bit shanks of a curb bit at the halfway point, used to keep the curb chain properly positioned and may prevent the horse from grabbing at the shanks with its lips.
- **Bit hobble:** basically, a curb strap used on the snaffle bit rings of a western bridle. Provides no leverage, but because open-faced bridles have no cavesson to prevent the horse from gaping its mouth open, it prevents the bit rings from being pulled through the mouth if strong pressure is applied.



- **Shank hobble:** A strap, bar or chain that connects the shanks of a curb bit at the bottom of the bit. Serves to stabilize the bit, prevent a lasso or other object from being caught on the shanks.
- **Winkers or blinkers**, also called "blindners", are partial eye blocks used primarily on driving horses and some race horses that prevent the animal from seeing what is behind it.
- **Overcheck**, also called a **bearing rein** or "check rein," is a specialty rein that runs from a snaffle bit, past the crownpiece, along the crest of the neck, and attaches to the front of a harness on a driving horse. It prevents the horse from dropping its head too low. Overchecks are also sometimes used on riding horses, especially ponies, to keep them from grazing while being ridden by a small child who may lack the physical strength or skill to raise the animal's head up.
- **Ornaments** such as phalerae and sallongs.

## 5.2 Types of bridles

### 5.2.1 "English" styles

- **Snaffle bridle:** the "English-type" snaffle bridle is most commonly seen in English riding. It is a basic bridle that carries one bit and usually has one set of reins. Despite the name, a snaffle bridle may be used not only with a snaffle bit, but also with almost other types of single rein bits, including Kimblewicks (US: Kimberwick), gag bits, and single curb bits. The English bridle is almost always used with some type of cavesson noseband.
- **Pelham bridle:** The Pelham is another English type bridle that carries a single bit, in this case a Pelham bit, but two sets of reins, one for snaffle action and one for curb action.
- **Double bridle:** Also called a *Weymouth* bridle, double bridles use two bits at once, a small snaffle called a *bradoon* and a curb or *Weymouth* bit, and require the use of two sets of reins. Double bridles are usually only seen used in upper level dressage, in Saddle seat riding, and for showing in certain other events that require formal attire and equipment.

### 5.2.2 Stock horse and working styles

- **Western bridle:** used for American-style western riding, this bridle usually does not have a noseband. Many western bridles also lack browbands, sometimes replaced by a "one ear" (variations called "split ear," "shaped ear," and "slip ear") design where a small strap encircles one or both ears to provide extra security to keep the bridle on. Some horse show styles do not have a throatlatch, most working styles do.
- **Barcoo bridle** – an Australian stock horse bridle that usually does not have a noseband and is used at work and in competition. The crownpiece, browband and throatlatch are all sewn onto a ring near the horse's ears on each side of the head. The cheek strap is single strap that loops through the bit and through the ring to a buckle on the outside of the cheek. Thus the cheek strap is doubled. Variations of this bridle include an "extended head" with the throatlatch further back than usual) to prevent horses rubbing the bridle off. Other variations include a noseband and these styles may be used as a headcollar. A lighter variety used for racing has cheek strap billets sewn to the ring, and the attached cheek straps are similar to those of an English bridle. Most bits can be used with these bridles with various snaffles the most commonly used.

### 5.2.3 Specialty styles

- **Gag bridle:** a bridle with rounded cheekpieces that pass through the top and bottom holes in the bit ring of a gag bit and attach directly to the reins. Tension on the reins rotates the bit and slides it up the cheekpieces and into the corners of the lips. In some styles, the bit is sewn into the bridle and slides, but is not interchangeable, other styles have detachable cheekpieces that allow bits to be changed. Gag bridles have the potential for severe action. They are often seen in polo, rodeo speed events, and occasionally show jumping. They are not permitted in most other horse show competition. In polo, they are often used with double reins, in the same manner as a Pelham bridle.



*A double bridle, using two bits.*

- **Halter bridle**, also known as a “trail bridle” or “endurance” bridle, this design is a halter with additional quick release cheekpieces that hold a bit and reins. They are an alternative to using a bitted bridle over the top of a halter. During rest stops, instead of removing the bridle, the rider only needs to remove the bit and reins. Variations of this bridle are used by the Australian Light Horse, the Household Cavalry, the Royal Canadian Mounted Police and some other mounted police units.



*Barcoo (or ringhead) bridle as used across Australia*

### **5.3 Hackamores and bitless bridles**

Main articles: Hackamore and bitless bridle

A **hackamore**, put simply, is headgear that controls a horse via pressure points on the face, usually with a nosepiece

instead of a bit. A hackamore is not the same thing as a halter, as a halter is primarily used for leading and tying up an animal.<sup>[1]</sup> Bitless bridles are similar to hackamores, but some designs use different leverage principles for control. Hackamores and bitless bridles use a headstall with reins attached to some type of noseband or nosepiece. Various designs allow control and good communication to the horse and may, in some cases, be more comfortable to the horse, particularly a young animal or one with a mouth injury.

The *jaquima* or original *bosal* style hackamore is mostly seen on young horses being started under saddle in western riding disciplines. Bitless bridles and other types of hackamore are most often seen on horses used for endurance riding and trail riding. A design called the mechanical hackamore is sometimes seen at rodeos. Most horse show events do not allow bitless bridles of any kind. The exceptions are show jumping, where equipment rules are fairly generous, and in certain western horse show classes for “junior” horses, which permit use of bosal hackamore.

Besides the bosal hackamore, there are many other designs. A design that combines elements of the bosal hackamore is known as a *sidepull*, which acts mostly on the nose, and are popular with western riders and many trail riders. English riders sometimes use a *jumping cavesson* or “jumping hackamore” that is basically a leather sidepull noseband reinforced internally with a cable, with rein rings attached. The so-called *mechanical hackamore* or “hackamore bit” is basically a hybrid bridle/hackamore made up of a noseband with shanks and a curb strap or chain that can put considerable leverage on the jaw and poll.

Another design, called a bitless bridle is the “cross-under” or “figure eight” bridle. One common design connects the reins to a loop that passes from the noseband, under the jaw, and up around the poll, returning on the opposite side back under the jaw to the noseband and out to the other rein. This design directs pressure from one rein to the opposite side of the horse’s head, or pressure on both reins to the whole head. Other designs only cross under the jaw and do not go over the poll.

Some riders, not realizing that a horse’s head overall is a very sensitive area, use a noseband-based style of headgear without the same caution they might use with a bit, thus defeating any benefit that an apparently milder form of gear would otherwise provide. While many bitless designs are marketed as humane, and some are indeed quite mild, other designs can be remarkably harsh in the hands of a poor rider,<sup>[2]</sup> particularly if they are improperly adjusted or have metal parts, a thin design, or rough surfaces.

## 5.4 Harness bridles

See also: horse harness, Driving (horse), Fine harness and Draft horse showing

Bridles used for driving horses have some differences from most riding bridles. The most visible difference is that they usually include partial eye coverings called *blinders*, *blinkers* or *winkers* that restrict the horse’s peripheral vision. They are stitched into the cheekpieces of a driving bridle and sometimes bear a monogram or badge. Winkers may be square, dee-shaped, hatchet-shaped, or round, and are adjusted to fit clear of the center of the horse’s eye.

The noseband is fitted into the bridle so has a certain amount of action, and is not on a separate headstall (also called sliphead) as is a cavesson. Harness bridles may feature a fancy browband, rosettes, and other ornamentation. An *overcheck* or *sidecheck* are sometimes used to control a horse’s head carriage and may be used in conjunction with an overcheck bit.

The Liverpool curb bit is most commonly used for carriage driving. The reins can be attached in any of the three slots along the shanks, resulting in a snaffle or curb action as required. *Wilson snaffle* bits are commonly used with trade turnouts. These bits have four rings so that the inner two rings may be attached to the cheek pieces and the outer pair to the reins. This arrangement is designed to prevent rein pressure interfering with the position of the winkers. Other styles of bits are used for harness racing, fine harness, and coach driving.

## 5.5 Fitting a bridle

See also: Bit (horse) and Noseband

A bridle is individually fitted to a horse. Without properly fitting the bridle to the horses’ head, the horse may be uncomfortable, and poor fitting may also result in lack of control while riding or unclear communication.

The length of each piece of the bridle needs to be individually adjusted to fit the horse's head. Other parts of the bridle are adjustable in length, though there are limits to adjustment and thus many manufacturers offer two to six different basic sizes. The sizes may have different names, but in the USA and Canada they are often called "cob" and "horse" for small and large animals, sometimes with "pony", "mini", "warmblood" and "draft" sizes in some designs.

The bit and browband are of set lengths and must be selected in the correct size. A too-narrow bit is uncomfortable and cannot be widened. One that is slightly too wide can be narrowed to some extent by adding a pair of bit guards. A browband that is too short causes the browband or crownpiece to rub the ears. The cheekpieces are adjusted not only so that the bit avoids the extremes of pulling the corners of the horse's mouth or banging the horse's incisors, but also so it hangs properly in the mouth for the specific riding discipline and bit design involved. The adjustment of the noseband depends on the type used, but needs to be snug enough to be effective, yet loose enough to avoid discomfort. The throatlatch is adjusted each time the bridle is put on the horse, loose enough to not interfere as the horse flexes at the poll. A standard throatlatch measurement is that the width of three or four fingers should be able to fit between the throatlatch and the horses' cheek.

## 5.6 Dangers of tying with a bridle

It is unsafe to tie a horse using a bridle for two main, though seemingly contradictory reasons. First, if the tied animal pulls back on the bridle, the bit or controlling noseband (such as a **bosal** or **mechanical hackamore**) may cause considerable pain or even injury to the mouth, tongue, or other facial structures of the animal even if the bridle breaks. Second, compared to **halters**, most bridles are made of thin leather which will easily break under pressure. The end result can be both injury to the horse and broken equipment. Should a rider need to tie a horse, best practice is to either remove the bridle and put on a **halter**, or to put a halter on in addition to the bridle (under or over the bridle), and tie the horse using the halter only. In addition, tying with a **slipknot** that can be released by pulling on the end of the lead rope is a key safety tactic.

In western riding, some horses are taught to "ground tie" with a bridle, that is, to stand still when the reins are dropped on the ground. This can only be done with split reins, as a horse can easily put a foot through a pair of reins that are attached to one another. Even with split reins, a horse can still step on a rein, jerk its head up and both break the rein and injure its mouth. Historically, it was a useful skill if a rider had to momentarily dismount and perform a task that required both hands (such as removing brush or fixing a fence) in a remote area where tying was impracticable. In actual practice, just as with the "stay" command used in obedience work for dogs, even well-trained horses may not stay "ground tied" for long, especially if left unsupervised. Thus, ground tying today is usually seen in specific classes at horse shows such as the trail horse class, or as a useful short-term command: many horses are taught to stand still for a limited period of time on a "whoa" or "stay" command, with or without dropping the reins.

## 5.7 References

- [1] *halter*: "1. a. A rope, cord, or strap with a noose or head-stall, by which horses or cattle are led or fastened up." Oxford English Dictionary, online edition
  - [2] Miller, Robert M. and Rick Lamb. (2005) *Revolution in Horsemanship* Lyons Press ISBN 1-59228-387-X, p. 227
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## 5.8 External links

- [How To Fit A Double Bridle](#)
- [Photo of checking throatlatch](#)





*One type of cross-under bitless bridle. Reins are separate, though held closely together in this photo. (click to enlarge and view detail)  
A horse should not be tied with this bridle, as it may tighten on the nose if the horse sets back on the rope.*



*If a horse must be tied to an object, a halter should be placed under or over the bridle, and the cross-ties should be attached to halter rings rather than the bit*



## Chapter 6

# Rein

For other uses, see Rein (disambiguation).

**Reins** are items of horse tack, used to direct a horse or other animal used for riding or driving. Reins can be made



*Reins are used to slow and direct the animal*

of leather, nylon, metal, or other materials, and attach to a bridle via either its bit or its noseband.

### 6.1 Use for riding

Main article: riding aids

Reins are used to give subtle commands or cues, also known as rein aids. Various commands may signal a turn, ask for a slower speed, request a halt or rein back. Rein aids are used along with leg aids, shifting of body weight, and sometimes voice commands.



*Reins attached to the rings or shanks of a bit*

### 6.1.1 Harness reins

On some types of harnesses there might be supporting rings or “terrets” used to carry the reins over the animal’s back. When pairs of equines are used in drawing a wagon or coach it is usual for the outer side of each pair to be connected to the reins and for the inside of the bits to be connected between the pair of horses by a short bridging strap or rope. The driver carries “four-in-hand” or “six-in-hand” being the number of reins connecting to the pairs.

### 6.1.2 Other uses

A single rein or rope may be attached to a halter to lead or guide a horse or packhorse. A long rein called a longe line may be used to allow the horse to move in a circle for training purposes, or for the purpose of a clinical lameness evaluation by a veterinarian. On certain designs of headgear, a third rein may be added to the paired reins, used for leading, longeing, or other specialized or stylistic purposes. The best-known example of a third rein used in the USA is the leading rein of the *mecate* of the classic bosal hackamore.

## 6.2 Types

Types of reins include:

- Closed reins, or loop reins: reins that are either a single piece or that buckle together at the ends. English riders usually use closed reins. Western riders in timed rodeo events use a single closed rein, as do those who use a romal. A closed rein helps prevent the rider from dropping the reins.
- Double reins: The combined use of two pairs of reins, a curb rein and a snaffle rein. This is usually two single (buckled or sewn) reins, though sometimes split reins may be seen on western-style bridles. Double reins are used with a double bridle, with bits such as the Pelham bit and, less often, on some gag bits used for polo.



*A mecate*



*Pure braided rawhide romal reins*

- Draw reins and running reins: long reins, usually made of leather or nylon webbing, that attach to the saddle or the girth, run through the bit rings, and back to the rider. Several design variations, they add mechanical advantage to the rider's hands and may the horse's ability to raise its head. Often used in conjunction with a snaffle rein by English riders, usually used alone by western riders.
- Lead rein: A third rein used on bridles, not to be confused with the single lead rope of a halter nor the direct rein aid known as the "leading rein". In North America a third rein is most commonly seen as part of the

mecate of a hackamore. In Mongolia it is integral to the bridle, and tied to either a bit ring or a chin strap.

- Long reins, longlines, or driving lines: exceptionally long reins which allow the rider to control the horse from a cart, or from the ground, with the handler walking behind the horse.
- Mecate: a style of rein seen on a bosal style hackamore made of a single piece of rope that encompasses both a closed rein and a leading rope.
- Romal reins: a rein style from the vaquero tradition that incorporates a closed rein with a long quirt at the end.
- Side reins: used when longeing a horse, attached from the bit to the saddle or surcingle, they are not meant to be held by the rider.
- Split reins: a rein style seen in western riding where the reins are not attached to one another at the ends. They prevent a horse from tangling its feet in a looped rein, particularly when the rider is dismounted. They are considerably longer than closed reins.
- Two reins—reins used on bridles with two reins:
  - Snaffle rein: Usually a laced rein that buckles at the center, used on the bradoon of a double bridle, or the upper ring of a pelham bit.
  - Curb rein: The rein used at the end of the shank of a curb bit or pelham. Modern curb reins usually buckle together at the ends, though reins of the classical curb were sewn together at the ends to create a single rein.

### 6.3 In popular expression

In popular culture, to **rein in** means to hold back, slow down, control or limit. Sometimes the eggcorn, **reign in**, is used. Usage of the opposing **free rein** dates back to Geoffrey Chaucer (1343–1400)<sup>[1][2]</sup> and means to give or allow complete freedom, in action and decision, over something.

### 6.4 See also

- Horse tack
- Neck rein
- Riding aids

### 6.5 References

- [1] The Portable Chaucer Geoffrey Chaucer, Penguin 1975 page 245
- [2] Merriam Webster definition of “free rein”. Accessed March 3, 2008

### 6.6 External links

- Study of rein tension on side reins, *The Veterinary Journal*, Volume 188, Issue 3, June 2011, Pages 291–294
- Equine and Comparative Exercise Physiology, August 2005
- Rein Check, June 2011



## Chapter 7

# Horse harness



*Horse in harness with horse collar*

A **horse harness** is a type of horse tack that allows a horse or other equine to pull various horse-drawn vehicles such as a carriage, wagon or sleigh. Harnesses may also be used to hitch animals to other loads such as a plow or canal boat.

There are two main categories of horse harness, “breaststrap” or “breastcollar” design and the collar and hames design. For light work, such as horse show competition where light carts are used, a harness needs only a breastcollar. It can only be used for lighter hauling, since it places the weight of the load on the sternum of the horse and the nearby windpipe. This is not the heaviest skeletal area; also heavy loads can constrict the windpipe and reduce a horse’s air supply.

By contrast, the collar and hames harness places the weight of the load onto the horse’s shoulders, and without any restriction on the air supply. For heavy hauling, the harness must include a horse collar to allow the animal to use its full weight and strength.

Harness components designed for other animals (such as the yoke used with oxen) are not suitable for horses and will not allow the horse to work efficiently.



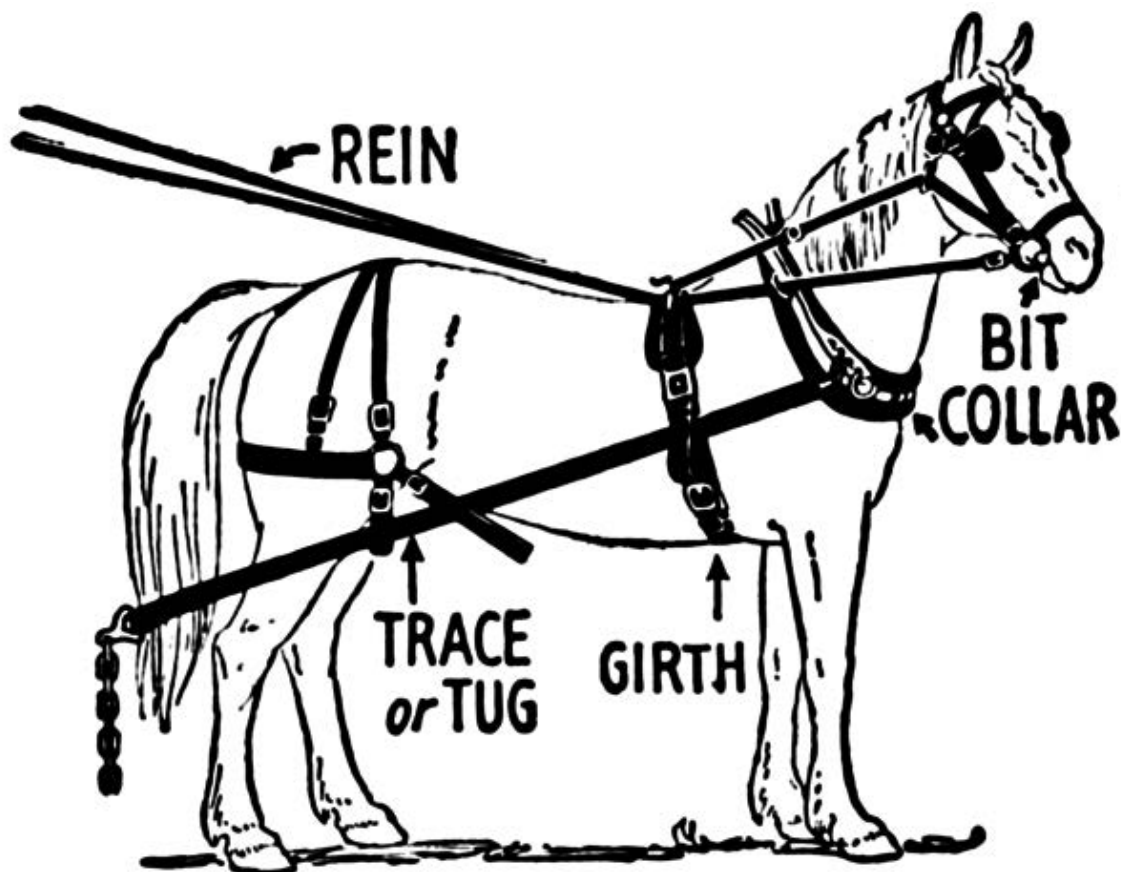
*A closeup of a horse harness.*



*A horse with a breastcollar harness pulling a sleigh*

Putting harness on a horse is called *harnessing* or *harnessing up*. Attaching the harness to the load is called *putting to* (British Isles) or *hitching* (North America). The order of putting on harness components varies by discipline, but when a horse collar is used, it is usually put on first.

## 7.1 Parts of the harness



*An illustration of a horse harness with full collar*

Parts of the harness include:<sup>[1]</sup>

- A collar to allow the horse to push against the harness with its shoulders and chest. Two main alternative arrangements (with some intermediate types):
  - A *horse collar* (or *full collar*). A padded loop fitting closely around the horse's neck, pointed at the top to fit the crest of the neck. Used for heavier pulling, especially when used without a *swingletree* or *whippletree*.
  - A *breastcollar*. A padded strap running around the chest from side to side. Used for light work, or for somewhat heavier work it is used together with a *swingletree* evenly on each step without rubbing.
- *Hames* (if a full collar is used). Two metal or wooden strips which take the full force of the pull, padded by the collar.
- *Breeching* /'brɪtʃɪŋ/. A strap around the horse's haunches allowing it to set back and slow a vehicle, usually hooked to the shafts or pole of the vehicle. Used for a single horse, a pair, or in a larger team, only for the *wheelers* (the animal or pair closest to the vehicle). The leaders in a team do not have breeching, as they are in front of the shafts or pole and so cannot slow the vehicle. Breeching may also be omitted in *fine harness*, or when the cart is very light or has efficient brakes on the wheels.
- *Traces*. The straps or chains which take the pull from the breastcollar or hames to the load.





*Complete breastcollar harness and bridle, laid out*

- **Harness saddle** or “pad”. A small supportive piece of the harness that lies on the horse’s back, not the same as a riding saddle.
- **Girth**. A strap that goes firmly around the girth of the horse to attach the harness saddle.
- **Belly-band**. A strap that goes more loosely under the belly of the horse, outside the girth. Prevents the shafts rising up, especially on a two-wheeled vehicle (where weight on the rear of the cart may tip the front up).
- **Back band**. A strap going through the harness saddle to join the belly band either side. Takes the weight of the shafts or pole. In cart harness it is replaced by a chain running in a groove in the harness saddle, hooked to the shafts either side.
  - **Sliding back band**. In a two-wheeled vehicle, the shafts are fixed to the vehicle to hold it level. On a side-slope, one shaft will be higher than the other, and in this case the back band is normally allowed to slide sideways through the harness saddle, so the horse can walk upright without strain on the harness.
  - **Fixed back-band**. In a four-wheeled vehicle, the shafts or pole must be allowed to hinge up and down, to allow the horse and vehicle to pass over hillocks and dips. Often the shafts are independently hinged, and on a side-slope these will each hinge to follow the horse, and a sliding back band is not needed. However, if a sliding back band was used with independent shafts it might allow one shaft to ride up higher than the other, and so for such shafts the back-band is normally fixed to the harness saddle. On other four-wheeled vehicles, the two shafts hinge together, and a sliding back band is needed as for two-wheeled vehicles.
- **Surcingle**. A term used within certain light fine harness designs to describe the combination of a light girth and harness saddle.
- **False martingale**. A strap passing between the front legs, from the centre of the collar to the belly band, to hold the collar in position. Called “false”, because unlike a **true martingale** it does not attach to the bridle or have any influence on the horse’s action.
- **Crupper**. A soft padded loop under the base of the tail, to keep the harness from slipping forward.
- **Back strap**. A strap attached by looping through the crupper D at the rear of the saddle / pad or surcingle to attach the crupper
- **Shaft tugs, or just tugs**. Loops attached to the back band to hold up the shafts of a vehicle in van or fine harness (not needed in cart harness, which attaches to hooks on the shafts). Two types:

- For two-wheeled vehicles the tugs are stiff leather loops, fitting fairly loosely around the shafts (which are rigidly attached to the vehicle), to allow flexibility as the animal and the vehicle move against each other.
- For four-wheeled vehicles with independently hinged shafts, the tugs (*Tilbury tugs*) are leather straps buckled tightly around the shafts so they move with the animal.
- **Terrets.** Metal loops on the saddle and collar to support the reins. The bridles of the rear animals of a large team may also have terrets to take the reins of the animals to the front of them.
- **Reins or Lines.** Long leather straps (occasionally ropes) running from the bit to the driver's hands, used to guide the horses. In teams of several animals these may be joined together so the driver only need hold one pair.
- **Bridle:** When working in harness, most horses wear a specialised bridle that includes features not seen in bridles used for riding. These usually include *blinders*, also called *blinkers* or *winkers*, behind and to the side of the horse's eyes, to prevent it from being distracted by the cart and other activity behind it. **Harness racing** horses sometimes have a *shadow roll* on the *noseband* of the bridle for the same purpose.
- **Bits** for harness (often a **Liverpool bit**, but the Wilson snaffle is also popular) may be similar to those used for riding, particularly in *mouthpiece*, usually operating with a *curb bit* and adjustable leverage to help balance the effect of the reins on different horses in a team. The bridles of the rearward horses in a team (the wheelers in a four-horse team, and both wheelers and centre horses in a six-horse team) often have rings at each end of the browband, through which the reins of the forward horses pass.
- Some horses pulling lighter vehicles, particularly at **horse shows** and other public exhibitions, may have an *overcheck* to assist them in holding a desired head position, and for safety reasons (to avoid the horse's head and neck going under the shaft in a stumble). In some cases a specially designed **running martingale** may also be added. A looser overcheck may also be used in a working harness to prevent the horse grazing. The overcheck hooks to a *pedestal* on the harness saddle.
- **Horse brasses.** Brass plaques mounted on leather straps, used for decoration, especially on working harness. Made in a very wide range of designs.

## 7.2 Types of harness

### 7.2.1 Show harness

Show harnesses for light cart driving have a breastcollar instead of a horse collar and are made with strong but refined-looking leather throughout, usually black and highly polished. In **draft horse showing** and **combined driving**, horse collars are seen, but harness leather is still highly polished and well-finished.

### 7.2.2 Carriage or van harness

Lighter weight but strong harness similar to show harness, used for pulling passenger vehicles such as buggies or carts, or other lighter loads. The traces attach either to the shafts of the vehicle or to the vehicle itself, and the harness may have either a *horse collar* or a breastcollar.

### 7.2.3 Racing harness

Main article: [Harness racing](#)

The racing harness, like the show harness, is a breastcollar harness. Horses are hitched to a very lightweight two-wheeled cart, called a *sulky*. Most race harnesses incorporate a **running martingale** and an overcheck. Sometimes harness racing horses are raced with an "open" bridle, one that does not have blinkers. Specialized equipment, called *pacing hobbles*, are added to the harness of race horses who pace in order to help them maintain their gait.<sup>[2]</sup>

### 7.2.4 Cart or wagon harness

Harness for pulling heavier vehicles always has a **horse collar**. The traces are often made of chain and attach to loops on the shafts of the vehicle. A chain attached to the shafts may be passed over the saddle to carry their weight.<sup>[3]</sup> Reins are of rope or leather, depending on region of the world.

### 7.2.5 Plow harness

Similar to cart harness but without breeching, used for dragged loads such as plows, harrows, canal boats or logs. This style is also used on the leaders in a team of animals pulling a vehicle. The traces attach to a **whippletree** behind the horse and this then pulls the load (or in larger teams may attach to further whippletrees).

There are two main plow harness types: the New England D-Ring and the Western harness. The New England D-Ring makes use of a metal D shaped ring that allows for a ninety degree angle to be maintained at the junction of the front trace and the hames regardless of the height of the implement being pulled. The Western harness does not provide this flexibility but has other useful characteristics such as a strap that runs from the brichen to the collar which stops the pull from riding up and hitting the horses in the face when descending a steep incline.

## 7.3 See also

- Combined driving
- Dog harness
- Draft horse showing
- Driving (horse)
- Horse tack
- Horse collar
- Horse brass
- Harness racing
- Horse-drawn vehicle
- Shaft bow

## 7.4 References

[1] Harness parts

[2] Harness racing equipment

[3] Miller W C, *Practical Animal Husbandry*, Oliver and Boyd 1959 ed, p 313



*Harness bridle*



*Show harness*



*A combined driving team in carriage harness*



*Racing harness*



*Plow Harness*

## Chapter 8

# Bit (horse)

For other uses, see bit (disambiguation).

A **bit** is a type of horse tack used in equestrian activities, usually made of metal or a synthetic material, and is placed



*A horse wearing an English bridle with a snaffle bit and a cavesson*

in the mouth of a horse or other equid and assists a rider in communicating with the animal. It rests on the bars of the mouth in an interdental region where there are no teeth. It is held on a horse's head by means of a bridle and has reins attached for use by a rider.

### 8.1 Basic types

Although there are hundreds of design variations, the basic families of bits are defined by the way in which they use or do not use leverage. They include:

- Direct pressure bits without leverage:



- **Snaffle bit:** Uses a **bit ring** at the mouthpiece to apply direct pressure on the bars, tongue and corner of the mouth.
- **Leverage bits:**
  - **Curb bit:** A bit that uses a type of lever called a **shank** that puts pressure not only on the mouth, but also on the **poll** and **chin groove**.
  - **Pelham bit:** A single curb bit with two sets of reins attached to rings at the **mouthpiece** and end of the shank. Partly combines snaffle and curb pressure.
  - **Kimblewick or Kimberwicke:** A hybrid design that uses a slight amount of mild curb leverage on a **bit ring** by use of set rein placement on the ring.
- **Bit combinations**
  - A type of bridle that carries two bits, a **bradoon** and a **curb**, and is ridden with two sets of reins is called a **Weymouth** or **double bridle**, after the customary use of the Weymouth-style curb bit in a double bridle.
- **Non-curb leverage designs:**
  - **Gag bit:** A bit that, depending on design, may outwardly resemble a snaffle or a curb, but with added slots or rings that provide leverage by sliding the bit up in the horse's mouth, a very severe design.
- **In-hand bits** are designed for leading horses only, and include the:
  - **Chifney Anti-Rearing Bit:** This is a semi-circular-shaped bit with three rings and a port or straight mouth piece used when leading horses. The port or straight piece goes inside the mouth, and the circular part lies under the jaw. The bit is attached to separate head piece or the head collar and the lead is clipped onto the bit and headcollar to limit the severity.<sup>[1]</sup>
  - **Tattersall ring bit**<sup>[2]</sup>
  - **Horse-shoe stallion bit**<sup>[2]</sup>

Bits are further described by the style of **mouthpiece** that goes inside the horse's mouth as well as by the type of **bit ring** or **bit shank** that is outside the mouth, to which the reins are attached.

Types of headgear for horses that exert control with a noseband rather than a bit are usually called **hackamores**,<sup>[3]</sup> though the term "**bitless bridle**" has become a popular colloquialism in recent years.

## 8.2 History

It is likely that the first **domesticated horses** were ridden with some type of bitless headgear made of sinew, leather, or rope.<sup>[4]</sup> Components of the earliest headgear may be difficult to determine, as the materials would not have held up over time. For this reason, no one can say with certainty which came first, the bitted or the bitless bridle.<sup>[4]</sup> There is evidence of the use of bits, located in two sites of the **Botai**, dated about 3500-3000 BC.<sup>[5]</sup> **Nose rings** were used on the equids portrayed on the **Standard of Ur**, circa 2600 BC - 2400 BC. To date, the earliest artistic evidence of use of some form of bitless bridle was found in illustrations of **Synian horseman**, dated approximately 1400 BC.<sup>[6]</sup>

The first bits were made of rope, bone, horn, or hard wood. Metal bits came into use between 1300 and 1200 BC, originally made of bronze.<sup>[7]</sup> In modern times, **nickel** was a favored material until about 1940, when it was largely replaced by **stainless steel**.<sup>[8]</sup> **Copper**, **aurigan** and **sweet iron** (cold rolled steel) are incorporated into some bits to encourage salivation in the mouth of the horse, which encourages a softer mouth and more relaxed jaw. Bits also can be made of other materials such as rubber or plastic, sometimes in combination with metals.<sup>[9]</sup>

Throughout history, the need for control of **horses in warfare** drove extensive innovation in bit design, producing a variety of prototypes and styles over the centuries, from **Ancient Greece** into modern day use.<sup>[10]</sup>

## 8.3 Design and terminology

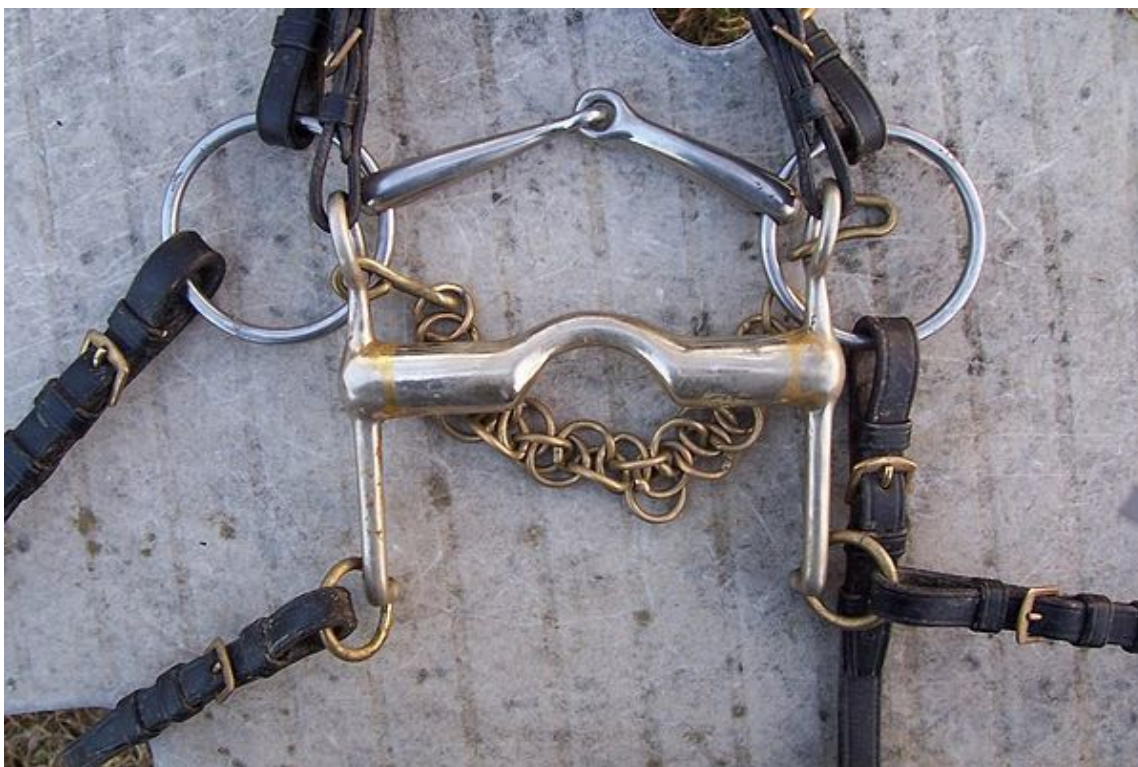
A bit consists of two basic components, the **bit mouthpiece** that goes inside the horse's mouth, and the **bit rings** of a snaffle bit or **shanks** of a curb bit, to which the bridle and reins attach.



*An ancient Persian horse bit*

All bits act with some combination of pressure and leverage, often in conjunction with pressure applied by other parts of the bridle such as the curb chain on the chin, noseband on the jaw and face, or pressure on the poll from the headstall.<sup>[11]</sup> Particular mouthpieces do not define the type of bit. It is the sidepieces and the leverage these rings or shanks use to act on a horse's mouth that determines whether a bit is in the curb or snaffle family, and has a great impact on the severity of the mouthpiece.

The *mouthpiece* of a horse's bit is the first factor most people think of when assessing the severity and action of the bit. Therefore, it is carefully considered when choosing a bit for a horse. Many mouthpieces are not allowed in certain competitions. Bit mouthpieces may be single jointed, double-jointed, "mullen" (a straight bar), or have an arched port in the center of varying height, with or without joints. Some have rollers, rings or small "keys" that the horse



*The bits of a double bridle, showing both a type of snaffle bit called a bradoon and a curb bit.*

can move with its tongue. Mouthpieces may be smooth, wire-wrapped or otherwise roughened, or of twisted wire or metal.

Various types of metal or synthetic substances are used for bit mouthpieces, which may determine how much a horse salivates or otherwise tolerates a bit; a horse having a moist mouth is considered more relaxed and responsive. Commonly used metals include **stainless steel** and **nickel** alloys, which generally do not rust and have a neutral effect on salivation; **sweet iron**, **aurigan** and **copper**, which generally tend to encourage salivation, and aluminum, which is considered drying and is discouraged as a mouthpiece metal. Synthetic mouthpieces may be made with or without internal metal cable or bar reinforcement. **Rubber** bits are generally thicker than metal bits, but other types of synthetics such as plastics are also used. Plastic-coated bits are often the same size as metal bits, and some are flavored.

Often, bits with shanks that also have single- or double-jointed mouthpieces are incorrectly referred to as snaffles. Because of the presence of a shank, they are actually in the curb bit family.

## 8.4 Effects

The mouthpiece of the bit does not rest on the **teeth of the horse**, but rather rests on the gums or “bars” of the horse’s mouth in an interdental space behind the front **incisors** and in front of the back **molars**. When a horse is said to “grab the bit in its teeth” they actually mean that the horse tenses its lips and mouth against the bit to ignore the rider’s commands (although some horses may actually learn to get the bit between their molars).<sup>[11]</sup>

Bits are designed to work by pressure, not pain. Depending on the style of bit, pressure can be brought to bear on the bars, tongue, and roof of the mouth, as well as the lips, chin groove and poll. Bits offer varying degrees of control and communication between rider and horse depending upon their design and on the skill of the rider. It is important that the style of bit is appropriate to the horse’s needs and is fitted properly for it to function properly and be as comfortable as possible for the horse.<sup>[11]</sup>

In the wrong hands even the mildest bit can hurt the horse. Conversely, a very severe bit, in the right hands, can transmit extremely subtle, nuanced signals that cause no pain to the horse. Commands should be given with only the quietest movements of the hands, and most steering is done with the legs and seat. Thus, instead of pulling or



*Improper use of a bit can cause considerable pain to a horse*

jerking the horse's head to change direction by force, a skilled rider indicates the desired direction by tightening and loosening the grip on the reins. The calf of the leg is used to push the body of the horse in a certain direction while the other one is used as a pivot and to provide the correct amount of impulsion required to keep the horse moving. Likewise, when slowing or stopping, a rider sits deeper in the saddle and closes their hands on the reins, avoiding jerking on the horse or hauling back on the reins in a "heavy-handed" fashion. Change of position of the seat and the pressure of the rider's seat bones are also extremely useful for turning, speeding up and slowing down.

There are many factors in the biting equation which must be considered to get a true estimate of the action and severity of a bit. Although some mouthpieces are marketed as "correction" (a euphemism for "severe") bits or "training" (implying a mild bit), the terms are relative. The bit always rests on the sensitive bars of a horse's mouth. A hard-handed rider can make even the mildest bit painful, and a skilled, light-handed rider can ride in a much harsher mouthpiece without damaging the mouth or causing any distress in the horse. Additionally, the shank or ring has a great impact on the action of the mouthpiece. Snaffles are generally considered the mildest, curbs and gags the harshest. It is difficult, therefore, to compare a harsher-type bit with a mild mouthpiece (such as a pelham with a rubber mullen mouth), and a milder-type bit with a harsher mouthpiece (like a thin snaffle with a slow twist). In general, however, the mouthpiece can have a marked difference on the severity. Snaffles with twisted wires are never considered mild, whereas a pelham with a low port could.

## 8.5 Snaffle or direct pressure bits

Main article: Snaffle bit



*A direct pressure snaffle bit with single-jointed mouthpiece and stylized bit rings.*

All bits work with either direct pressure or leverage. Bits that act with direct pressure on the tongue and lips are in the general category of *snaffle* bits. Snaffle bits most commonly have a single jointed mouthpiece and act with a nutcracker effect on the bars, tongue and occasionally roof of the mouth. However, any bit that operates only on direct pressure is a “snaffle” bit, regardless of mouthpiece.<sup>[12]</sup>

## 8.6 Curb or leverage bits

Main article: [curb bit](#)

Bits that have **shanks** coming off the **bit mouthpiece** to create leverage that applies pressure to the poll, chin groove and mouth of the horse are in the category of **curb bits**. Most curb bit mouthpieces are solid without joints, ranging from a straight bar with a slight arch, called a “mullen” mouthpiece, through a “ported” bit that is slightly arched in the middle to provide tongue relief, to the full **spade bit** of the **Vaquero** style of **western riding** which combines both a straight bar and a very high “spoon” or “spade” extension that contacts the roof of the mouth. The length of the shank determines the degree of leverage put on the horse’s head and mouth. Again, a bit with shanks and leverage is always a “curb” type bit, even when it has a jointed mouthpiece more commonly seen on a snaffle (such bits are sometimes—incorrectly—called “cowboy snaffles”). All shanked bits require the use of a **curb chain** or curb strap for proper action and safe use.

## 8.7 Combination designs

Some bits combine both direct pressure and leverage, the most common examples being the **Pelham bit**, which has shanks and rings allowing both direct and leverage pressure on a single bit and is ridden with four reins;<sup>[3]</sup> the **Kimblewick** or **Kimberwicke**, a hybrid bit that uses minimal leverage on a modified snaffle-type ring combined with a mouthpiece that is usually seen more often on curb bits, ridden with two reins;<sup>[13]</sup> and the **double bridle**, which places a curb and a snaffle bit simultaneously in the horse’s mouth so that each may act independently of the other, ridden with four reins. Another bit that combines direct pressure and leverage in a unique manner is the **Gag bit**, a bit derived from the snaffle that, instead of having a rein attached to the mouthpiece, runs the rein through a set of rings that attach directly to the headstall, creating extra pressure on the lips and poll when applied. Usually used for correction of specific problems, the gag bit is generally illegal in the show ring<sup>[14]</sup> and racecourse.



*A western style curb bit.*

## 8.8 Idiomatic usage

Bits and the behavior of horses while wearing bits have made their way into popular culture outside of the horse world.

- *Took the bit in his teeth*, a phrase that describes a horse that sets its jaw against the bit and cannot be controlled (rarely does the horse actually grab the bit with its molars), is used today to refer to a person who either is taking control of a situation or who is uncontrollable and casts off restraint<sup>[15][16]</sup>
- *Champing at the bit*, also worded *chomping at the bit* or *chafing at the bit*, meaning to show impatience or burst with energy,<sup>[17][18][19][20]</sup> refers to a tendency of some horses, when impatient or nervous, and especially if being held back by their riders, to chew on the bit, often salivating excessively. This behavior is sometimes accompanied by head-tossing or pawing at the ground. Because this behavior was most often seen by the general public in horses who were anxious to begin a horse race in the days before the invention of the starting gate, the term has become popular in everyday speech to refer to a person who is anxious to get started or to do something. Because some impatient horses, when held back, would also occasionally rear, a related phrase, “raring to go,” is also derived from observations of equine behavior.<sup>[19]</sup>



*Chifney anti-rearing bit for leading horses*

## 8.9 See also

- Bit guard
- Bit mouthpiece
- Bit ring
- Bit shank
- Bitless bridle
- Bridle
- Hackamore
- Rein
- Slave iron bit

## 8.10 Notes

[1] Thoroughbred Racing SA: <http://www.trsa.com.au/racing/glossary.html> Definition

[2] Edwards, E. Hartley, *Saddlery*, Country Life Limited, England, 1966

[3] Price, Steven D. (ed.) *The Whole Horse Catalog: Revised and Updated* New York: Fireside 1998 ISBN 0-684-83995-4 p. 153

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- [6] Miller, Robert M. and Rick Lamb. (2005) *Revolution in Horsemanship* Lyons Press, p. 222 ISBN 1-59228-387-X
- [7] Edwards, p. 17
- [8] Henderson, p. 117
- [9] Edwards, pp. 180-181
- [10] The Francis C. Shirbroun Bridle Bit Museum
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- [12] Edwards, pp. 52-58
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- [15] Take the bit between your teeth
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## 8.12 External links

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- [http://cvm.msu.edu/research/research-centers/mcphail-equine-performance-center/publications-1/usdf-connection/USDF\\_May06\\_Clayton.pdf](http://cvm.msu.edu/research/research-centers/mcphail-equine-performance-center/publications-1/usdf-connection/USDF_May06_Clayton.pdf)
- Bit article from Equestrian magazine
- Article on use and effects
- fluoroscopic study of the snaffle
- Fluoroscopic study
- <http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=7713352>
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- <http://www.horse-canada.com/archives/trainers-talk-bits-hilary-clayton-on-bit-position/>
- Photographs/X-rays
- The Bit Gallery

## Chapter 9

# Spur

For other uses, see [Spur \(disambiguation\)](#).

A **spur** is a metal tool designed to be worn in pairs on the heels of riding boots for the purpose of directing a horse



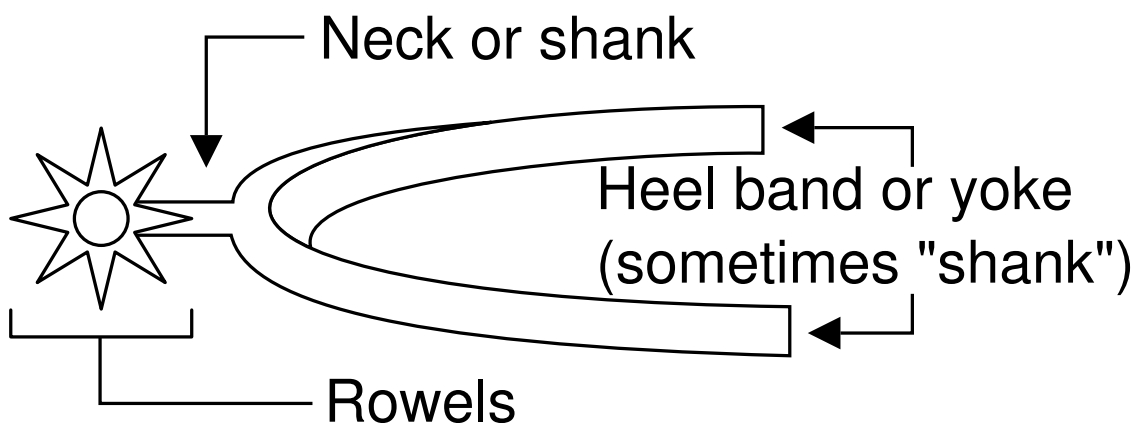
*Western-style cowboy spurs with rowels, chap guards and buttons for the spur straps*

to move forward or laterally while riding. It is usually used to refine the riding aids (commands) and to back up the natural aids (the leg, seat, hands and voice). The spur is used in many equestrian disciplines. There are rules in most equestrian organizations about spur design, use and penalties for using spurs in any manner that constitutes animal abuse.

## 9.1 Etymology

The very old word derives from Anglo-Saxon *spura*, *spora*, related to *spornan*, *spurnan*, to kick, *spurn*; cf. Medieval High German *Sporn*, modern German *Sporn*, Dutch *spoor*, Frisian *spoar*.<sup>[1]</sup> The generalized sense of “anything that urges on, stimulus” is recorded in English from circa 1390.

## 9.2 Design



*Parts of a simple spur*

The parts of a spur include:

- The “yoke”, “branch”, or “heel band”, which wraps around the heel of the boot.
- The “shank” or “neck”, which extends from the back of the yoke and is the area that touches the horse.
- The rowel, seen on some spurs, a revolving wheel or disk with radiating “points” at the end attached to the shank.

Spurs are usually held on by a leather or leather-like strap, called a spur strap, that goes over the arch of the foot and under the sole in front of the boot heel. Some western designs have a leather strap that goes only over the top, with a heel chain or a rubber “tiedown” instead of a strap under the boot. There are also styles with no straps where the heel band is simply very tight and slips on wedged between the sole and heel of the boot. Some spur designs have a slot for running the spur strap through, others have “buttons,” sometimes on the heel band itself and sometimes attached to the heel band by hinges, that allow a strap with buttonholes to be attached.

When used in military ranks, senior officers, and officers of all ranks in **cavalry** and other formerly mounted units of some armies, wear a form of spur in certain orders of dress which is known as the box spur, having no spur strap but a long metal prong opposite the neck, extending between the arms of the heel band, which is inserted into a specially fitted recess or “box” in the base of the boot heel. Due to the prong, such spurs can only be worn with appropriately equipped boots. This construction is shown in the illustrations of the swan neck and Waterford spurs below.

Spurs seen in **western riding** may also have small curved-up hooks on the shank in front of the rowel, called “chap guards,” that were originally used to prevent the rider’s **chaps** from interfering with the rowels of the spur. The shank angle from the yoke can vary from “full”. to “one half”, to “one quarter” to “straight”. Some cowboys also added small metal *Pajados*, also known as *Jingo Bobs* or *Jingle Bobs*, near the rowel, to create a jingling sound whenever the foot moved. Rowels can vary in size and number of points.

In the history of veterinary science, the word “rowel” described a small disk of leather or other material that was used as a seton stitch.



Spur straps on an English "Prince of Wales" spur

### 9.3 History

The spur was used by the Celts during the La Tène period (which began in the 5th century BC), and is also mentioned by Xenophon (c. 430 - 354 BC.)<sup>[2][3]</sup> Iron or bronze spurs were also used throughout the Roman Empire.<sup>[4]</sup> The spur also existed in the medieval Arab world.<sup>[5]</sup> Early spurs had a neck that ended in a point, called a prick, riveted to the heel band. Prick spurs had straight necks in the 11th century and bent ones in the 12th. The earliest form of the horseman's spur armed the heel with a single prick. In England, the rowel spur is shown upon the first seal of Henry III and on monuments of the 13th century, but it does not come into general use until the 14th century. The earliest rowels probably did not revolve but were fixed.

The spurs of medieval knights were gilt and those of squires were silvered. "To win his spurs" meant to gain knighthood, as gilded spurs were reckoned the badge of knighthood. In the rare cases of ceremonious degradation, the spurs were hacked from the disgraced knight's heels with the cook's chopper. After the battle of the Golden Spurs in 1302, where the French chivalry suffered a humbling defeat, the victors hung up bushels of knights' gilt spurs in the churches of Kortrijk as trophies of what is still remembered by the Flemings as the *Guldensporenslag* (the battle of the golden spurs). The English named the French rout from Théroouanne as the Battle of the Spurs, due to the rapidity of the French cavalry's flight.

Prick spurs were the standard form until the 14th century, when the rowel began to become more common. The prick design never died out entirely, but instead became a thicker, shorter neck with a dulled end, such as the modern "Prince of Wales" design commonly seen in English riding.

Though often decorated throughout history, in the 15th century, spurs became an art form in both decoration and design, with elaborate engraving, very long shanks and large rowels. Though sometimes it has been claimed that the design changes were used because of *barding*, the use of *barding* had fallen out of fashion by the time the most elaborate spur designs were created. More likely, the elaborate designs reflected the increased abundance of precious metals, particularly silver, that followed the European exploration of the Americas that began in 1492. Spur designs in Spain and colonial Mexico were particularly elaborate. For example, the spurs of the Spanish Conquistadors were sometimes called *Espuela Grande*, the "Grand Spur," and could have rowels as large as six inches around.<sup>[6]</sup>



*Western spur rowel with jingo bobs*



*An iron prick-spur (13th–14th century) and an iron spur with eight-pointed rowel (15th century)*

In northern Europe, the spur became less elaborate after the 16th century, particularly following the Stuart Restoration, but elaborate spur designs persisted, particularly in the Americas, descendants of which are still seen today,



*Boot with spur, 19th century*

particularly in **Mexico** and the western **United States**, where the spur has become an integral part of the **vaquero** and **cowboy** traditions. The spur as an art form as well as a tool is still seen in **western riding**, where spurs with engraving and other artistic elements, often handmade and utilizing **silver** or other precious metals are still worn.

Collecting of particularly beautiful **antique** spurs is a popular pastime for some individuals, particularly aficionados of western history and cowboy culture.

### 9.3.1 Spurs as modern honours

Just as a **medieval knight** was said to have “earned his spurs,” the awarding of spurs has continued in the modern era as an honour bestowed upon individuals in organizations with military heritages, and among motorcycle riders. Members of the **Papal Orders of Knighthood** receive gilt spurs directly from the hands of the **Pope**; members of the **British Order of the Garter** similarly receive gilt spurs from the **Monarch**. Inductees into the **American Order of the Spur** receive gold-coloured (usually brass) spurs if they have earned their membership through combat, or silver-coloured (usually nickel) spurs if they have not seen combat, but complete a **rite of passage**.

## 9.4 Basic designs and wear

Spurs are worn with the tip of the neck pointed downward, sitting on the spur rest of the **riding boot**, if there is one, with the buckle of the spur strap worn on the outside of the foot.

Spur styles differ between disciplines. Spurs for **western riding** tend to be heavier, often decorated, and have rowels that rotate. The neck of western spurs is usually longer and the rowel wide in diameter, to accommodate the leg position of the **Western-style rider**, where the **stirrup** is adjusted long, and the heavy leather used for the **saddle's fenders** and **stirrups** places the rider's leg a bit farther from the horse.

Spurs in **English riding** tend to be very sleek, slim and conservative in design, with a shorter neck, as the saddle and leg position is closer to the horse. They usually have a rounded or blunt end. Rowels are not as popular as the plain blunt end, although there are types that include a rowel or smooth disk on the end. When used in sports requiring finesse, such as **dressage**, the spur's purpose is not to speed up a horse, but to give accurate and precise aids in lateral



*English riding spur*

and complex movements, such as pirouettes, *travers* and *renvers*, and the airs above the ground. Dressage riders tend to ride in “Waterford” style spurs with a rounded knob at the end. Conversely, show hunter and jumper riders may use a flatter end to encourage forward movement, such as the Prince of Wales design.



*Motorcycle Spurs from Loop Spurs*

Another type of modern spur is those used on motorcycles. They are characterized by rowels worn as foot jewelry, hung off of boots. They can be similar in appearance to spurs worn by equestrians. Their bright material attracts motor vehicle drivers to the presence of motorcyclists, especially to their feet where riders are most vulnerable when stopped in traffic. Their owners may further customize them by adding miniature strobing LED lights. They help traffic light sensors detect their presence in intersections where inductive loops are used. They are also awarded by motorcycle clubs.

## 9.5 Equestrian riding technique

The spur is a refined tool, designed to allow the rider to transmit very subtle signals to the horse that are nearly invisible to any other observer. No matter the discipline, it is important that a rider has a correct position before using spurs, with a deep seat, legs lengthened to the extent allowed by the stirrups, heels down, with knees and thighs rolled in so that the rider has a solid base of support. A swinging or unstable leg may inadvertently jab the horse with the spur as the rider sits, thus irritating, distracting, or frightening the animal, and chronic misuse may deaden the horse to the leg aids. Improper use may also provoke dangerous or undesirable behaviors such as bucking or running away.

Spurs are rarely used in sports such as horse racing, where the rider's leg is not significantly in contact with the horse. Most spurs are activated by the rider flexing the heel slightly up and in. A roweled spur permits an additional type



of action; a rider can roll the spur lightly against the side of the horse rather than being limited to simply pressing inward.

### 9.5.1 Rodeo spurring



*A pair of barrel racing spurs with unique non-rowel design*

The exception to the use of spurs in a subtle fashion is in the rodeo events of bull riding, saddle bronc and bareback riding, where the rider is required to spur in an elaborate, stylized fashion, touching the horse or bull at every stride. This requirement is designed to resemble the behavior of old-time horse-breakers who would deliberately provoke a horse to buck. In modern times, riders are required to use spurs in a manner that is merely encouraging an animal that is already predisposed to buck; they are not to produce pain. Spur design and use is strictly defined by rodeo rules, spurs are dull and rowels must turn freely. In fact, the way spurs are to be used in bucking events generally makes it harder for the rider to stay on: in bareback bronc competition, the spurs must be above the point of the horse's shoulder at the first jump and remain forward at all times, deliberately creating a very awkward position for the rider that requires both strength and coordination to stay on the horse. In saddle bronc competition, the rider must make a full sweep with the spurs from shoulder to flank with each jump, requiring great concentration and any error in balance putting the rider in a position to be quickly unseated. Bull riders are allowed a position that is the closest to that of classic equestrianism, they are not required to spur the bull, but if they choose to spur, may do so with their legs down in a style that resembles a normal riding position.

## 9.6 Types

Spurs are divided into Men's, Women's, and Children's, according to width (which must fit on the heel of the rider's boot). Spurs are further divided according to the length of the neck, with  $\frac{1}{4}$  in (0.6 cm) being relatively small (and a common size in children's spurs), with some being 2–3 in (5–7.5 cm) long. Many competition rules limit the length of the neck.

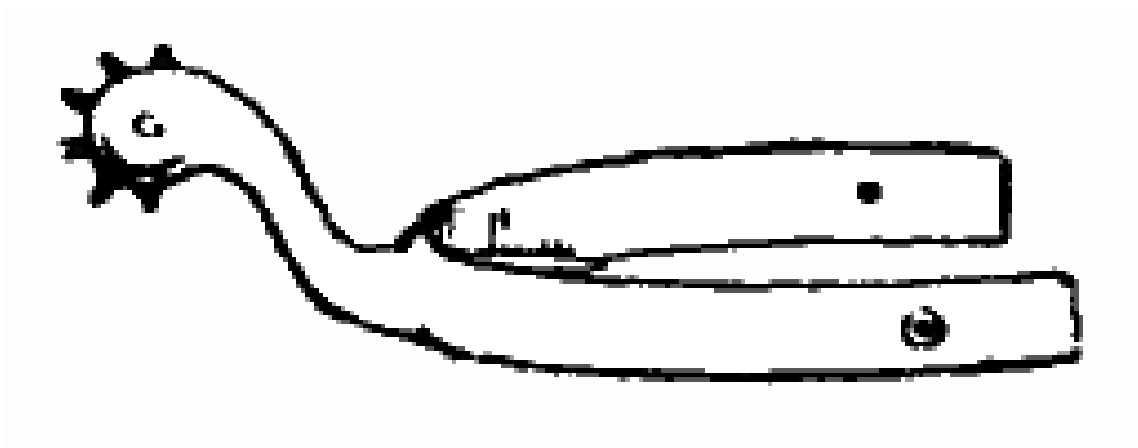


*Prince of Wales*

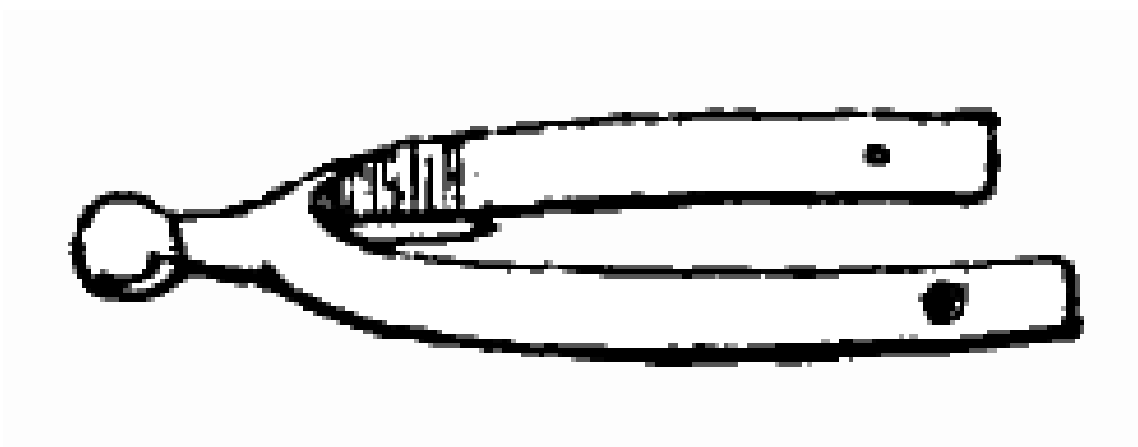


*Disk*

- Round end: end is a metal ball about the size of a small marble, making it one of the milder spurs.
- Knob end: end of the spur is squared off but blunted at the edges.
- Prince of Wales: has a flat end, making it slightly sharper. This is a popular spur.
- Rowelled spur: the end of the spur has a toothed wheel which spins. This is the most common western-style spur, although it is seen on some English-style spurs. Teeth are dulled at the points. A rowel with many small teeth is milder than one with only a few, larger teeth. Most rowels have at least eight teeth on each wheel. Other variations, more common in English riding, include:



*Swan neck, rowels*



*Waterford spur*

- Disc: the end has a small rowel-like rolling disc without teeth, which allows the spur to roll on the horse's side when applied, decreasing chance of spur marks. Popular in dressage. Severity depends on thickness of disc.
- Roller spur: end of the neck has a plastic "roller," which moves as the horse's side is touched. This spur tends to reduce spur-rubs on sensitive horses. It is considered very mild.
- Swan-neck: the neck of the spur goes upward at an angle, before leveling off, looking similar to the neck of a swan. This is commonly seen in dressage.
- Waterford: the end of the neck has a large, round metal ball, making the spur softer and less likely to cause spur rubs.
- Le spur (English) or Barrel Racing Spur (Western): a spur with small "teeth" or ridges on the inside of the heel band, instead of a neck. For use, the rider does not have to turn in the heel. A quicker and more subtle design, but also more apt to be accidentally used when not intended.
- Half Mounted: The spur is decorated on one side only with silver, copper or bronze decals, logos or coverings.
- Full or Double Mounted: The spur is decorated on both sides (in and out) with precious metals, images and designs.

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# Chapter 10

## Girth (tack)

A **girth**, sometimes called a **cinch** (Western riding), is a piece of equipment used to keep the saddle in place on a horse or other animal. It passes under the barrel of the equine, usually attached to the saddle on both sides by two or three leather straps called billets. Girths are used on Australian and English saddles, while western saddles and many pack saddles have a cinch, which is fastened to the saddle by a single wide leather strap on each side, called a *latigo*.<sup>[1]</sup>

Although a girth is often enough to keep a well-fitting saddle in place, other pieces of equipment are also used in jumping or speed sports such as polo, eventing, show jumping, and fox hunting; or on rough terrain such as trail riding. These include breastplates, overgirths, cruppers, and, on pack saddles, breeching.

Studies have shown that, although girths may restrict the movement of the ribcage in the horse, they have no effect on the horse's ability to take in air.

### 10.1 Types of Girths

Several types of girth are shaped to allow ample room for the elbows. The **Balding** style is a flat piece of leather cut into three strips which are crossed and folded in the center, and the **Atherstone** style is a shaped piece of baghide with a roughly 1.5" wide strip of stronger leather running along the center. A variation on this is the **overlay** girth, in which the piece of leather in the center is the same curved shape as the girth. This overlay is often stitched in a decorative design.

Unshaped girths are commonly made of flat, heavy cotton, or padded cotton with nylon webbing reinforcement, or out of leather as in the **tri-fold** or **threefold** girth, popular among sidesaddle riders and traditional foxhunters.

Fleece girth covers are often used on sensitive horses to protect the barrel of the horse, and some styles of girth come with attached or removable sheepskin liners that perform the same function.

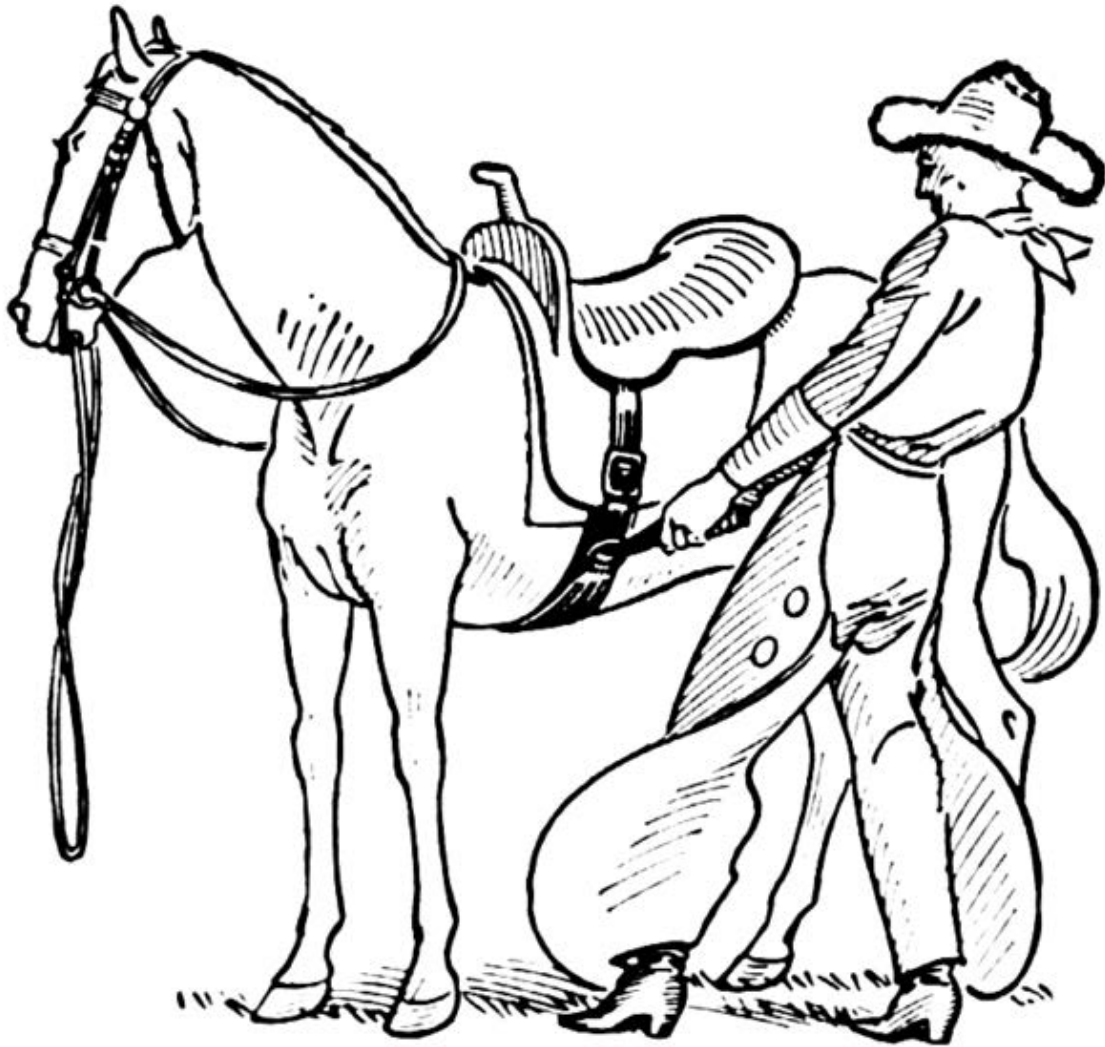
A **dressage girth**, or Lonsdale girth, is shorter than the usual girths used on other saddles. This is because the dressage saddle has longer billets, to keep the buckles out from under the rider's leg, and so a shorter girth may be used. Dressage girths can be made of all the materials, and in all the styles, mentioned before, and also can be made entirely of very strong elastic.

An **overgirth** or **surcingle** is often used in addition to a regular leather girth. Made of leather or nylon with an elastic insert (for racing), the overgirth completely encircles the horse around belly and the saddle's seat. It is used by stockmen, eventers, polo players, in flat racing, and by steeplechase jockeys to provide more security in holding the saddle in place.

Some girths (those used on jumpers and eventers) have a **belly guard** (or stud guard), to protect the belly from being stabbed by horseshoe studs as the animal tucks his legs up underneath him over a tall obstacle.



*A girth on a Chilean saddle*



*Tightening the girth, or cinch, of a western saddle.*

## 10.2 Western cinches

The traditional western cinch was made of multiple strands of heavy cords, usually made of mohair, or, in cheaper designs, cotton. Modern designs are also made of synthetic fiber or a synthetic-mohair blend. The number of cords used varies with width and design, but the standard range is from 17 to 30 strands, creating an end product that is 4 to 7 inches wide at the widest point in the center of the cinch. This design is sometimes known as a “string”, “strand,” “cord” or “rope” cinch. Each cord is knotted around a large ring, called a cinch ring, placed at either end. In the center, additional cording or very heavy thread is used to gather all the cords into a set width and make the cinch lie flat. Wider cinches are narrowed to fit the cinch ring by allowing two layers of cord to form at the ring, sometimes aided by decorative weaving that stabilizes the cords.

Cinches are also made of more solid materials. One of the first non-traditional designs incorporated 1/2” thick felt backed by nylon webbing on the side away from the horse. Other materials, such as neoprene, also supported internally or on one side by heavy web or nylon or a similar synthetic material, are also used. Cinches are sometimes covered with a sleeve or covering made of fleece, usually synthetic. Fleece is also sometimes used to line the inside of a cinch.

The cinch attaches to the saddle by means of a latigo on either side. The latigo is a wide, flexible strap, usually of leather, though nylon webbing is also seen. The latigo is attached to the off (right) side of the saddle at the saddle’s cinch ring or “dee ring”, doubled in thickness and knotted or buckled to the cinch, usually kept attached to both cinch and saddle at all times, except to make fitting adjustments. The latigo on the near (left) side is attached to the saddle at all times, but the loose end is used to secure the saddle for riding by running it through the left cinch ring one or more times, back through the saddle’s dee ring, and then finally buckled or knotted when tight. It is loosened and



*A black overgirth or surcingle is on this horse, wrapping over the saddle.*

removed from the cinch to take off the saddle.

### 10.3 Fitting the Girth

A girth should first and foremost spread pressure evenly over the entire area. If it is too narrow, or if it has a narrow reinforcing strip down its center, it may cause discomfort. It is also best if it has some “give” to it, which makes it more comfortable for the horse. Many riders also choose a girth that allows for extra elbow room, so the horse is not restricted as his leg moves backward.

To measure for a girth, the saddle with a pad should be placed on the horse. A measuring tape is then used to measure from the middle hole of the billet on one side, under the horse’s belly, to the middle billet on the other side.

If a girth is slightly too small, a **girth extender** may be used. A girth extender attaches to the billets of the saddle and lengthens them, so that a shorter girth may be used.

### 10.4 Use of the billets

Most jumping saddles have three billets. This not only allows the rider a spare should one break, but can also provide an adjustment option. For horses on which the saddle sits nicely, neither slipping forward or back, the first and third billets should be used. On horses where the saddle slips back, the first and second billets should be used.

The second and third should never be used together, as they are attached to a single piece of webbing to the saddle’s tree. Since the first billet is attached to a separate piece of webbing, you can safely combine its use with either of the other two billets.

There are other girthing systems available such as the Adjustable Y system or a similar girthing system. These also provide an adjustment option and have a front girth strap which is connected to the saddle tree point, and a rear girth strap giving it a Y shape and stability.





*This horse has a belly guard, to protect himself from hitting his belly with his front feet while folding over a fence.*

## **10.5 See also**

- Saddle
- Saddle sores

## **10.6 References**

- [1] Moniteau Saddle Club Retrieved on 17 March 2009

## Chapter 11

# Surcingle



*A show horse wearing a surcingle.*

A **surcingle** is a strap made of leather or leather-like synthetic materials such as nylon or neoprene, sometimes with elastic, that fastens around a horse's girth area. A surcingle may be used for ground training, some types of in-hand exhibition, and over a saddle or horse pack to stabilize the load. It also is a primary component of a horse harness.

A basic surcingle is unpadded, attaches around the horse by means of buckles or rings, and has no other hardware. A training surcingle, sometimes called a "roller," has many extra rings attached, running from the ribcage up to the withers area. It usually has padding to relieve pressure on the spine. A variation of this design is used for equestrian vaulting.



*A simple surcingle over a horse racing saddle*

## 11.1 Uses

Many trainers first teach a young horse to accept girth pressure by strapping on a surcingle before a saddle and girth. The surcingle is commonly used for longeing, often as a base from which to attach training equipment such as side reins, overcheck, lauffer reins (sliding side reins), or chambons. A surcingle is also important in long lining or ground driving, as it provides rings for the long reins to run through. Double longeing, using two longe lines, requires the use of a surcingle to thread the longe lines through the rings.<sup>[1]</sup>

Compared to a saddle, a surcingle allows more precise adjustment of side reins due to the placement of additional rings. While a saddle only provides one height to attach the rings (the girth buckles), and can be uneven or at the wrong position, a training surcingle places rings at more appropriate locations for ground work. Many surcingle designs allow the side reins to be attached at several different heights along the sides of the horse.

## 11.2 Placement

When used without a saddle, a surcingle sits just behind the withers. When used with a saddle, the surcingle runs over the seat near the pommel. A surcingle is also used over the top of certain types of pack saddle and pack to keep the pack bags and swag in place. A surcingle is usually used with a pad, and fit to the horse's back as carefully as a saddle would be. It is tightened enough to prevent slipping, more when used with a saddle and rider, less when used for ground training.

## 11.3 See also

- Longeing
- Horse harness
- Bitting rig



*Detail of a training surcingle or "roller"*

## 11.4 References

- [1] Price *The Whole Horse Catalog* 2nd ed. p. 194-195



*A surcingle (or roller) used for equestrian vaulting.*

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- Price, Steven D. (ed.) *The Whole Horse Catalog: Revised and Updated* New York: Fireside 1998 ISBN 0-684-83995-4

## Chapter 12

# Horses in warfare

“War horse” redirects here. For other uses, see [War Horse \(disambiguation\)](#).

The first use of **horses in warfare** occurred over 5,000 years ago. The earliest evidence of horses ridden in warfare dates from [Eurasia](#) between 4000 and 3000 BC. A Sumerian illustration of warfare from 2500 BC depicts some type of [equine](#) pulling wagons. By 1600 BC, improved [harness](#) and [chariot](#) designs made chariot warfare common throughout the [Ancient Near East](#), and the earliest written training manual for war horses was a guide for training chariot horses written about 1350 BC. As formal [cavalry](#) tactics replaced the chariot, so did new training methods, and by 360 BC, the Greek cavalry officer [Xenophon](#) had written an extensive treatise on horsemanship. The effectiveness of horses in battle was also revolutionized by improvements in [technology](#), including the invention of the [saddle](#), the [stirrup](#), and later, the [horse collar](#).

Many different types and sizes of horse were used in war, depending on the form of warfare. The type used varied with whether the horse was being ridden or driven, and whether they were being used for [reconnaissance](#), [cavalry charges](#), [raiding](#), [communication](#), or [supply](#). Throughout history, [mules](#) and [donkeys](#) as well as horses played a crucial role in providing support to armies in the field.

Horses were well suited to the warfare tactics of the [nomadic cultures](#) from the [steppes](#) of [Central Asia](#). Several [East Asian](#) cultures made extensive use of [cavalry](#) and [chariots](#). [Muslim warriors](#) relied upon [light cavalry](#) in their campaigns throughout [North Africa](#), [Asia](#), and [Europe](#) beginning in the 7th and 8th centuries AD. Europeans used several types of war horses in the [Middle Ages](#), and the best-known [heavy cavalry](#) warrior of the period was the [armored knight](#). With the decline of the knight and rise of [gunpowder](#) in warfare, [light cavalry](#) again rose to prominence, used in both [European warfare](#) and in the conquest of the [Americas](#). [Battle cavalry](#) developed to take on a multitude of roles in the late 18th century and early 19th century and was often crucial for victory in the [Napoleonic wars](#). In the [Americas](#), the use of horses and development of mounted warfare tactics were learned by several tribes of [indigenous people](#) and in turn, highly mobile horse regiments were critical in the [American Civil War](#).

Horse cavalry began to be phased out after [World War I](#) in favor of [tank warfare](#), though a few horse cavalry units were still used into [World War II](#), especially as [scouts](#). By the end of [World War II](#), horses were seldom seen in battle, but were still used extensively for the transport of troops and supplies. Today, formal battle ready horse cavalry units have almost disappeared. [United States Army Special Forces](#) used horses in battle during the 2001 [invasion of Afghanistan](#),<sup>[1][2]</sup> and the [United States Marine Corps](#) has since begun new horseback training programs for [Special Forces](#).<sup>[3]</sup> Horses are still seen in use by organized armed fighters in [Third World](#) countries. Many nations still maintain small units of mounted riders for [patrol](#) and [reconnaissance](#), and military horse units are also used for [ceremonial](#) and [educational](#) purposes. Horses are also used for [historical reenactment](#) of battles, [law enforcement](#), and in [equestrian competitions](#) derived from the [riding](#) and [training skills](#) once used by the military.

### 12.1 Types of horse used in warfare

A fundamental principle of [equine conformation](#) is “form to function”. Therefore, the type of horse used for various forms of warfare depended on the work performed, the weight a horse needed to carry or pull, and distance travelled.<sup>[4]</sup> Weight affects speed and endurance, creating a trade-off: [armour](#) added protection,<sup>[5]</sup> but added weight reduces maximum speed.<sup>[6]</sup> Therefore, various cultures had different military needs. In some situations, one primary type



*Scotland Forever!* depicting the charge of the Royal Scots Greys at the Battle of Waterloo.

of horse was favoured over all others.<sup>[7]</sup> In other places, multiple types were needed; warriors would travel to battle riding a lighter horse of greater speed and endurance, and then switch to a heavier horse, with greater weight-carrying capacity, when wearing heavy armour in actual combat.<sup>[8]</sup>

The average horse can carry up to approximately 30% of its body weight.<sup>[9]</sup> While all horses can pull more than they can carry, the weight horses can pull varies widely, depending on the build of the horse, the type of vehicle, road conditions, and other factors.<sup>[10][11][12]</sup> Horses harnessed to a wheeled vehicle on a paved road can pull as much as eight times their weight,<sup>[13]</sup> but far less if pulling wheelless loads over unpaved terrain.<sup>[14][15]</sup> Thus, horses that were driven varied in size and had to make a trade-off between speed and weight, just as did riding animals. Light horses could pull a small war chariot at speed.<sup>[16]</sup> Heavy supply wagons, artillery, and support vehicles were pulled by heavier horses or a larger number of horses.<sup>[17]</sup> The method by which a horse was hitched to a vehicle also mattered: horses could pull greater weight with a horse collar than they could with a breast collar, and even less with an ox yoke.<sup>[18]</sup>

### 12.1.1 Light-weight



*Hussars were a light type of cavalry between the 15th and 19th century. Here, French hussars during the Napoleonic Wars.*

Light, oriental horses such as the ancestors of the modern Arabian, Barb, and Akhal-Teke were used for warfare that required speed, endurance and agility.<sup>[19]</sup> Such horses ranged from about 12 hands (48 inches, 122 cm) to just under 15 hands (60 inches, 152 cm), weighing approximately 800 to 1,000 pounds (360 to 450 kg).<sup>[20]</sup> To move quickly, riders had to use lightweight tack and carry relatively light weapons such as bows, light spears, javelins, or, later, rifles. This was the original horse used for early chariot warfare, raiding, and light cavalry.<sup>[21]</sup>

Relatively light horses were used by many cultures, including the Ancient Egyptians,<sup>[22]</sup> the Mongols, the Arabs,<sup>[23]</sup> and the Native Americans. Throughout the Ancient Near East, small, light animals were used to pull chariots designed to carry no more than two passengers, a driver and a warrior.<sup>[24][25]</sup> In the European Middle Ages, a lightweight war horse became known as the rouncey.<sup>[26]</sup>



### 12.1.2 Medium-weight



*Arriving Japanese samurai prepares to man the fortification against invaders of the Mongol invasions of Japan, painted c. 1293 AD. By this time, a medium-weight horse was used.*

Medium-weight horses developed as early as the Iron Age with the needs of various civilizations to pull heavier loads, such as chariots capable of holding more than two people,<sup>[25]</sup> and, as light cavalry evolved into heavy cavalry, to carry heavily armored riders.<sup>[27]</sup> The Scythians were among the earliest cultures to produce taller, heavier horses.<sup>[28]</sup> Larger horses were also needed to pull supply wagons and, later on, artillery pieces. In Europe, horses were also used to a limited extent to maneuver cannons on the battlefield as part of dedicated horse artillery units. Medium-weight horses had the greatest range in size, from about 14.2 hands (58 inches, 147 cm) but stocky,<sup>[27][29]</sup> to as much as 16 hands (64 inches, 163 cm),<sup>[30]</sup> weighing approximately 1,000 to 1,200 pounds (450 to 540 kg). They generally were quite agile in combat,<sup>[31]</sup> though they did not have the raw speed or endurance of a lighter horse. By the Middle Ages, larger horses in this class were sometimes called destriers. They may have resembled modern Baroque or heavy warmblood breeds.<sup>[note 1]</sup> Later, horses similar to the modern warmblood often carried European cavalry.<sup>[33]</sup>

### 12.1.3 Heavy-weight

Large, heavy horses, weighing from 1,500 to 2,000 pounds (680 to 910 kg), the ancestors of today's draught horses, were used, particularly in Europe, from the Middle Ages onward. They pulled heavy loads, having the power to pull weapons or supply wagons and disposition to remain calm under fire. Some historians believe they may have carried the heaviest-armoured knights of the European Late Middle Ages though others dispute this claim, indicating that the destrier, or knight's battle horse, was a medium-weight animal. It is also disputed whether the destrier class included draught animals or not.<sup>[34]</sup> Breeds at the smaller end of the heavyweight category may have included the ancestors of the Percheron, agile for their size and physically able to manoeuvre in battle.<sup>[35]</sup>

### 12.1.4 Ponies

The British Army's 2nd Dragoons in 1813 had 340 ponies of 14.2 hands (58 inches, 147 cm) and 55 ponies of 14 hands (56 inches, 142 cm);<sup>[36]</sup> the Lovat Scouts, formed in 1899, were mounted on Highland ponies;<sup>[37]</sup> the British Army recruited 200 Dales ponies in World War II for use as pack and artillery animals;<sup>[38]</sup> and the British Territorial Army experimented with the use of Dartmoor ponies as pack animals in 1935, finding them to be better than mules for the job.<sup>[39]</sup>

### 12.1.5 Other equids

Horses were not the only equids used to support human warfare. Donkeys have been used as pack animals from antiquity<sup>[40]</sup> to the present.<sup>[41]</sup> Mules were also commonly used, especially as pack animals and to pull wagons, but also occasionally for riding.<sup>[42]</sup> Because mules are often both calmer and hardier than horses,<sup>[43]</sup> they were particularly useful for strenuous support tasks, such as hauling supplies over difficult terrain. However, under gunfire, they were

less cooperative than horses, so were generally not used to haul artillery on battlefields.<sup>[11]</sup> The size of a mule and work to which it was put depended largely on the breeding of the mare that produced the mule. Mules could be lightweight, medium weight, or even, when produced from draught horse mares, of moderate heavy weight.<sup>[44]</sup>

## 12.2 Training and deployment

*See also Horse training*

The oldest known manual on training horses for chariot warfare was written c. 1350 BC by the Hittite horsemaster, Kikkuli.<sup>[45]</sup> An ancient manual on the subject of training riding horses, particularly for the Ancient Greek cavalry is *Hippike (On Horsemanship)* written about 360 BC by the Greek cavalry officer Xenophon.<sup>[46]</sup> One of the earliest texts from Asia was that of Kautilya, written about 323 BC.<sup>[45]</sup>

Whether horses were trained to pull chariots, to be ridden as light or heavy cavalry, or to carry the armoured knight, much training was required to overcome the horse's natural instinct to flee from noise, the smell of blood, and the confusion of combat. They also learned to accept any sudden or unusual movements of humans while using a weapon or avoiding one.<sup>[47]</sup> Horses used in close combat may have been taught, or at least permitted, to kick, strike, and even bite, thus becoming weapons themselves for the warriors they carried.<sup>[48]</sup>

In most cultures, a war horse used as a riding animal was trained to be controlled with limited use of reins, responding primarily to the rider's legs and weight.<sup>[49]</sup> The horse became accustomed to any necessary tack and protective armour placed upon it, and learned to balance under a rider who would also be laden with weapons and armour.<sup>[47]</sup> Developing the balance and agility of the horse was crucial. The origins of the discipline of dressage came from the need to train horses to be both obedient and manoeuvrable.<sup>[33]</sup> The *Haute école* or "High School" movements of classical dressage taught today at the Spanish Riding School have their roots in manoeuvres designed for the battlefield. However, the *airs above the ground* were unlikely to have been used in actual combat, as most would have exposed the unprotected underbelly of the horse to the weapons of foot soldiers.<sup>[50]</sup>

Horses used for chariot warfare were not only trained for combat conditions, but because many chariots were pulled by a team of two to four horses, they also had to learn to work together with other animals in close quarters under chaotic conditions.<sup>[51]</sup>

## 12.3 Technological innovations

Horses were probably ridden in prehistory before they were driven. However, evidence is scant, mostly simple images of human figures on horse-like animals drawn on rock or clay.<sup>[52][53]</sup> The earliest tools used to control horses were bridles of various sorts, which were invented nearly as soon as the horse was domesticated.<sup>[54]</sup> Evidence of bit wear appears on the teeth of horses excavated at the archaeology sites of the Botai culture in northern Kazakhstan, dated 3500–3000 BC.<sup>[55]</sup>

### 12.3.1 Harness and vehicles

The invention of the wheel was a major technological innovation that gave rise to chariot warfare. At first, equines, both horses and onagers, were hitched to wheeled carts by means of a yoke around their necks in a manner similar to that of oxen.<sup>[56]</sup> However, such a design is incompatible with equine anatomy, limiting both the strength and mobility of the animal. By the time of the Hyksos invasions of Egypt, c. 1600 BC, horses were pulling chariots with an improved harness design that made use of a breastcollar and breeching, which allowed a horse to move faster and pull more weight.<sup>[57]</sup>

Even after the chariot had become obsolete as a tool of war, there still was a need for technological innovations in pulling technologies; horses were needed to pull heavy loads of supplies and weapons. The invention of the horse collar in China during the 5th century AD (Southern and Northern Dynasties) allowed horses to pull greater weight than they could when hitched to a vehicle with the ox yokes or breast collars used in earlier times.<sup>[58]</sup> The horse collar arrived in Europe during the 9th century,<sup>[59]</sup> and became widespread by the 12th century.<sup>[60]</sup>



*Chariots and archers were weapons of war in Ancient Egypt.*

### 12.3.2 Riding equipment

Main articles: Saddle and Stirrup

Two major innovations that revolutionised the effectiveness of mounted warriors in battle were the saddle and the stirrup.<sup>[61]</sup> Riders quickly learned to pad their horse's backs to protect themselves from the horse's spine and withers, and fought on horseback for centuries with little more than a blanket or pad on the horse's back and a rudimentary bridle. To help distribute the rider's weight and protect the horse's back, some cultures created stuffed padding that resembles the panels of today's English saddle.<sup>[62]</sup> Both the Scythians and Assyrians used pads with added felt attached with a surcingle or girth around the horse's barrel for increased security and comfort.<sup>[63]</sup> Xenophon mentioned the use of a padded cloth on cavalry mounts as early as the 4th century BC.<sup>[46]</sup>

The saddle with a solid framework, or "tree", provided a bearing surface to protect the horse from the weight of the rider, but was not widespread until the 2nd century AD.<sup>[46]</sup> However, it made a critical difference, as horses could carry more weight when distributed across a solid saddle tree. A solid tree, the predecessor of today's Western saddle, also allowed a more built-up seat to give the rider greater security in the saddle. The Romans are credited with the invention of the solid-treed saddle.<sup>[64]</sup>

An invention that made cavalry particularly effective was the stirrup. A toe loop that held the big toe was used in India possibly as early as 500 BC,<sup>[65]</sup> and later a single stirrup was used as a mounting aid. The first set of paired stirrups appeared in China about 322 AD during the Jin Dynasty.<sup>[66][67]</sup> Following the invention of paired stirrups, which allowed a rider greater leverage with weapons, as well as both increased stability and mobility while mounted, nomadic groups such as the Mongols adopted this technology and developed a decisive military advantage.<sup>[65]</sup> By the 7th century, due primarily to invaders from Central Asia, stirrup technology spread from Asia to Europe.<sup>[68]</sup> The Avar invaders are viewed as primarily responsible for spreading the use of the stirrup into central Europe.<sup>[69][70]</sup> However, while stirrups were known in Europe in the 8th century, pictorial and literary references to their use date only from the 9th century.<sup>[71]</sup> Widespread use in Northern Europe, including England, is credited to the Vikings, who spread the stirrup in the 9th and 10th centuries to those areas.<sup>[71][72][73]</sup>



*Haniwa horse statuette, complete with saddle and stirrups, 6th century, Kofun period, Japan. Tokyo National Museum*



*The "War Panel" of the Standard of Ur*

## 12.4 Tactics

The first archaeological evidence of horses used in warfare dates from between 4000 and 3000 BC in the steppes of Eurasia, in what today is Ukraine, Hungary, and Romania. Not long after domestication of the horse, people in these locations began to live together in large fortified towns for protection from the threat of horseback-riding raiders,<sup>[64]</sup> who could attack and escape faster than people of more sedentary cultures could follow.<sup>[74][75]</sup> Horse-mounted nomads of the steppe and current day Eastern Europe spread Indo-European Languages as they conquered other tribes and groups.<sup>[76]</sup>

The use of horses in organised warfare was also documented early in recorded history. One of the first depictions of equids is the “war panel” of the Standard of Ur, in Sumer, dated c. 2500 BC, showing horses (or possibly onagers or mules) pulling a four-wheeled wagon.<sup>[56]</sup>

### 12.4.1 Chariot warfare

See also: [Chariot and Chariot tactics](#)

Among the earliest evidence of chariot use are the burials of horse and chariot remains by the Andronovo (Sintashta-Petrovka) culture in modern Russia and Kazakhstan, dated to approximately 2000 BC.<sup>[77]</sup> The oldest documentary evidence of what was probably chariot warfare in the Ancient Near East is the Old Hittite Anitta text, of the 18th century BC, which mentioned 40 teams of horses at the siege of Salatiwara.<sup>[78]</sup> The Hittites became well known throughout the ancient world for their prowess with the chariot. Widespread use of the chariot in warfare across most of Eurasia coincides approximately with the development of the composite bow, known from c. 1600 BC. Further improvements in wheels and axles, as well as innovations in weaponry, soon resulted in chariots being driven in battle by Bronze Age societies from China to Egypt.<sup>[55]</sup>

The Hyksos invaders brought the chariot to Ancient Egypt in the 16th century BC and the Egyptians adopted its use from that time forward.<sup>[79][80][81]</sup> The oldest preserved text related to the handling of war horses in the ancient world is the Hittite manual of Kikkuli, which dates to about 1350 BC, and describes the conditioning of chariot horses.<sup>[45][82]</sup>

Chariots existed in the Minoan civilization, as they were inventoried on storage lists from Knossos in Crete,<sup>[83]</sup> dating to around 1450 BC.<sup>[84]</sup> Chariots were also used in China as far back as the Shang Dynasty (c. 1600–1050 BC), where they appear in burials. The high point of chariot use in China was in the Spring and Autumn Period (770–476 BC), although they continued in use up until the 2nd century BC.<sup>[85]</sup>

Descriptions of the tactical role of chariots in Ancient Greece and Rome are rare. The Iliad, possibly referring to Mycenaean practices used c. 1250 BC, describes the use of chariots for transporting warriors to and from battle, rather than for actual fighting.<sup>[83][86]</sup> Later, Julius Caesar, invading Britain in 55 and 54 BC, noted British charioteers throwing javelins, then leaving their chariots to fight on foot.<sup>[87][88]</sup>

### 12.4.2 Cavalry

See also: [Cavalry and Cavalry tactics](#)

Some of the earliest examples of horses being ridden in warfare were horse-mounted archers or spear-throwers, dating to the reigns of the Assyrian rulers Ashurnasirpal II and Shalmaneser III.<sup>[53]</sup> However, these riders sat far back on their horses, a precarious position for moving quickly, and the horses were held by a handler on the ground, keeping the archer free to use the bow. Thus, these archers were more a type of mounted infantry than true cavalry.<sup>[46]</sup> The Assyrians developed cavalry in response to invasions by nomadic people from the north, such as the Cimmerians, who entered Asia Minor in the 8th century BC and took over parts of Urartu during the reign of Sargon II, approximately 721 BC.<sup>[89]</sup> Mounted warriors such as the Scythians also had an influence on the region in the 7th century BC.<sup>[63]</sup> By the reign of Ashurbanipal in 669 BC, the Assyrians had learned to sit forward on their horses in the classic riding position still seen today and could be said to be true light cavalry.<sup>[46]</sup> The ancient Greeks used both light horse scouts and heavy cavalry,<sup>[46][53]</sup> although not extensively, possibly due to the cost of keeping horses.<sup>[83]</sup>

Heavy cavalry was believed to have been developed by the Ancient Persians,<sup>[53]</sup> although others argue for the Sarmatians.<sup>[90]</sup> By the time of Darius (558–486 BC), Persian military tactics required horses and riders that were completely armoured, and selectively bred a heavier, more muscled horse to carry the additional weight.<sup>[27]</sup> The cataphract was a type of heavily armored cavalry with distinct tactics, armour, and weaponry used from the time of the Persians up until the Middle Ages.<sup>[91]</sup>



*Depiction of a Sassanian Persian Cataphract from Taq-e\_Bostan*

In Ancient Greece, Phillip of Macedon is credited with developing tactics allowing massed cavalry charges.<sup>[92]</sup> The most famous Greek heavy cavalry units were the companion cavalry of Alexander the Great.<sup>[93]</sup> The Chinese of the

4th century BC during the **Warring States** period (403–221 BC) began to use cavalry against rival states.<sup>[94]</sup> To fight nomadic raiders from the north and west, the Chinese of the **Han Dynasty** (202 BC – 220 AD) developed effective mounted units.<sup>[95]</sup> Cavalry was not used extensively by the **Romans** during the **Roman Republic** period, but by the time of the **Roman Empire**, they made use of heavy cavalry.<sup>[96][97]</sup> However, the backbone of the Roman army was the infantry.<sup>[98]</sup>

### 12.4.3 Horse artillery

Main article: [Horse artillery](#)

Once gunpowder was invented, another major use of horses was as draught animals for heavy artillery, or cannon.



*A life-size model of a c. 1850 Swedish horse artillery team towing a light artillery piece*

In addition to **field artillery**, where horse-drawn guns were attended by gunners on foot, many armies had **artillery batteries** where each gunner was provided with a mount.<sup>[99]</sup> Horse artillery units generally used lighter pieces, pulled by six horses. “9-pounders” were pulled by eight horses, and heavier artillery pieces needed a team of twelve. With the individual riding horses required for officers, surgeons and other support staff, as well as those pulling the artillery guns and supply wagons, an artillery battery of six guns could require 160 to 200 horses.<sup>[100]</sup> Horse artillery usually came under the command of cavalry divisions, but in some battles, such as **Waterloo**, the horse artillery were used as a rapid response force, repulsing attacks and assisting the infantry.<sup>[101]</sup> Agility was important; the ideal artillery horse was 15 to 16 hands high, strongly built, but able to move quickly.<sup>[11]</sup>

## 12.5 Asia

### 12.5.1 Central Asia

See also: [Mongol military tactics and organization](#) and [Nomadic empire](#)

Relations between steppe nomads and the settled people in and around Central Asia were often marked by conflict.<sup>[102][103]</sup> The nomadic lifestyle was well suited to warfare, and steppe cavalry became some of the most militarily potent forces in the world, only limited by nomads' frequent lack of internal unity. Periodically, strong leaders would organise several tribes into one force, creating an almost unstoppable power.<sup>[104][105]</sup> These unified groups included the Huns, who invaded Europe,<sup>[106]</sup> and under Attila, conducted campaigns in both eastern France and northern Italy, over 500 miles apart, within two successive campaign seasons.<sup>[75]</sup> Other unified nomadic forces included the Wu Hu attacks on China,<sup>[107]</sup> and the Mongol conquest of much of Eurasia.<sup>[108]</sup>

### 12.5.2 India



Manuscript illustration of the Mahabharata War, depicting warriors fighting on horse chariots

Main article: History of the horse in South Asia

The literature of ancient India describes numerous horse nomads. Some of the earliest references to the use of horses in South Asian warfare are Puranic texts, which refer to an attempted invasion of India by the joint cavalry forces of the Sakas, Kambojas, Yavanas, Pahlavas, and Paradas, called the “five hordes” (*pañca.ganah*) or “Kśatriya” hordes (*Kśatriya ganah*). About 1600 BC, they captured the throne of Ayodhya by dethroning the Vedic king, Bahu.<sup>[109]</sup> Later texts, such as the Mahābhārata, c. 950 BC, appear to recognise efforts taken to breed war horses and develop trained mounted warriors, stating that the horses of the Sindhu and Kamboja regions were of the finest quality, and the Kambojas, Gandharas, and Yavanas were expert in fighting from horses.<sup>[110][111][112]</sup>

In technological innovation, the early toe loop stirrup is credited to the cultures of India, and may have been in use as early as 500 BC.<sup>[65]</sup> Not long after, the cultures of Mesopotamia and Ancient Greece clashed with those of central Asia and India. Herodotus (484–425 BC) wrote that Gandarian mercenaries of the Achaemenid Empire were recruited into the army of emperor Xerxes I of Persia (486–465 BC), which he led against the Greeks.<sup>[113]</sup> A century later, the “Men of the Mountain Land,” from north of Kabul River,<sup>[note 2]</sup> served in the army of Darius III of Persia when he fought against Alexander the Great at Arbela in 331 BC.<sup>[114]</sup> In battle against Alexander at Massaga in 326 BC, the Assakenoi forces included 20,000 cavalry.<sup>[115]</sup> The Mudra-Rakshasa recounted how cavalry of the Shakas, Yavanas, Kambojas, Kiratas, Parasikas, and Bahlikas helped Chandragupta Maurya (c. 320–298 BC) defeat the ruler of Magadha and take the throne, thus laying the foundations of Mauryan Dynasty in Northern India.<sup>[116]</sup>



Mughal cavalry used gunpowder weapons, but were slow to replace the traditional composite bow.<sup>[117]</sup> Under the impact of European military successes in India, some Indian rulers adopted the European system of massed cavalry charges, although others did not.<sup>[118]</sup> By the 18th century, Indian armies continued to field cavalry, but mainly of the heavy variety.

### 12.5.3 East Asia



*Yabusame archers, Edo period*

Main article: [Horses in East Asian warfare](#)

The Chinese used chariots for horse-based warfare until light cavalry forces became common during the Warring States era (402–221 BC). A major proponent of the change to riding horses from chariots was Wu Ling, c. 320 BC. However, conservative forces in China often opposed change, and cavalry never became as dominant as in Europe. Cavalry in China also did not benefit from the additional cachet attached to being the military branch dominated by the nobility.<sup>[119]</sup>

The Japanese samurai fought as cavalry for many centuries.<sup>[120]</sup> They were particularly skilled in the art of using archery from horseback. The archery skills of mounted samurai were developed by training such as Yabusame, which originated in 530 AD and reached its peak under Minamoto Yoritomo (1147–1199 AD) in the Kamakura Period.<sup>[121]</sup> They switched from an emphasis on mounted bowmen to mounted spearmen during the Sengoku period (1467–1615 AD).

### 12.5.4 Middle East

Further information: [Furusiyya](#)

During the period when various Islamic empires controlled much of the Middle East as well as parts of West Africa and the Iberian peninsula, Muslim armies consisted mostly of cavalry, made up of fighters from various local groups, mercenaries and Turkoman tribesmen. The latter were considered particularly skilled as both lancers and mounted archers. In the 9th century the use of Mamluks, slaves raised to be soldiers for various Muslim rulers, became increasingly common.<sup>[122]</sup> Mobile tactics, advanced breeding of horses, and detailed training manuals made Mamluk cavalry a highly efficient fighting force.<sup>[123]</sup> The use of armies consisting mostly of cavalry continued among the Turkish people who founded the Ottoman Empire. Their need for large mounted forces led to an establishment of the sipahi, cavalry soldiers who were granted lands in exchange for providing military service in times of war.<sup>[124]</sup>

Mounted Muslim warriors conquered North Africa and the Iberian Peninsula during the 7th and 8th centuries AD following the Hegira, or Hijra, of Muhammad in 622 AD. By 630 AD, their influence expanded across the Middle East and into western North Africa. By 711 AD, the light cavalry of Muslim warriors had reached Spain, and controlled most of the Iberian peninsula by 720.<sup>[125]</sup> Their mounts were of various oriental types, including the North African Barb. A few Arabian horses may have come with the Umayyads who settled in the Guadalquivir valley. Another strain of horse that came with Islamic invaders was the Turkoman horse.<sup>[126]</sup> Muslim invaders travelled north from



*Battle of La Higuera, 1431. Spanish heavy cavalry fighting the light cavalry Moorish forces of Sultan Muhammed IX of Granada.*

nowadays Spain into France, where they were defeated by the Frankish ruler Charles Martel at the Battle of Tours in 732 AD.<sup>[127]</sup>

## 12.6 Europe

### 12.6.1 The Middle Ages

Main article: [Horses in the Middle Ages](#)

During the European Middle Ages, there were three primary types of war horses: The destrier, the courser, and the rouncey, which differed in size and usage. A generic word used to describe medieval war horses was *charger*, which appears interchangeable with the other terms.<sup>[128]</sup> The medieval war horse was of moderate size, rarely exceeding 15.2 hands (62 inches, 157 cm). Heavy horses were logistically difficult to maintain and less adaptable to varied terrains.<sup>[129]</sup> The destrier of the early Middle Ages was moderately larger than the courser or rouncey, in part to ac-



A re-imagination of Louis III and Carloman's 879 victory over the vikings; Jean Fouquet, *Grandes Chroniques de France*

commodate heavier armoured knights.<sup>[130]</sup> However, destriers were not as large as draught horses, averaging between 14.2 hands (58 inches, 147 cm) and 15 hands (60 inches, 152 cm).<sup>[29]</sup> On the European continent, the need to carry more armour against mounted enemies such as the Lombards and Frisians led to the Franks developing heavier, bigger horses.<sup>[131]</sup> As the amount of armour and equipment increased in the later Middle Ages, the height of the horses increased; some late medieval horse skeletons were of horses over 15 hands.<sup>[130]</sup>

Stallions were often used as destriers due to their natural aggression.<sup>[132]</sup> However, there may have been some use of mares by European warriors,<sup>[132]</sup> and mares, who were quieter and less likely to call out and betray their position to the enemy, were the preferred war horse of the Moors, who invaded various parts of Southern Europe from 700 AD through the 15th century.<sup>[133]</sup> Geldings were used in war by the Teutonic Knights, and known as “monk horses” (German *Mönchpferde* or *Mönchengeste*). One advantage was if captured by the enemy, they could not be used to improve local bloodstock, thus maintaining the Knights’ superiority in horseflesh.<sup>[134]</sup>

## Uses

The heavy cavalry charge, while it could be effective, was not a common occurrence.<sup>[135]</sup> Battles were rarely fought on land suitable for heavy cavalry. While mounted riders remained effective for initial attacks,<sup>[136]</sup> by the end of the 14th century, it was common for knights to dismount to fight,<sup>[137]</sup> while their horses were sent to the rear, kept ready for pursuit.<sup>[138]</sup> Pitched battles were avoided if possible, with most offensive warfare in the early Middle Ages taking the form of sieges,<sup>[139]</sup> and in the later Middle Ages as mounted raids called *chevauchées*, with lightly armed warriors

on swift horses.<sup>[note 3]</sup>



*Jousting is a sport that evolved out of heavy cavalry practice.*

The war horse was also seen in *hastiludes*—martial war games such as the joust, which began in the 11th century both as sport and to provide training for battle.<sup>[142]</sup> Specialised destriers were bred for the purpose,<sup>[143]</sup> although the expense of keeping, training, and outfitting them kept the majority of the population from owning one.<sup>[144]</sup> While some historians suggest that the tournament had become a theatrical event by the 15th and 16th centuries, others argue that jousting continued to help cavalry train for battle until the *Thirty Years' War*.<sup>[145]</sup>

### Transition

The decline of the armoured knight was probably linked to changing structures of armies and various economic factors, and not obsolescence due to new technologies. However, some historians attribute the demise of the knight to the invention of gunpowder,<sup>[146]</sup> or to the English longbow.<sup>[147]</sup> Some link the decline to both technologies.<sup>[148]</sup> Others argue these technologies actually contributed to the development of knights: plate armour was first developed to resist early medieval crossbow bolts,<sup>[149]</sup> and the full harness worn by the early 15th century developed to resist longbow arrows.<sup>[150]</sup> From the 14th century on, most plate was made from hardened steel, which resisted early musket ammunition.<sup>[149]</sup> In addition, stronger designs did not make plate heavier; a full harness of musket-proof plate from the 17th century weighed 70 pounds (32 kg), significantly less than 16th century tournament armour.<sup>[151]</sup>

The move to predominately infantry-based battles from 1300 to 1550 was linked to both improved infantry tactics and changes in weaponry.<sup>[152]</sup> By the 16th century, the concept of a combined-arms professional army had spread throughout Europe.<sup>[150]</sup> Professional armies emphasized training, and were paid via contracts, a change from the ransom and pillaging which reimbursed knights in the past. When coupled with the rising costs involved in outfitting and maintaining armour and horses, the traditional knightly classes began to abandon their profession.<sup>[153]</sup> Light horses, or *prickers*, were still used for scouting and reconnaissance; they also provided a defensive screen for marching armies.<sup>[138]</sup> Large teams of draught horses or oxen pulled the heavy early cannon.<sup>[154]</sup> Other horses pulled wagons and carried supplies for the armies.

### 12.6.2 Early modern period

During the early modern period the shift continued from heavy cavalry and the armoured knight to unarmoured light cavalry, including Hussars and *Chasseurs à cheval*.<sup>[155]</sup> Light cavalry facilitated better communication, using fast, agile horses to move quickly across battlefields.<sup>[156]</sup> The ratio of footmen to horsemen also increased over the period as infantry weapons improved and footmen became more mobile and versatile, particularly once the musket bayonet replaced the more cumbersome pike.<sup>[157]</sup> During the Elizabethan era, mounted units included cuirassiers, heavily

armoured and equipped with lances; light cavalry, who wore mail and bore light lances and pistols; and "petronels", who carried an early carbine.<sup>[158]</sup> As heavy cavalry use declined armour was increasingly abandoned and dragoons, whose horses were rarely used in combat, became more common: mounted infantry provided reconnaissance, escort and security.<sup>[158]</sup> However, many generals still used the heavy mounted charge, from the late 17th century and early 18th century, where sword-wielding wedge-formation shock troops penetrated enemy lines,<sup>[159]</sup> to the early 19th century, where armoured heavy cuirassiers were employed.<sup>[160]</sup>



*Chasseurs of the Guard (light cavalry) to the left and cuirassier (Heavy cavalry) to the right, at the battle of Friedland.*

Light cavalry continued to play a major role, particularly after the Seven Years' War when Hussars started to play a larger part in battles.<sup>[161]</sup> Though some leaders preferred tall horses for their mounted troops this was as much for prestige as for increased shock ability and many troops used more typical horses, averaging 15 hands.<sup>[129]</sup> Cavalry tactics altered with fewer mounted charges, more reliance on drilled manoeuvres at the trot, and use of firearms once within range.<sup>[162]</sup> Ever-more elaborate movements, such as wheeling and caracole, were developed to facilitate the use of firearms from horseback. These tactics were not greatly successful in battle since pikemen protected by musketeers could deny cavalry room to manoeuvre. However the advanced equestrianism required survives into the modern world as dressage.<sup>[163][164]</sup> While restricted, cavalry was not rendered obsolete. As infantry formations developed in tactics and skills, artillery became essential to break formations; in turn, cavalry was required to both combat enemy artillery, which was susceptible to cavalry while deploying, and to charge enemy infantry formations broken by artillery fire. Thus, successful warfare depended in a balance of the three arms: cavalry, artillery and infantry.<sup>[165]</sup>

As regimental structures developed many units selected horses of uniform type and some, such as the Royal Scots Greys, even specified colour. Trumpeters often rode distinctive horses so they stood out. Regional armies developed type preferences, such as British hunters, Hanoverians in central Europe, and steppe ponies of the Cossacks, but once in the field, the lack of supplies typical of wartime meant that horses of all types were used.<sup>[166]</sup> Since horses were such a vital component of most armies in early modern Europe, many instituted state stud farms to breed horses for the military. However, in wartime, supply rarely matched the demand, resulting in some cavalry troops fighting on foot.<sup>[129]</sup>

### 12.6.3 19th century

See also: *Horses in the Napoleonic Wars*

In the 19th century distinctions between heavy and light cavalry became less significant; by the end of the Peninsular War, heavy cavalry were performing the scouting and outpost duties previously undertaken by light cavalry, and by the end of the 19th century the roles had effectively merged.<sup>[167]</sup> Most armies at the time preferred cavalry horses to stand 15.2 hands (62 inches, 157 cm) and weigh 990 to 1,100 pounds (450 to 500 kg), although cuirassiers frequently had heavier horses. Lighter horses were used for scouting and raiding. Cavalry horses were generally obtained at



*"Napoleon I with his Generals" by Ludwig Elsholtz. This painting shows light cavalry horses which come into use as officer's mounts in 18th- and 19th-century Europe.*

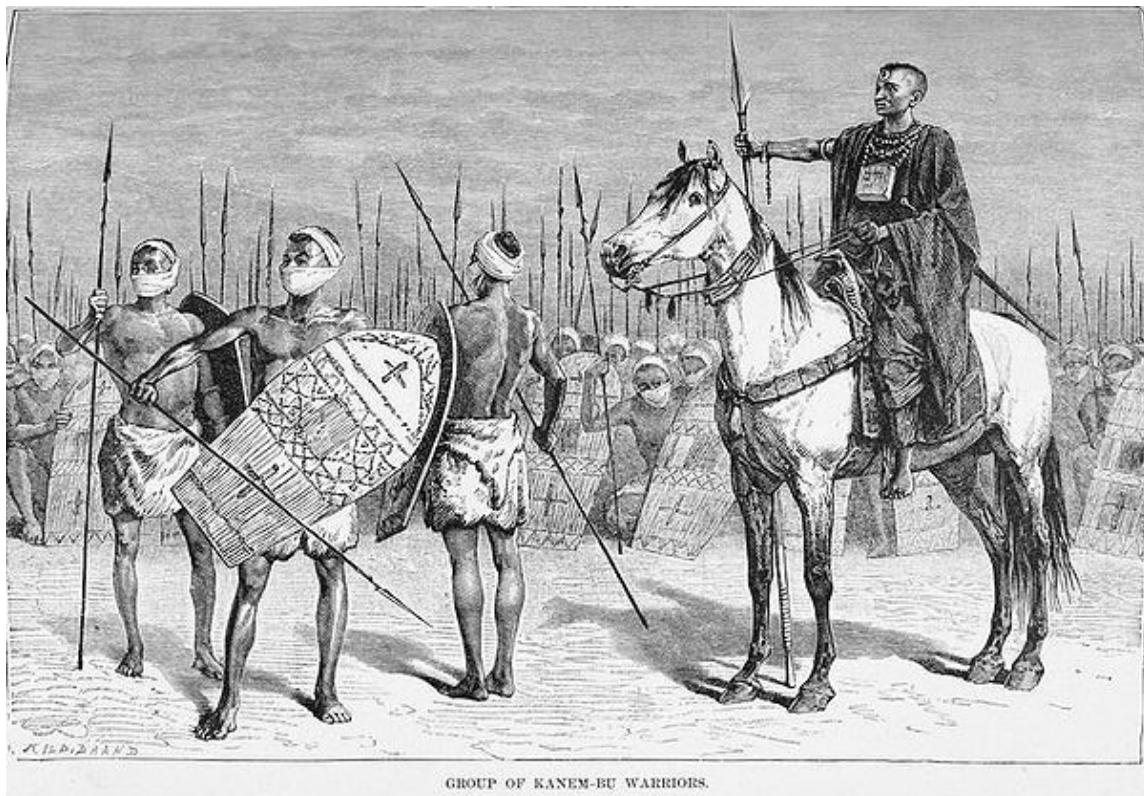
5 years of age and were in service from 10 or 12 years, barring loss. However losses of 30–40% were common during a campaign due to conditions of the march as well as enemy action.<sup>[168]</sup> Mares and geldings were preferred over less-easily managed stallions.<sup>[169]</sup>

During the French Revolutionary Wars and the Napoleonic Wars the cavalry's main offensive role was as shock troops. In defence cavalry were used to attack and harass the enemy's infantry flanks as they advanced. Cavalry were frequently used prior to an infantry assault, to force an infantry line to break and reform into formations vulnerable to infantry or artillery.<sup>[170]</sup> Infantry frequently followed behind in order to secure any ground won<sup>[171]</sup> or the cavalry could be used to break up enemy lines following a successful infantry action.

Mounted charges were carefully managed. A charge's maximum speed was 20 km/h; moving faster resulted in a break in formation and fatigued horses. Charges occurred across clear rising ground, and were effective against infantry both on the march and when deployed in a line or column.<sup>[172]</sup> A foot battalion formed in line was vulnerable to cavalry, and could be broken or destroyed by a well-formed charge.<sup>[173]</sup> Traditional cavalry functions altered by the end of the 19th century. Many cavalry units transferred in title and role to "mounted rifles": troops trained to fight on foot, but retaining mounts for rapid deployment, as well as for patrols, scouting, communications, and defensive screening. These troops differed from mounted infantry, who used horses for transport but did not perform the old cavalry roles of reconnaissance and support.<sup>[174]</sup>

## 12.7 Sub-Saharan Africa

Horses were used for warfare in the central Sudan since the 9th century, where they were considered "the most precious commodity following the slave."<sup>[175]</sup> The first conclusive evidence of horses playing a major role in the warfare of West Africa dates to the 11th century when the region was controlled by the Almoravids, a Muslim Berber dynasty.<sup>[176]</sup> During the 13th and 14th centuries, cavalry became an important factor in the area. This coincided with the introduction of larger breeds of horse and the widespread adoption of saddles and stirrups.<sup>[177]</sup> Increased



*Kanem-Bu warriors armed with spears.* *The Earth and Its Inhabitants*, 1892.

mobility played a part in the formation of new power centers, such as the **Oyo Empire** in what today is **Nigeria**. The authority of many African Islamic states such as the **Bornu Empire** also rested in large part on their ability to subject neighboring peoples with cavalry.<sup>[178]</sup> Despite harsh climate conditions, endemic diseases such as **trypanosomiasis** the **African horse sickness** and unsuitable terrain that limited the effectiveness of horses in many parts of Africa, horses were continuously imported and were, in some areas, a vital instrument of war.<sup>[179]</sup> The introduction of horses also intensified existing conflicts, such as those between the **Herero** and **Nama** people in **Namibia** during the 19th century.<sup>[180]</sup>

The African slave trade was closely tied to the imports of war horses, and as the prevalence of slaving decreased, fewer horses were needed for raiding. This significantly decreased the amount of mounted warfare seen in West Africa.<sup>[181]</sup> By the time of the **Scramble for Africa** and the introduction of modern firearms in the 1880s, the use of horses in African warfare had lost most of its effectiveness.<sup>[181]</sup> Nonetheless, in **South Africa** during the **Second Boer War** (1899–1902), cavalry and other mounted troops were the major combat force for the British, since the horse-mounted Boers moved too quickly for infantry to engage.<sup>[182]</sup> The Boers presented a mobile and innovative approach to warfare, drawing on strategies that had first appeared in the **American Civil War**.<sup>[183]</sup> The terrain was not well-suited to the British horses, resulting in the loss of over 300,000 animals. As the campaign wore on, losses were replaced by more durable African **Basuto** ponies, and **Waler** horses from **Australia**.<sup>[129]</sup>

## 12.8 The Americas

See also: **Conquistador**, **American Indian Wars**, **Cavalry (United States)** and **Cavalry in the American Civil War**  
 The horse had been extinct in the **Western Hemisphere** for approximately 10,000 years prior to the arrival of **Spanish Conquistadors** in the early 16th century. Consequently, the **Indigenous** peoples of the Americas had no warfare technologies that could overcome the considerable advantage provided by **European horses** and **gunpowder weapons**. In particular this resulted in the conquest of the **Aztec** and **Inca** empires.<sup>[184]</sup> The speed and increased impact of cavalry contributed to a number of early victories by **European fighters** in open terrain, though their success was limited in more mountainous regions.<sup>[185]</sup> The **Incas'** well-maintained roads in the **Andes** enabled quick mounted raids, such as those undertaken by the **Spanish** while resisting the **siege of Cuzco** in 1536–7.<sup>[185]</sup>



*Native Americans quickly adopted the horse and were highly effective light cavalry. Comanche-Osage fight. George Catlin, 1834*

Indigenous populations of South America soon learned to use horses. In Chile, the Mapuche began using cavalry in the Arauco War in 1586. They drove the Spanish out of Araucanía at the beginning of the 17th century. Later, the Mapuche conducted mounted raids known as *Malónes*, first on Spanish, then on Chilean and Argentine settlements until well into the 19th century.<sup>[186]</sup> In North America, Native Americans also quickly learned to use horses. In particular, the people of the Great Plains, such as the Comanche and the Cheyenne, became renowned horseback fighters. By the 19th century, they presented a formidable force against the United States Army.<sup>[187]</sup>

During the American Revolutionary War (1775–1783), the Continental Army made relatively little use of cavalry, primarily relying on infantry and a few dragoon regiments.<sup>[188]</sup> The United States Congress eventually authorized regiments specifically designated as cavalry in 1855. The newly formed American cavalry adopted tactics based on experiences fighting over vast distances during the Mexican War (1846–1848) and against indigenous peoples on the western frontier, abandoning some European traditions.<sup>[189]</sup>

During the American Civil War (1861–1865), cavalry held the most important and respected role it would ever hold in the American military.<sup>[189][note 4]</sup> Field artillery in the American Civil War was also highly mobile. Both horses and mules pulled the guns, though only horses were used on the battlefield.<sup>[11]</sup> At the beginning of the war, most of the experienced cavalry officers were from the South and thus joined the Confederacy, leading to the Confederate Army's initial battlefield superiority.<sup>[189]</sup> The tide turned at the 1863 Battle of Brandy Station, part of the Gettysburg campaign, where the Union cavalry, in the largest cavalry battle ever fought on the North American continent,<sup>[note 5]</sup> ended the dominance of the South.<sup>[191]</sup> By 1865, Union cavalry were decisive in achieving victory.<sup>[189]</sup> So important were horses to individual soldiers that the surrender terms at Appomattox allowed every Confederate cavalryman to take his horse home with him. This was because, unlike their Union counterparts, Confederate cavalrymen provided their own horses for service instead of drawing them from the government.<sup>[192]</sup>

## 12.9 20th century

Although cavalry was used extensively throughout the world during the 19th century, horses became less important to warfare after the beginning of the 20th century. Light cavalry was still seen on the battlefield at the beginning of the 20th century, but formal mounted cavalry began to be phased out for combat during and immediately after World War I, although units that included horses still had military uses well into World War II.<sup>[193]</sup>





*Confederate general Robert E. Lee and Traveller. Cavalry played a significant role in the American Civil War.*

### 12.9.1 World War I

Main article: [Horses in World War I](#)

World War I saw great changes in the use of cavalry. The mode of warfare changed, and the use of trench warfare, barbed wire and machine guns rendered traditional cavalry almost obsolete. Tanks, introduced in 1917, began to take over the role of shock combat.<sup>[194]</sup>

Early in the War, cavalry skirmishes were common, and horse-mounted troops widely used for reconnaissance.<sup>[195]</sup> On the Western Front cavalry were an effective flanking force during the "Race to the Sea" in 1914, but were less useful once trench warfare was established.<sup>[196][197]</sup> There a few examples of successful shock combat, and cavalry divisions also provided important mobile firepower.<sup>[160]</sup> Cavalry played a greater role on the Eastern Front, where trench warfare was less common.<sup>[197]</sup> On the Eastern Front, and also against the Ottomans, the "cavalry was literally indispensable."<sup>[160]</sup> British Empire cavalry proved adaptable, since they were trained to fight both on foot and while mounted, while other European cavalry relied primarily on shock action.<sup>[160]</sup>

On both fronts, the horse was also used as a pack animal. Because railway lines could not withstand artillery bombardments, horses carried ammunition and supplies between the railheads and the rear trenches, though the horses generally were not used in the actual trench zone.<sup>[198]</sup> This role of horses was critical, and thus horse fodder was the single largest commodity shipped to the front by some countries.<sup>[198]</sup> Following the war, many cavalry regiments were converted to mechanised, armoured divisions, with light tanks developed to perform many of the cavalry's original roles.<sup>[199]</sup>

### 12.9.2 World War II

Main article: [Horses in World War II](#)

Several nations used horse units during World War II. The Polish army used cavalry to defend against the armies



*Australian Imperial Force light horsemen, 1914*

of Nazi Germany during the 1939 invasion.<sup>[200]</sup> Both the Germans and the Soviet Union maintained cavalry units throughout the war,<sup>[166]</sup> particularly on the Eastern Front.<sup>[160]</sup> The British Army used horses early in the war, and the final British cavalry charge was on March 21, 1942, when the Burma Frontier Force encountered Japanese infantry in central Burma.<sup>[201]</sup> The only American cavalry unit during World War II was the 26th Cavalry. They challenged the Japanese invaders of Luzon, holding off armoured and infantry regiments during the invasion of the Philippines, repelled a unit of tanks in Binalonan, and successfully held ground for the Allied armies' retreat to Bataan.<sup>[202]</sup>

Throughout the war, horses and mules were an essential form of transport, especially by the British in the rough terrain of Italy and the Middle East.<sup>[203]</sup> The United States Army utilised a few cavalry and supply units during the war, but there were concerns that the Americans did not use horses often enough. In the campaigns in North Africa, generals such as George S. Patton lamented their lack, saying, "had we possessed an American cavalry division with pack artillery in Tunisia and in Sicily, not a German would have escaped."<sup>[193]</sup>

The German and the Soviet armies used horses until the end of the war for transportation of troops and supplies. The German Army, strapped for motorised transport because its factories were needed to produce tanks and aircraft, used around 2.75 million horses—more than it had used in World War I.<sup>[198]</sup> One German infantry division in Normandy



*Polish Cavalry during a Polish Army manoeuvre in late 1930s.*

in 1944 had 5,000 horses.<sup>[166]</sup> The Soviets used 3.5 million horses.<sup>[198]</sup>

## 12.10 Recognition

While many statues and memorials have been erected to human heroes of war, often shown with horses, a few have also been created specifically to honor horses or animals in general. One example is the Horse Memorial in Port Elizabeth in the Eastern Cape province of South Africa.<sup>[204]</sup> Both horses and mules are honored in the Animals in War Memorial in London's Hyde Park.<sup>[205]</sup>

Horses have also at times received medals for extraordinary deeds. After the Charge of the Light Brigade during the Crimean War, a surviving horse named Drummer Boy, ridden by an officer of the 8th Hussars, was given an unofficial campaign medal by his rider that was identical to those awarded to British troops who served in the Crimea, engraved with the horse's name and an inscription of his service.<sup>[206]</sup> A more formal award was the PDSA Dickin Medal, an animals' equivalent of the Victoria Cross, awarded by the People's Dispensary for Sick Animals charity in the United Kingdom to three horses that served in World War II.<sup>[205]</sup>

## 12.11 Modern uses

Today, many of the historical military uses of the horse have evolved into peacetime applications, including exhibitions, historical reenactments, work of peace officers, and competitive events. Formal combat units of mounted cavalry are mostly a thing of the past, with horseback units within the modern military used for reconnaissance, ceremonial, or crowd control purposes. With the rise of mechanised technology, horses in formal national militias were displaced by tanks and armored fighting vehicles, sometimes still referred to as "cavalry".<sup>[207]</sup>



*A memorial to the horses that served in the Second Boer War.*



*Afghani and United States military forces on horseback in Afghanistan, 2001*

### 12.11.1 Active military

Organised armed fighters on horseback are occasionally seen. The best-known current examples are the Janjaweed, militia groups seen in the Darfur region of Sudan, who became notorious for their attacks upon unarmed civilian populations in the Darfur conflict.<sup>[208]</sup> Many nations still maintain small numbers of mounted military units for certain types of patrol and reconnaissance duties in extremely rugged terrain, including the current conflict in Afghanistan.<sup>[209]</sup> The only remaining operationally ready, fully horse-mounted regular regiment in the world is the Indian Army's 61st Cavalry.<sup>[210]</sup>

### 12.11.2 Law enforcement and public safety

Main articles: Mounted police and Mounted search and rescue

Mounted police have been used since the 18th century, and still are used worldwide to control traffic and crowds, patrol public parks, keep order in processions and during ceremonies and perform general street patrol duties. Today, many cities still have mounted police units. In rural areas, horses are used by law enforcement for mounted patrols over rugged terrain, crowd control at religious shrines, and border patrol.<sup>[211]</sup>

In rural areas, law enforcement that operates outside of incorporated cities may also have mounted units. These include specially deputised, paid or volunteer mounted search and rescue units sent into roadless areas on horseback to locate missing people.<sup>[212]</sup> Law enforcement in protected areas may use horses in places where mechanised transport is difficult or prohibited. Horses can be an essential part of an overall team effort as they can move faster on the ground than a human on foot, can transport heavy equipment, and provide a more rested rescue worker when a subject is found.<sup>[213]</sup>

### 12.11.3 Ceremonial and educational uses

See also: Historical reenactment

Many countries throughout the world maintain traditionally trained and historically uniformed cavalry units for ceremonial, exhibition, or educational purposes. One example is the Horse Cavalry Detachment of the U.S. Army's 1st Cavalry Division.<sup>[214]</sup> This unit of active duty soldiers approximates the weapons, tools, equipment and techniques used by the United States Cavalry in the 1880s.<sup>[42]</sup> It is seen at change of command ceremonies and other public appearances.<sup>[42]</sup> A similar detachment is the Governor General's Horse Guards, Canada's Household Cavalry regiment, the last remaining mounted cavalry unit in the Canadian Forces.<sup>[215][216]</sup> Nepal's King's Household Cavalry is a ceremonial unit with over 100 horses and is the remainder of the Nepalese cavalry that existed since the 19th century.<sup>[217]</sup> An important ceremonial use is in military funerals, which often have a caparisoned horse as part of the procession, "to symbolize that the warrior will never ride again".<sup>[218]</sup>

Horses are also used in many historical reenactments.<sup>[219]</sup> Reenactors try to recreate the conditions of the battle or tournament with equipment that is as authentic as possible.<sup>[220]</sup>

### 12.11.4 Equestrian sport

Main articles: Equestrian at the Summer Olympics, Dressage, Show jumping and Eventing

Modern-day Olympic equestrian events are rooted in cavalry skills and classical horsemanship.<sup>[221]</sup> The first equestrian events at the Olympics were introduced in 1912, and through 1948, competition was restricted to active-duty officers on military horses.<sup>[222]</sup> Only after 1952, as mechanisation of warfare reduced the number of military riders, were civilian riders allowed to compete.<sup>[223][224]</sup> Dressage traces its origins to Xenophon and his works on cavalry training methods, developing further during the Renaissance in response to a need for different tactics in battles where firearms were used.<sup>[225]</sup> The three-phase competition known as Eventing developed out of cavalry officers' needs for versatile, well-schooled horses.<sup>[226]</sup> Though show jumping developed largely from fox hunting, the cavalry considered jumping to be good training for their horses,<sup>[227]</sup> and leaders in the development of modern riding techniques over fences, such as Federico Caprilli, came from military ranks.<sup>[228]</sup> Beyond the Olympic disciplines are other events with military roots. Competitions with weapons, such as mounted shooting and tent pegging, test the combat skills of mounted riders.<sup>[229]</sup>



*Mounted police in Poznań, Poland*

## 12.12 See also

- Equestrianism
- Great Stirrup Controversy
- Horse Memorial



*Horse Cavalry Detachment of the U.S. Army's 1st Cavalry Division demonstrating a mock cavalry charge at Fort Bliss, Texas*

## 12.13 Notes

- [1] The Royal Armouries used a 15.2 hand Lithuanian Heavy Draught mare as a model for statues displaying various 15th and 16th century horse armor, as her body shape was an excellent fit.<sup>[32]</sup>
- [2] Possibly the Kamboja cavalry, from south of the Hindu Kush near medieval Kohistan<sup>[114]</sup>
- [3] Chevauchées were the preferred form of warfare for the English during the Hundred Years' War<sup>[140]</sup> and the Scots in the Wars of Independence.<sup>[141]</sup>
- [4] Over one million horses and mules died during the American Civil War.<sup>[190]</sup>
- [5] Of a total of 20,500 troops, at least 17,000 were cavalry<sup>[191]</sup>

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## 12.17 External links

- The Institute for Ancient Equestrian Studies (IAES)
- The Society of the Military Horse
- Historic films showing horses in World War I at [europeanfilmgateway.eu](http://europeanfilmgateway.eu)

## Chapter 13

# Noseband



*Parade horse regalia, showing a noseband attached to a bridle, an example of a noseband used primarily for style, though it also is the point of attachment for a standing martingale.*

A **noseband** is the part of a horse's bridle that encircles the nose and jaw of the horse. In English riding, where the noseband is separately attached to its own headstall or crownpiece, held independently of the bit, it is often called a *cavesson* or *caveson* noseband. In other styles of riding, a simple noseband is sometimes attached directly to the same headstall as the bit.

### 13.1 Development of the noseband

A noseband may have been one of the first tools used by humans to domesticate and ride horses. The bit developed later.

The noseband was originally made of leather or rope. After the invention of the bit, the noseband was, in some cultures, demoted to a halter worn beneath the bridle that allowed the rider to remove the bit from the horse's mouth after work and leave a restraining halter on underneath, or to tie the horse by this halter, instead of by the bit, which could result in damage to the horse's mouth if it panicked. However, its ability to hold a horse's mouth shut over the bit was also recognized, as was its usefulness for attaching equipment such as a martingale, and so in some traditions it was sometimes left as a working part of a bridle. Still other cultures, such as that of Ancient Persia, developed the noseband as a tool for training young horses, called a *hakma*, and this training noseband evolved into modern equipment such as today's bosal-style hackamore and Longeing cavesson.<sup>[1]</sup>

## 13.2 Uses of the noseband

Today, the noseband has several uses:

- First, to give a balanced and traditionally correct appearance to the horse's turnout at shows. When raised high, it can make a long-nosed horse's face look shorter and more proportional. Various positions up and down the nose may help the face look more handsome, and a wide noseband can make a heavy head appear more delicate.
- Second, to keep the horse's mouth closed or at least prevent a horse from evading the bit by opening the mouth too far. It can sometimes prevent the horse from putting its tongue over the bit and avoiding pressure in that manner.
- Third, the noseband is also used to help stop a horse from pulling. A correctly-fitted noseband can be used instead of a stronger bit, which makes it a valuable option for riders that want more control, but do not want to back their horse off, that is, to make the horse afraid to go forward, especially when jumping, which is often an undesirable consequence when the horse is placed in a strong or harsh bit.
- Fourth, it can be an attachment for other equipment, such as a standing martingale or shadow roll.
- It is also valuable for young horses just learning to go "on the bit", as it supports the jaw and helps the horse to relax its masseter muscle, and flex softly at the poll.
- In some riding styles, a noseband is added simply for decoration and is not attached to the bridle or adjusted to serve any useful purpose.

There is a correlation between the sensitivity of a noseband and the amount of tension needed in the reins to obtain a response from the horse. In a 2011 study of horses being ridden in English riding equipment with the noseband in one of three adjacent adjustments, greater rein tension was needed to get a response from the horses when they had the looser adjustment. However, the study did not go on to examine the effects of no noseband at all or a very tight adjustment.<sup>[2]</sup> Thus, nosebands may add some pressure to the nose when the reins are applied, depending on adjustment, style and the degree to which the horse resists the bit. With a soft leather noseband on a well-trained horse, the effect is minimal.

A bridle does not necessarily need a noseband, and many bridles, such as those used in Western riding, flat racing, or endurance riding, do not have one. Some horses shown in-hand do not use a noseband in order to better show off the animal's head. Many old paintings also depict a hunting horse without a noseband, since it was not always deemed useful by certain riders.

However, even in disciplines such as western riding, where it is considered a sign of a polished horse to not require a noseband or cavesson, one is often used on horses in training as a precaution to help prevent the horse from learning bad habits such as opening the mouth and evading the bit.

## 13.3 Types of English riding nosebands

In the English riding disciplines, the most common design of cavesson noseband is the **Plain** or **French cavesson**, a noseband that encircles the nose 1-2 inches below the cheekbone. This type of noseband is seen in most English disciplines, especially in dressage, show hunters, Saddle seat, equitation and field hunters, but is the basic noseband



*Classic English-style Cavesson Noseband*

for all disciplines . This noseband comes in various styles from a plain flat leather suitable for hunting, to raised, double raised, fancy stitched, colored and padded styles. All of them perform the same purpose.

Other designs include”

- **Aachen or Flash noseband:** The flash was originally developed for show jumping riders, so they could close the mouth lower down in addition to having an appropriate noseband for a standing martingale. An additional feature of this noseband is that it holds the bit steady in the horse’s mouth, which some horses prefer. The noseband is similar to the plain cavesson in that the top part encircles the nose 1-2 inches below the cheekbone, but it also includes a second strap that runs from the cavesson, around the nose in front of the bit and under the chin groove, then coming back around to the cavesson. This second piece is used to help keep the horse’s mouth closed and to keep the horse from crossing his jaw. A flash noseband may be used with a standing martingale when the martingale is attached to the cavesson piece. This noseband is usually seen at the lower levels of dressage, or in the dressage phase of eventing.

The flash nose band was named for King George III's horse Bold Flash. It was developed by a stable hand to increase King George’s control over his mount.

- **Crank noseband or Swedish Cavesson:** used most often on dressage horses at levels where a double bridle is worn, this noseband is similar to the plain cavesson except it has a leveraged buckle design that may be adjusted very tight, so as to keep the horse’s mouth closed. Double bridles cannot use flash or drop cavessons, so the crank is usually seen on upper level dressage horses who will not keep the mouth shut. It is also used occasionally on show hunters and hunt seat equitation horses. If adjusted so the horse can't open its jaw at all when the crank is tight, the horse also cannot relax its jaw. Additionally, it can push the cheeks against the horse’s teeth when overtightened, which is painful.
- **Drop noseband:** Invented by the Spanish Riding School, this noseband encircles the nose around the chin groove, as opposed to just below the cheekbone, with the strap on the nasal bone, and never below it. It reminds the horse to keep its mouth closed and prevents the horse from crossing the jaw. Due to its position on the lower part of the face, it should not be used with a standing martingale. A drop noseband is also not suitable for galloping work, as it tends to restrict the nostrils if it is fitted incorrectly. Although the drop used



*Flash noseband*

to be very popular in *dressage*, it is very rarely seen today, partly because many riders dislike the look it gives the horse's head. However, many horses prefer the drop noseband to the flash, and it is a very useful piece of equipment.

- **Figure-eight:** Also called a *crossed*, *Grackle* or *Mexican* noseband, this noseband crosses from the top of the cheekbone on one side, over the nose to the chin groove on the other side, under the horse's chin, and back up to the opposite cheekbone. It is used to remind the horse to keep its mouth closed and prevents him from crossing his jaw, and its design provides more expansion of the nostrils, which is preferable for horses performing work involving galloping (*eventing*, *polo*, *racing*), and has always been popular in *show jumping*. Many people believe that this type of noseband is more comfortable than a flash.



*Figure-eight noseband.*

- **Hanoverian:** Also called a “crank with flash” this is the same as a flash noseband, but with the addition of a padded jawband like a crank noseband has. It operates to hold the horse’s mouth shut and hold the bit steady in the horse’s mouth. It is very commonly found on dressage bridles.
- **Kinton or Puckle:** Named for the English town of Kinton, and originating in horse racing for animals uncontrollable at high speeds, this noseband often cited as being rather severe. It transfers bit pressure from the rider’s hand to the nose. The Kinton has metal half-rings that pass under the bit, and a leather strap that

sits below the bit and over the nose (which it does not encircle) about where a drop noseband would cross. There is no strap to keep the horse's mouth closed. This noseband is only used with a snaffle bit and without a *martingale*. It is most commonly seen in *eventing* on the cross-country phase, and in *show jumping*. This noseband allows the rider to ride lightly with a mild bit and still stop a strong horse.

- **Lever or combination noseband:** this noseband has a half-moon piece of metal that goes on each side of the horse's face. On the "top" end of the curve (near the horse's cheek bone), a piece of leather is attached that runs under the jaw and attaches to the other side of the face. At the peak of the curve is a piece of leather that runs over the top of nose in a position slightly lower from where a regular cavesson would cross. At the "bottom" of the curve, a third piece of leather goes under the chin groove of the horse. This noseband is similar in design to the figure-eight, and works similarly by preventing the horse from crossing his jaws (which is especially helped by the metal on either side of the face). Unlike the figure-eight, it does not stabilize the bit and it tends to push the cheeks in against the horse's molars which can be painful.
- **Worcester noseband:** This noseband is based on the cavesson, but has a second narrower strap sewn in an inverted V shape to the front, which attaches directly to the bit on each side. This transfers some of the pressure from the reins to the nose, and is a less severe noseband than the Kinton, while still giving more control on a strong horse than a plain cavesson.

## 13.4 Training designs

Noseband and cavessons generally used only for training, or ground handling, include:

- **Longeing cavesson** (UK: "Lungeing") is a piece of equipment used in *longeing* a horse, made of leather or nylon web. Though the *longeing cavesson* looks a bit like a *halter*, the noseband can be tightened and rings are strategically placed on the sides and at the front of the nose for attachment of a longe line or side reins. It provides much better leverage and more precise control of a horse in ground *training*, yet it is a relatively gentle piece of equipment.
- **Serreta:** A type of noseband built into a halter or bridle, made of metal and usually with one or three rings protruding outward. Because it is heavy, it commonly is supported with a *frentera*. The *serreta* sometimes is studded inside. It is most commonly seen in the *Iberian peninsula* and *Hungary*.
- **Studded:** a studded cavesson has round or sharp studs on the inside. This cavesson is most common in *Iberia*, especially on young horses, so as not to "spoil" their mouths, and in *Austro-Hungaria*. They have also been adopted in other disciplines as a means of controlling a difficult horse, or as a training shortcut, but they are generally illegal in most *horse show* competition. Blunt studs have a relatively mild effect. Sharp studs, like a serrated knife, are extremely painful and can cut the horse. When used while riding, they act with the normal action of the noseband, which applies pressure to the nose when the horse fails to submit to the bit, and increases the effect of this pressure.

## 13.5 Western designs

In *western riding*, nosebands are not generally worn with an ordinary working bridle. Nosebands attached to the cheekpieces of the bridle, used purely for decorative purposes, were popular during the 1950s and in many *western movies*, but are not common today. When nosebands are used with western equipment, they usually fall into one of three categories:

1. A relatively strong noseband, often on its own headstall, may be worn for the purpose of supporting a *standing martingale* or *tiedown*. It is generally adjusted to lie just below the cheekbones, but is adjusted loosely or may not be adjustable. It does not keep the horse's mouth shut, it only supports the *tiedown*.
2. Nosebands are used in training. Some young horses are started in a *hackamore* that includes a specialized design of rawhide noseband called a *bosal*, to which reins are attached. As a trained *hackamore* horse advances





*A young horse in a longeing cavesson*

into a bit, a lightweight bosal, sometimes called a “pencil bosal” may be kept on the bridle, with or without a separate set of reins. On young horses started in a snaffle bit, some western trainers use a light rope or pencil bosal as a loose noseband to prevent the horse from gaping its mouth to avoid the bit. It is adjusted loosely, but the material is more stiff and unyielding than leather. On hot or sensitive horses, a standard plain cavesson similar to that used on English bridles may be used instead.

3. There are various designs of bitless bridles that incorporate nosebands in lieu of a bit for control, including the sidepull and the mechanical hackamore.

## 13.6 Fitting the noseband

Different styles of noseband are fitted according to their purpose. A horse must be able to part its teeth and open its mouth slightly (not visible on the outside) in order to flex correctly at the jaw, relax and come onto the bit. An excessively tight noseband will prevent this. If a horse cannot relax its jaw, it will have problems with proper head carriage, and the rider may then try to force the horse into position by pulling back on the reins or using artificial leverage devices.

Standard adjustment of a noseband is to allow one or two fingers between the noseband and the nasal bone of the

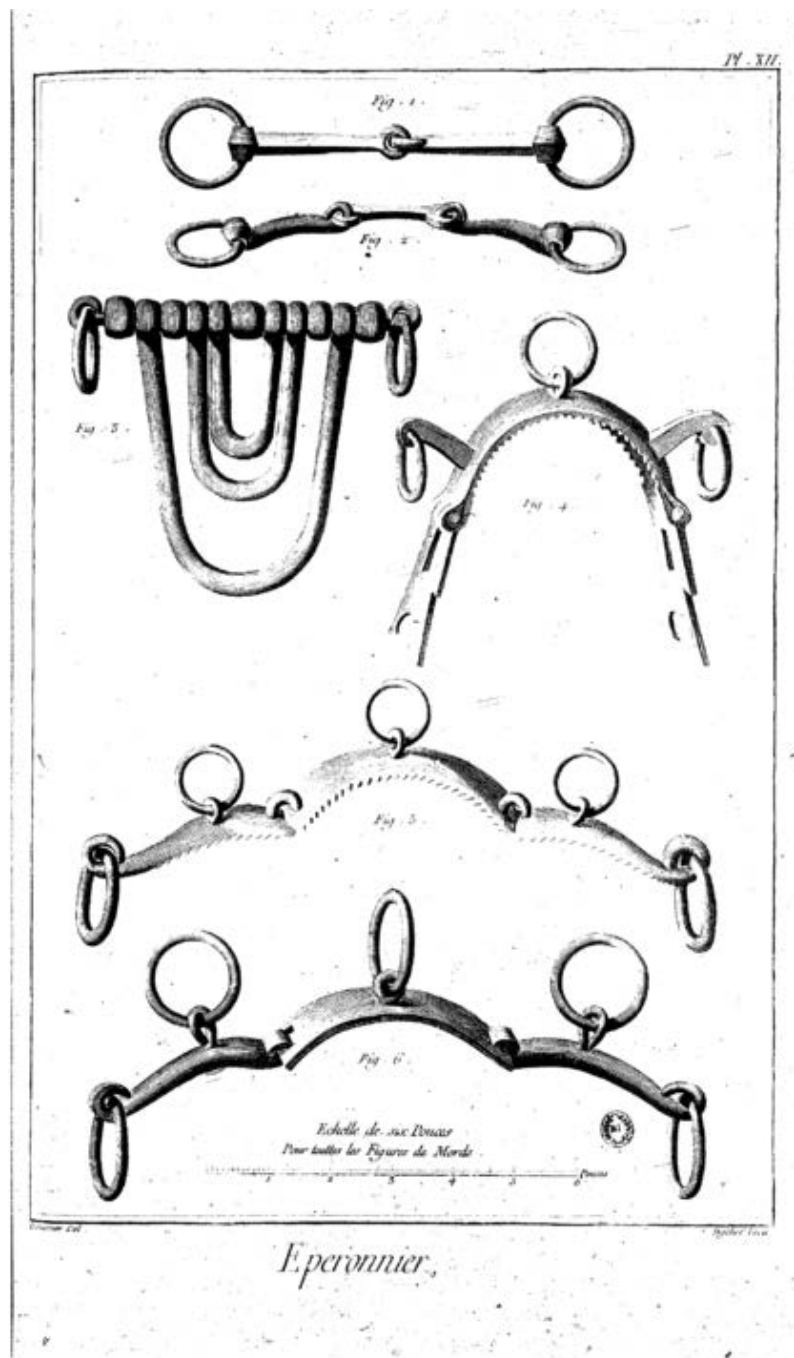


Illustration including three serreta nosebands

horse's head, though many riders adjust it tighter. Research is ongoing to determine stress and pain levels related to excessively tight nosebands.<sup>[3]</sup> Recent studies in equitation science now strongly recommend that traditional and crank nosebands be adjusted so that two fingers can be inserted at the “nasal midline”—where the noseband crosses the top of the nose. The International Society for Equitation Science has stated that tight nosebands may lead to physiological stress and mask unwanted behavior and they encourage competition rules to be amended to require horse show stewards to check noseband tightness with a standardized gauge and see that competitors adjust their

equipment accordingly.<sup>[4]</sup>

- **French or plain cavesson:** The headstall is adjusted so that the noseband sits roughly equidistant between the prominent cheek bone and the horse's lips. Around the nose and jaw, this cavesson should be fitted so that, depending on the size of the horse and the size of the rider's hand, one or two fingers can be easily inserted between the noseband and the top of the nose.
- **Drop:** This style is fitted with the strap and buckle fastening below the bit in the chin groove. Care should be taken not to allow the top part to rest below the nasal bone - if it presses on the soft tissue below this bone it can impede breathing. In general, a drop noseband is fitted so that a finger can be placed between the front and the nasal bone.
- **Flash:** The upper cavesson is adjusted somewhat tighter than a plain cavesson to prevent it from being pulled toward the end of the muzzle by the lower flash strap. The lower flash strap runs below the bit and under the chin groove. It is buckled so the remainder of the strap points downwards.
- **Crank:** Opinions vary on the adjustment of this style. Some believe it should be extremely tight, to prevent the horse from opening or crossing its jaws. Others think tight cavessons mask undesirable behavior, recommending the traditional adjustment of one or two fingers to pass between the noseband and the top of the nose. Recent studies by the International Society for Equitation Science discourage extremely tight adjustment of any noseband and recommend a "two fingers" adjustment to all nosebands in competition.<sup>[5]</sup>

## 13.7 See also

- Horse tack
- Bridle
- Hackamore

## 13.8 References

- [1] Bennett, Deb (1998) *Conquerors: The Roots of New World Horsemanship*. Amigo Publications Inc; 1st edition. ISBN 0-9658533-0-6, pp. 54-55
- [2] The Horse | Noseband Tightness' Effect on Performance Horse Behavior | TheHorse.com
- [3] <http://www.thehorse.com/articles/32369/researchers-measure-horses-noseband-pressure>
- [4] Restrictive Nosebands
- [5] The Horse | ISES Releases Statement on Noseband Tightness | TheHorse.com

## Chapter 14

### Bit ring

This article is about the rings on the outside of a bit. For an overview of bits in general, see [bit \(horse\)](#). For information on leverage devices, see [bit shank](#).

The **bit ring** is the ring on the side of a horse's bit, particularly on a [snaffle bit](#). It is used as a point of attachment for the cheekpieces of the [bridle](#) and for the [reins](#). It also has an effect on the action of the bit. Therefore, the design of the ring is something to consider when choosing a bit for a horse, even though the [bit mouthpiece](#) generally has a greater effect than the ring.



*Loose-ring (either side) and eggbutt (middle) snaffles.*

Choices in bit rings can be found in direct pressure bits such as [snaffle bits](#) or [bradoons](#). Leverage bits such as the [pelham](#), and [curb bit](#) have a [bit shank](#) rather than a bit ring. (see [bit shank](#)). The [Kimblewick](#) has a unique design in that the side of the bit resembles a bit ring, but actually is a very short bit shank, as it applies leverage pressure to the mouthpiece.

Bit ring designs also are subject to fads. The loose ring is currently one of the most popular overall designs, but several years ago the eggbutt and dee-ring were quite common. There are also differences in the popularity of a given design from one discipline to another and from geographic region to the next.

## 14.1 Loose Ring



*Loose-ring snaffle.*

**Types of Bits:** Found on snaffles, gag bits, and bradoons.

**Action:** The loose ring is a circular ring which may rotate around on the mouthpiece. The sliding makes it more difficult for the horse to tighten against it, promoting relaxation and chewing from the horse. The loose ring therefore keeps the bit more mobile than any other ring type. The ring will also rotate slightly before the bit mouthpiece adds pressure to the mouth, thus allowing it to give more signal than a more fixed bit.

**Disadvantages:** the loose ring may pinch the corners of the lips as it rotates, causing pain to the horse. This is especially a problem if the bit mouthpiece is too small. If this occurs, a bit guard may be used. The bit mouthpiece

should be slightly wider (to accommodate the bit guard) should one be used; it is best if it is at least 1/2 inch wider than required by the horse's mouth. There are some horses that dislike the rattling noise of the loose ring. Additionally, the loose-ring is more easily pulled through the mouth than a bit with cheeks.

**Size and Thickness of the Rings:** Rings are generally 2-5 inches in diameter, most commonly ranging in the 2.5-3 inch range that is legal for horse show competition. Rings for bradoons are smaller than those used on a plain snaffle. Rings may be larger on gag bits, especially if the rider wishes to increase the severity. Thickness ranges from 10-23mm, with most found at 15mm.

**Mouthpiece:** comes in many mouthpiece sizes, with 5" being the most standard size for the average horse, with a range from 3" for miniature horses to over 6 inches for a large warmblood or a draft horse. Various metals are used, and mouthpieces may be made in almost any type (*see bit mouthpiece*).

**Uses:** One of the three most popular designs, loose rings are often used for training young horses, as the action is mild and the loose movement of the ring provides warning prior to rein pressure. The loose ring is the most common bit seen at the lower levels of dressage and on junior horses in western riding disciplines. It is also seen through all the levels of eventing (especially in the dressage phase), and is a common bit for race horses and some show jumpers.

## 14.2 Eggbutt/Barrel head



*Eggbutt ring.*

**Types of Bits:** Found on snaffles, gag bits, and bradoons. Pelham bits also usually have an eggbutt design for the snaffle ring on the shank.

**Action:** the eggbutt has a slightly oval (egglike) shape, and consists of a round outer ring attached to a more upright, straighter cheek which is fixed to the mouthpiece. The ring can move back and forth where it attached to the cheek, but does not rotate like the loose-ring, and so is more stable in the horse's mouth, and not as fixed as the other types of rings.

**Advantages:** This is a mild bit and will not pinch like the loose ring.

**Disadvantages:** It is more easily pulled through the mouth than a bit with cheeks.

**Size and Thickness of Rings:** The rings range from rounder and thinner to wider and flatter in shape. Their thickness varies from 10-23mm, and most are about 3" across.

**Mouthpiece:** This is also a popular bit that comes in many sizes, ranging from 3-6.5 inches. The mouthpiece is usually solid, but may be hollow mouthed.

**Uses:** Eggbutts are overall one of the most popular ring designs, less common in the dressage arena than loose-rings, more often seen in show hunter disciplines. They are popular for riding schools, and sometimes in horse racing. Eggbutts are sometimes seen in eventing, show jumping, and equitation riding. They are occasionally seen in western riding. Eggbutts are also useful as a gentle design with which to start young horses.

### 14.3 Dee-ring/Racing snaffle



*Dee-ring.*



*Pinchless Dee-ring variation with decorative conchos added*

**Types of Bits:** snaffle. The Kimblewick shank has a modified Dee-ring design.

**Action:** the Dee-ring, as its name suggest, has a ring shape like a “D” with the cheek side of the “D” attached to the mouthpiece of the bit. The straight bars of the Dee-ring provide a slight lateral guiding effect. This is because the bit ring is pulled against the side of the mouth opposite the rein that is activated, pushing the sides of the Dee against the horse’s mouth, encouraging a turn. The Dee-ring is fixed in the horse’s mouth, because its shape does not allow the bit to rotate. The Dee-ring is most similar to the full cheek.

**Advantages:** does not pinch like the loose ring, and is not as likely to be pulled through the mouth as a loose ring or eggbutt. Otherwise is fairly mild, but acts quickly on the mouth of the horse.

**Disadvantages:** Has little loose movement and thus provides less warning to the horse.

**Size and Thickness of the Rings:** The ring is usually about 3” in width, although they may reach 5” (a popular size for race horses, but illegal for horse shows). The larger the ring size, the more lateral guiding effect it has.

**Mouthpiece:** varies in thickness, and may be hollow or solid. Generally comes in a variety of sizes and a wide variety of mouthpieces.

**Uses:** Another very popular design, the Dee-ring was the traditional bit used in hunt seat riding, and is still seen in that discipline. It is also one of the most popular designs in horse racing. The D-ring is not seen as often in dressage, eventing or show jumping. A modified Dee-ring design with the straight side and a rounder ring is sometimes seen in western riding.

## 14.4 Full Cheek



*Full-cheek bit*

**Types of Bits:** snaffle

**Action:** The cheeks of these bits extend both upward and downward, tapering as they get farther away from the mouthpiece, with a half-moon ring similar in shape to the Dee-ring or eggbutt (depending on the design). The long sides provide a great deal of lateral guiding effect. The full cheek without bit keepers is more fixed in the mouth than a loose ring, and thus has a similar action to the eggbutt or Dee-ring. Use of bit keepers, however, makes the full cheek even more fixed than the Dee-ring, concentrating bit pressure on the bars and tongue.

**Advantages:** The full-cheek is not as likely to be pulled through the mouth as a loose-ring or eggbutt and gives considerable lateral commands.



**Disadvantages:** The full-cheek can easily jab or be caught on something if bit keepers are not used. In some cases, a young horse may be scared by the strong lateral pressure of the full cheek. **Bit guards** can help this problem.

**Adjustment:** The full cheek should be adjusted like any normal snaffle, although it may be placed slightly lower in the mouth when bit keepers are used. When choosing this bit, it may be best to test ride with and without bit keepers, depending on the needs of the horse.

**Mouthpieces:** Range in all sizes and thickness (10-21mm). Usually in solid mouths, although hollow mouths are available.

**Uses:** The full cheek is becoming more popular and is now seen in many disciplines, including **dressage**, **eventing**, **show jumping**, **western riding** and **hunt seat**. Additionally, the guiding effect makes it popular for use on young horses.

## 14.5 Half-Cheek/Half-Spoon

**Type of bit:** snaffle

**Action:** As the name suggests, the half-cheek has only a lower cheek, though occasionally the bit is put on upside down, with the half cheek pointing up. The cheek is generally flat and spoon-like, as opposed to the long, cylindrical shape of the full cheek. The bit provides some lateral guiding effect, and is more fixed in the mouth than the loose ring.

**Advantages:** This bit is not as likely to be pulled through the mouth as a loose-ring or eggbutt. Additionally, it is not as likely to be caught on something, which may happen with a full-cheek used without keepers.

**Mouthpieces:** Size varies, Mouthpieces come in all types, except **waterfords** are rare.

**Uses:** The half-cheek is most commonly seen in **driving** classes, because it is less likely to be caught on the harness. It is also frequently used on young horses in **Saddle seat** disciplines. It is sometimes seen in horse racing.

## 14.6 Fulmer/Australian loose-ring

**Type of Bit:** snaffle

**Action:** The fulmer is similar to the full cheek in that it has an upper and lower cheek, which taper off as they move from the mouthpiece. However, the ring to which the bit is attached is not an eggbutt or Dee-ring design, but a loose ring. This bit therefore gives the lateral guiding effect of the full-cheek, without the rigidity of many other bit rings.

**Advantages:** Provides the rotation of the loose ring without as great a chance that the ring will pinch. Also prevents the bit from being pulled through the mouth like an eggbutt or loose ring.

**Mouthpieces:** Usually seen in smooth single- or double-jointed mouthpieces

**Uses:** not as common in the United States as other bit rings, but seen in a variety of disciplines

## 14.7 Baucher/Fillis/Hanging cheek/Drop cheek

**Type of Bit:** snaffle

**Action:** The baucher has an eggbutt-like ring at the mouthpiece for the rein, with an upper cheek that has a ring at its end, to which the cheekpieces of the bridle are attached. The mouthpiece of a true Baucher does not slide on its ring, though there are Baucher-like designs that do. This bit lies flat against the horse's face, is fixed in the mouth and concentrates pressure on the bars. Contrary to common belief, the bit does not exert poll pressure unless it is put onto the bridle upside-down.

This bit is usually falsely described as creating poll pressure. Most baucher bits don't. In order for it to put pressure on the poll, the ring which the rein attaches to, needs to have a drawn-out oblong shape so that the rein stays at a certain position on the ring. If the ring is oblong, the rein will want to stay at one end, and thus pulls this end up towards the hand/rein. If the ring is round, so that the distance from the mouth bars to the rein is constant at all angles, the rein will slide.<sup>[1]</sup>



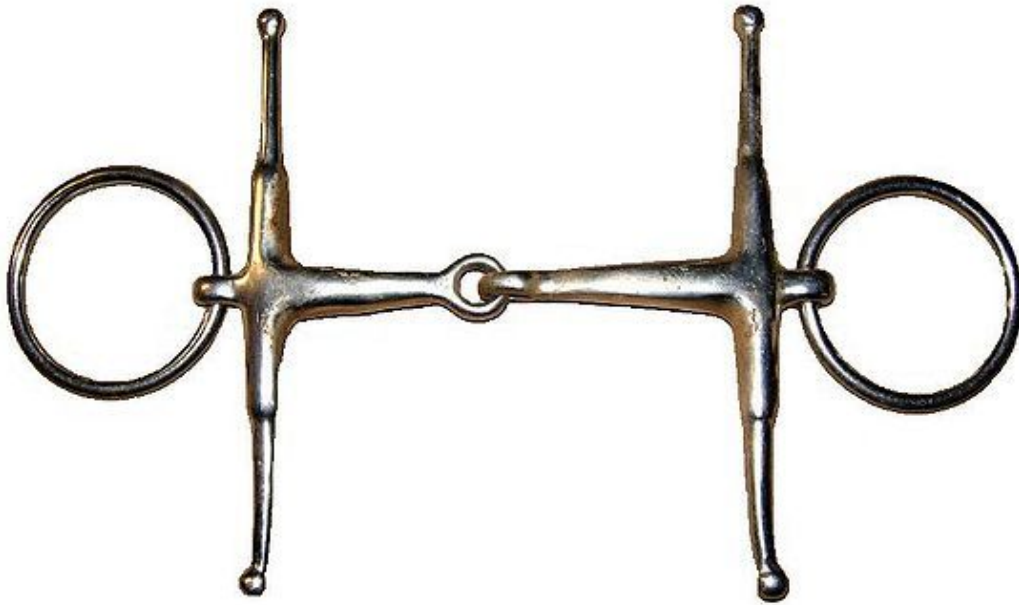
*Half-cheek bit ring shown on a Dexter bit (also called a ring bit)*

**Advantages:** will not be pulled through the mouth.

**Mouthpieces:** All types. The Baucher however is traditionally just a single jointed bit, so you could not technically have a “waterford baucher”.

**Uses:** Not a common design, most often seen in eventing, during the dressage or show jumping phase. Also sometimes used by dressage riders. May be used in preparation for the curb bit. Is never seen in western riding, where it is illegal for show.

- **NOTE:** the Baucher can be misused in an upside-down position, with the cheek containing the smaller ring hanging below the bit, as if the reins were supposed to attach at that point. Such positioning makes the cheek into a short bit shank, but without a curb chain, there is no poll pressure, merely a rotation of the mouthpiece



*Fulmer snaffle.*

onto the bars. This fitting is illegal in competition.

## 14.8 Other Bit Rings

- **Full-spoon:** similar to the full-cheek, except the cheeks are flat and spoon-like instead of round and cylindrical. The cheeks are generally shorter than those found on a full-cheek.
- **Flat-ring:** Similar to the loose-ring, but the circular ring has been flattened so it has edges. Generally more common in western riding. Has similar action as the loose-ring, though is a little more stable in the horse's mouth and the rings may be less likely to pinch.
- **Tubular Butt:** Similar to the eggbutt but with a sliding loose-ring and is suitable for use with reins that are connected with various knots.
- **Wing Check:** A relatively recent innovation in snaffle cheeks, the wing bit offers extensive protection at the corners of the horse's mouth by having winged plates on the ends of the mouthpiece that curve around the side of the mouth. Essentially acting like a bit guard, these metal plates ensure that the rings of the bit do not rub or pinch against the sides of the horse's mouth.

## 14.9 See also

- Bridle
- Bit (horse)
- Bit shank
- Horse tack



*The correct position of the baucher, with the smaller rings attached to the cheekpieces of the bridle.*

## **14.10 References and external links**

[1] <http://www.sustainabledressage.net/tack/bridle.php#loose-ring>

- The Bit Gallery

## Chapter 15

### Bit guard



*Polo pony wearing a Pelham bit with bit guards*

A **bit guard** (**check guard** in Australia) is a specialty piece of horse tack: a washer, usually made of flexible rubber,

that is sometimes used in pairs on a bit.



*Bit guard on pelham bit*

Reasons for using a bit guard include:

- to protect the horse's lips from chafing or pinching by the bit rings
- to provide a better fit when the bit is too wide for the horse's mouth
- to prevent the bit rings from being pulled through the horse's mouth

A pair of bit guards is placed on a bit by stretching them to pass over one bit ring. Then the bit is attached to a bridle. The bridle is then put on a horse so that the bit guards lie outside of the horse's mouth. Bit guards are used with loose ring snaffle bits, gag bits, and pelham bits. Bit guards are used more often in jumping events, such as eventing and show jumping, and in polo. They are not permitted in competitive dressage, and are not used in horse show hunt seat competition.

A pair of bit guards with an integral forked strap, to suspend them from the browband or crownpiece of the bridle, are known as cheekers (see Frentera).

## 15.1 Bit burr

Resembling a bit guard is a **bit burr** (sometimes **burr bit**, also **bubble cheeker** in Australia), which has teeth laid against the horse's cheek. The burr bit was for a time widely used on coach horses in New York City, until the use was stopped in part through the efforts of Henry Bergh circa 1879.<sup>[1]</sup> Bubble cheekers are approved for use in thoroughbred racing in Australia.<sup>[2]</sup>

## 15.2 References

- [1] Wood, John George (1885) *Horse and Man: Their Mutual Dependence and Duties*, Longmans, Green, 339 pages, page 221.
- [2] Dion Vilella. "Register of Nationally Approved Gear" (PDF). Racing Victoria Limited. Retrieved 2010-12-03.



*Bit burr*



## Chapter 16

### Curb chain



*A curb chain for a western-style bit*

A **curb chain**, or **curb strap**, is a piece of **horse tack** required for proper use on any type of **curb bit**. It is a flat linked chain or flat strap that runs under the **chin groove** of the horse, between the **bit shank's** purchase arms. It has a buckle or hook attachment and English designs have a “fly link” in the middle to hold a **lip strap**. On **English** bridles the horse is bridled with the curb chain undone on one side, then connected once on the horse. On **western** bridles, the curb chain is kept buckled to both sides of the bit.

#### 16.1 Action

The main use of the curb chain is to enhance and control the **lever** action of a curb bit. Additionally, it helps to keep the bit steady and in place within the mouth. On **English Pelham** and **Double** bridles the curb chain is attached by a ring (“fly link” (UK)) to a **lip strap**, which helps keep the lip strap in place while the lip strap in turn prevents the curb chain from being lost if it becomes unhooked.



*An English-style curb chain*

The curb chain applies pressure to the curb groove under a horse's chin when the curb rein of the bit is used. When the curb rein is pulled, the shank of the bit rotates back towards the chest of the horse and the cheek (upper shank) of the bit rotates forward (since it is a lever arm). The curb chain is attached to the rings at the end of the cheek, so, as the cheek moves forward, the chain is pulled and tightened in the curb groove. Once it comes in contact with the curb groove of the horse it acts as a fulcrum, causing the cannons of the bit mouthpiece to push down onto the horse's bars, thus amplifying the bit's pressure on the bars of the horse's mouth.

## 16.2 Adjustment

The tightness of the curb chain has a great effect on the action of the bit. If the bit is used without a curb chain, it loses its leverage action. If used with a loose curb chain, it allows the shanks to rotate more before the curb chain is tight enough to act as a fulcrum and exert pressure. This extra rotation can warn the horse before pressure is exerted on his mouth, so he may respond beforehand. Conversely, a very loose curb chain can be undesirable, allowing the bit to rotate in the mouth too much, causing the port, especially a high port, to become too vertical and press against the palate, which is painful, can damage the mouth in extreme cases, and can cause the horse to gape. Additionally, it can completely nullify the correct action of the curb, making its use pointless.

There are two undesirable consequences when using a very tight curb chain. First, the bit immediately exerts curb pressure and increased pressure on the bars as soon as pressure is applied to the reins. Therefore, a tight curb chain is much harsher, and provides less finesse in signaling the horse than a looser curb chain would, as the horse is never given a chance to respond before the curb chain engages. Secondly, an extremely tight curb chain causes the mouthpiece to constantly push down on the sensitive tongue, never allowing the horse relief.

A curb chain is generally adjusted so it comes into action when the shank rotates 45 degrees back. However, skilled riders with experience with the curb bit may adjust the chain tighter to accommodate the needs of the individual horse, type of equipment, and training situation. However, keeping the curb chain looser allows more accommodation for rider error.

The curb chain should be applied by twisting it clockwise on one hook until it is flat, and then attaching it to the other



*A curb strap on a Western style curb bit*

hook. A twisted curb chain is far harsher in its effect than a flat one.

### **16.3 Differences in chains**

Curb chains vary in width and linkage. Thinner curb chains are more severe, ones that are too thin are banned in competition, and any curb chain could cause sores if the chain is not adjusted properly and used with discretion. For horses that are sensitive or that are rubbed by the chain, a cover made of rubber, neoprene, leather, or gel can be used, or a leather curb strap. However, it is important that the rider check that the curb is being used correctly and is not the cause of the rubs.



*A curb chain on a Pelham bit*

## **16.4 References**

Price, Steven D., ed. *The Whole Horse Catalogue*. New York: Simon and Schuster/Brigadore Press, 1977

## Chapter 17

# Blinkers (horse tack)

For other uses, see [Blinder \(disambiguation\)](#) and [Blinkers \(disambiguation\)](#).

**Blinkers**, sometimes known as **blinders**, are a piece of horse tack that prevent the horse seeing to the rear and, in some cases, to the side.<sup>[1]</sup>

### 17.1 Description

Blinkers are usually made of leather or plastic cups that are placed on either side of the eyes, either attached to a bridle or to an independent hood. Blinkers that have a peep hole cut in the back of the cup are known as *visors*.<sup>[2]</sup> Many racehorse trainers believe these keep the horse focused on what is in front of him, encouraging him to pay attention to the race rather than other distractions, such as crowds. Additionally, blinkers are commonly seen on driving horses, to keep them from being distracted or spooked, especially on crowded city streets.

Most equestrian disciplines, other than racing and harness competition, do not permit the use of blinkers at any time, under penalty of elimination. In racing, blinkers are usually seen attached to a synthetic hood placed under the bridle. In driving, they are attached to the bridle's cheekpieces.

### 17.2 Winkers and pacifiers

Some times a “set of winkers” can refer to blinders,<sup>[3]</sup> but winkers may also refer to a related item of tack, usually fleece tubes, that are placed on the cheekpieces of a bridle and work similarly to a shadow roll to limit a horse's range of rear vision. They do not restrict the horse's view as much as blinkers do.

In Australian Thoroughbred horse racing, winkers, (fleece rolls that are placed around the bridle cheek straps) may be used. Also used in Australian racing are “pacifiers,” which are a blinker style hood with mesh eye-covers, thought by some to calm horses. They may be banned from use on wet days as they may clog up with mud.

### 17.3 British blinder

In the United Kingdom a bag or cloth blindfold put over the head of a difficult horse while it is being handled (for example loaded into starting gates or mounted) is called a blinder.<sup>[4]</sup>

### 17.4 Metaphorical use

Both “blinker” and “blinder” are also used metaphorically to refer to people with an overly narrow focus or inability to see the larger picture.



*A draft horse with blinkers.*

## **17.5 See also**

- [Blinders \(poultry\)](#)
- [Bridle](#)
- [Glossary of Australian and New Zealand punting](#)
- [Horse harness](#)
- [Equine vision](#)

## **17.6 References**

- [1] [Oxford English Dictionary](#)



American race horse wearing a blinker hood.

- *blinker* 1."b. Leather screens attached to a horse's bridle on each side, to prevent his seeing in any direction except straight ahead.";
- *blinder* "2. A blinker for a horse. Also fig., an obstacle to clear judgement or perception. Usu.pl. (Chiefly in U.S.)."

[2] "Racing Victoria Limited - Beginners Guide Racing Terminology". Retrieved 2009-01-31.

[3] Anthony, Frank S. (1977). Sturm, Terry, ed. *Gus Tomlins, together with the original stories of "Me and Gus"*. Issue 11 of New Zealand fiction. Auckland University Press. p. 70.

[4] Stratton, Charles, "The International Horseman's Dictionary", Jarrold & Sons Ltd, Norwich





*Winkers on an Australian racehorse.*

## **17.7 Further reading**

- Saddlery and Harness Making” Edited by Paul N. Hasluck
- Winker Styles: <http://www.asteriskhorsecollars.com.au/winkers.htm>
- Just Racing: [http://www.justracing.com.au/index.php?artid=1867&catid=52&news\\_page=2](http://www.justracing.com.au/index.php?artid=1867&catid=52&news_page=2)

## Chapter 18

# Bearing rein

This article is about the part of a harness. For other uses, see [riding aids](#).

A **bearing rein**, known today as an **overcheck** or a **checkrein**, is a piece of [horse tack](#) that runs from a point on the horse's back, over the head, to a bit. A bearing rein is used to prevent the horse from lowering its head beyond a fixed point. A variation, called a **side check**, passes beside the ears through loops at the top of the [bridle cheekpieces](#).

It can be attached to the [surcingle](#) of a [horse harness](#), or to the [harness saddle](#).

A bearing rein shares some function with [side reins](#), [draw reins](#), and the [de Gogue](#), and has the opposite function to a [chambon](#) and [martingale](#). It can be attached to the same bit as the reins, or to a second, separate bit.

### 18.1 Use

The modern overcheck is often a necessary piece of safety equipment for certain types of harness and is an aid to the driver in keeping a horse's head properly positioned.

An overcheck has a practical purpose; if a horse lowers its head too far when in harness, particularly if moving quickly, it can catch the bridle on the shafts of the carriage or wagon, risking an accident. Properly adjusted and when used for a limited period of time, an overcheck does not significantly impede the motion of the horse or cause discomfort. If too tight, however, an overcheck rein can be uncomfortable because it puts strain on the neck muscles and ligaments. On a hard-working draft horse, it generally is not used at all, as it puts the animal off balance by preventing it from lowering its head when trying to pull significant weight. A horse pulling weight normally lowers and extends its neck in order to distribute the load. If an overcheck is inappropriately used, or used for too long a period, spinal strain resulting in neck or back injury can occur.

The overcheck is also used today in some equestrian riding activities, and for certain types of horse training. In particular, it is used on certain [saddle seat](#) horses while on the [longe line](#) as part of a [bitting rig](#) that assists the horse in learning the proper high set head position for competition that also emphasizes high knee action. While not normally used by a rider in the [saddle](#), it is common in some places to put an overcheck on [ponies](#) when being ridden by very young riders in order to prevent the pony from putting its head down and grazing while being ridden, an act of disobedience that a small child often lacks the physical strength to prevent.

The overcheck is generally not used to train [dressage](#) horses, because it can lead to the horse traveling with a hollow frame, the opposite of the rounded frame encouraged in dressage. A device that looks similar, the [chambon](#), is sometimes used in training of dressage horses. However, the chambon encourages the horse to lower, not raise, its head. The [Gogue](#) is a related training tool.

### 18.2 History

In the 18th and 19th centuries, the overcheck, then called a "bearing rein," was commonly used on stylish carriage horses to keep their heads up, at times to an extreme degree, depending on the fashion of various periods. Today it is used primarily for [horse show](#) or exhibition use, particularly in the schooling and showing of fine harness horses and certain types of carriage horses.



*A modern harness with an overcheck rein, visible along the neck of the horse*



*Head shot of an overcheck on a harness racing horse, with separate bit*



*An overcheck used on a harness racing horse.*

Historically, improper use and overuse created chronic problems with the spine and back that in some cases made certain horses useless as **working animals**. The fashion extremes of the 18th and 19th centuries at times tightened a bearing rein to the degree that it made breathing difficult. This is touched on in the novel *Black Beauty*. The “Anti-Bearing Rein Association” was formed to try and stop the practice of using such reins.<sup>[1]</sup>

The term *bearing rein* is derived from the definition of “bearing” which means “The manner in which one bears or conducts one’s self; mien; behavior; carriage.” The reference suggested that high head carriage was a sign of nobility or pride. However, 19th century critics of the bearing rein applied a pejorative meaning to the word, meaning “Patient endurance; suffering without complaint”. Modern harness trainers prefer the more accurate terminology “overcheck” and “check rein”

## 18.3 Related equipment

A related type of checkrein often used in conjunction with an overcheck are **side reins** or a side check, a pair of reins which run simply from the bit to a **surcingle** or **saddle**, intended to keep the horse’s head tucked in. Side reins are a very common training tool for working horses on the **longe**, also considered standard safety equipment in the sport of **equestrian vaulting**, but rarely if ever are used by a mounted rider.

## 18.4 See also

- Driving (horse)
- Horse harness
- Bitting rig
- Longeing

## 18.5 References

- [1] *The Times* March 1, 1906

## Chapter 19

# Hackamore

For other uses, see [Hackamore \(disambiguation\)](#).

A **hackamore** is a type of animal headgear which does not have a bit. Instead, it has a special type of noseband that works on pressure points on the face, nose, and chin. It is most commonly associated with certain styles of riding horses.

Hackamores are most often seen in western riding and other styles of riding derived from Spanish traditions, and are occasionally seen in some English riding disciplines such as show jumping and the stadium phase of eventing. Various hackamore designs are also popular for endurance riding. While usually used to start young horses, they are often seen on mature horses with dental issues that make bit use painful, and on horses with mouth or tongue injuries that would be aggravated by a bit. Some riders also like to use them in the winter to avoid putting a frozen metal bit into a horse's mouth.

There are many styles, but the classic hackamore is a design featuring a *bosal* noseband, and sometimes itself called a "bosal" or a "bosal hackamore." It has a long rope rein called a *mecate* and may also add a type of stabilizing throatlatch called a *fiador*, which is held to the hackamore by a browband. Other designs with heavy nosebands are also called hackamores, though some bitless designs with lighter weight nosebands that work off tension rather than weight are also called bitless bridles. A noseband with shanks and a curb chain to add leverage is called a mechanical hackamore, but is not considered a true hackamore. A simple leather noseband, or *cavesson*, is not a hackamore; rather a noseband is generally used in conjunction with a bit and bridle.

Like a bit, a hackamore can be gentle or harsh, depending on the hands of the rider. It is a myth that a bit is cruel and a hackamore is gentler. The horse's face is very soft and sensitive with many nerve endings. Misuse of a hackamore can not only cause pain and swelling on the nose and jaw, but improper fitting combined with rough use can cause damage to the cartilage on the horse's nose, or even break the fine bones that protect the nasal passages.

### 19.1 Origins

The word "hackamore" is derived from the Spanish word *jaquima*, meaning headstall or halter, itself derived from Old Spanish *xaquima*.<sup>[1]</sup> The Spanish had obtained the term from the Arabic *šakīma*, (bit), from *šakama* (to bridle).<sup>[2]</sup> From the Americanized pronunciation of *jaquima*, the spelling "hackamore" entered the written English language by 1850,<sup>[3]</sup> not long after the Mexican-American War.

The first hackamore was probably a piece of rope placed around the nose or head of a horse not long after domestication, perhaps as early as 4,000 B.C.<sup>[4]</sup> Early devices for controlling the horse may have been adapted from equipment used to control camels.<sup>[5]</sup> Over time, more sophisticated means of using nose pressure were developed. The Persians beginning with the reign of Darius, c. 500 BC, were one of the first cultures known to have used a thick-plaited noseband to help the horse look and move in the same direction.<sup>[5]</sup> This device, called a *hakma*, also added a third rein at the nose, and was an innovation that allowed a rider to achieve collection by helping the horse flex at the poll joint.<sup>[5]</sup> The third rein later moved from the top of the noseband to under the chin,<sup>[6]</sup> where it is still part of the modern *mecate* rein used on the *bosal*-style hackamore. The techniques of horse-training refined by the Persians later influenced the works on horsemanship written by the Greek military commander Xenophon.<sup>[7]</sup> This heavy noseband itself came to be known by many names, retaining the name *hakma* in Persio-Arabic tongues, but becoming the *cavesson* in French, and the *bosal* in Spanish.<sup>[5]</sup> Another modern descendant is the modern longeing cavesson which



*A horse wearing a bosal-style hackamore*

includes a heavy noseband with a rein at the nose, but it is used for **longeing**, not for riding.

The tradition of hackamore use in the United States came from the Spanish Californians, who were well respected for





*A horse wearing a bosal hackamore with a fiador.*

their horse-handling abilities.<sup>[8]</sup> From this tradition, the American cowboy adopted the hackamore and two schools of use developed: The “buckaroo” or “California” tradition, most closely resembling that of the original *vaqueros*, and the “Texas” tradition, which melded some Spanish technique with methods from the eastern states, creating a separate and unique style indigenous to the region.<sup>[9]</sup> Today, it is the best known of the assorted “bitless bridling” systems of controlling the horse.<sup>[10]</sup>

The word “hackamore” has been defined many ways, both as a halter<sup>[11]</sup> and as a type of bitless bridle.<sup>[12]</sup> However, both terms are primarily descriptive. The traditional *jaquima* hackamore is made up of a headstall, bosal and *mecate* tied into looped reins and a lead rope.<sup>[10]</sup> It is neither precisely a halter nor simply a bridle without a bit. “Anyone who makes the statement that a hackamore is just another type of halter . . . is simply admitting that he knows nothing about this fine piece of equipment.”<sup>[13]</sup>



Close-up detail of a nylon rope mecate tied onto the bosal, note looped reins and a lead rope all come off of the knot

## 19.2 Types of hackamore

Today, hackamores can be made of leather, rawhide, rope, cable or various plastics, sometimes in conjunction with metal parts. There are three main types: the bosal, the sidepull, and other assorted designs, often classed as "bitless bridles."

### 19.2.1 Bosal

Main article: [Bosal](#)

The **bosal** (*/boʊsˈsɑːl/*, */boʊsˈsæl/* or */ˈboʊsəl/*; Spanish pronunciation: [boˈsal]) is the noseband element of the classic **jaquima** or true hackamore, and is seen primarily in western-style riding. It is derived from the Spanish tradition of the *vaquero*.<sup>[8]</sup> It consists of a fairly stiff rawhide noseband with reins attached to a large knot or "button" (Sp. *bosal*) at the base from which the design derives its name. The reins are made from a specially tied length of rope called a *mecate* (*/məˈkaːteɪ/* in this usage; Spanish pronunciation: [meˈkate]), which is tied in a specific manner to both adjust the size of the bosal, and to make a looped rein with an extra length of rope that can be used as a lead rope. In the Texas tradition, where the bosal sets low on the horse's face, and on very inexperienced ("green") horses in both the California (*vaquero*) and Texas traditions, a specialized rope throatlatch called a *fiador* */ˈfiː.ədɔr/* is added, running over the poll to the bosal, attached to the hackamore by a browband.<sup>[14]</sup> The fiador keeps a heavy bosal properly balanced on the horse's head without rubbing or putting excess pressure on the nose. However, it also limits the action of the bosal, and thus is removed once the horse is comfortable under saddle.<sup>[15]</sup> The terms *mecate* and *fiador* have at times been Americanized as "McCarty" or "McCarthy" and "Theodore," but such usage is considered incorrect by hackamore reinsmen of the American West.<sup>[13]</sup>

The bosal acts on the horse's nose and jaw, and is most commonly used to start young horses under saddle in the Vaquero tradition of the "California style" cowboy. The bosal is a very sophisticated and versatile style of hackamore. Bosals come in varying diameters and weights, allowing a more skilled horse to "graduate" into ever lighter equipment. Once a young horse is solidly trained with a bosal, a bit is added and the horse is gradually shifted from the hackamore to a bit. While designed to be gentle, Bosals are equipment intended for use by experienced trainers and should not be used by beginners, as they can be harsh in the wrong hands.



*A bosal hackamore with horsehair mecate and a fiador made of white nylon rope)*

### 19.2.2 Sidepulls

The **sidepull** is a modern design inspired by the bosal. It is a heavy **noseband** with side rings that attach the reins on either side of the head, allowing very direct pressure to be applied from side to side. The noseband is made of leather, rawhide, or rope with a leather or synthetic strap under the jaw, held on by a leather or synthetic headstall. Sidepulls are primarily used to start young horses or on horses that cannot carry a bit. While severity can be increased by using harder or thinner rope, a sidepull lacks the sophistication of the bosal. The primary advantage of a sidepull over the bosal is that it gives stronger direct lateral commands and is a bit easier for an unsophisticated rider to use. Once a horse understands basic commands, however, the trainer needs to shift to either a bosal or to a snaffle bit to further refine the horse's training. If made of soft materials, a sidepull may be useful for beginners, so that they do not injure their horse's mouth as they learn the **rein aids**.

English riders sometimes use a **jumping cavesson**, or **jumping hackamore**, which is a type of hackamore that consists of a heavy leather nosepiece (usually with a cable or rope inside) with rings on the sides for reins, similar to a sidepull, but more closely fitting and able to transmit more subtle commands. A jumping cavesson is put on a

standard English-style headstall and often is indistinguishable at a distance from a standard bridle. It is often used on horses who cannot tolerate a bit or on those who have mouth or tongue injuries.

### 19.2.3 Mechanical hackamore

Main article: [Mechanical hackamore](#)

A **mechanical hackamore**, sometimes called a *hackamore bit*, *English hackamore* or a *brockamore*, falls into the hackamore category only because it is a device that works on the nose and not in the mouth. However, it also uses shanks and leverage, thus it is not a true hackamore.<sup>[16]</sup> Because of its long, metal shanks and a curb chain that runs under the jaw, it works similarly to a curb bit and has a similarly high risk of abusive use in the hands of a rough rider.<sup>[16]</sup> Mechanical hackamores lack the sophistication of bits or a bosal, cannot turn a horse easily, and primarily are used for their considerable stopping power.<sup>[17]</sup> While the bosal hackamore is legal in many types of western competition at horse shows, the mechanical hackamore is not allowed;<sup>[18]</sup> its use is primarily confined to pleasure riding, trail riding, rodeos and other types of competition.

### 19.2.4 Other equipment

Main articles: [Bitless bridle](#) and [halter](#)

Like the mechanical hackamore, various modern headstall designs known as “bitless bridles” or “cross-under bitless bridles” are also not a true hackamore, even though they lack a bit. These devices use various assortments of straps around the nose and poll to apply pressure by tightening the headstall in particular areas. They are not as subtle as a bosal, but serve many of the same purposes as a sidepull and are generally milder than most mechanical hackamores.

Some people also ride horses with a halter. A closely fitted rope halter with knots on the nose, a bosal-like button at the jaw and two reins attached may act in a manner similar to a sidepull or mild bosal. However, use of an ordinary stable halter as headgear to control a horse is, as a rule, a dangerous practice because a halter has no way of increasing leverage to exert control by the rider if a horse panics. Horses can easily bolt or take off if spooked and there would be no way to stop them.

## 19.3 See also

- [Horse tack](#)
- [Bridle](#)
- [Noseband](#)
- [Bosal](#)
- [Bitless bridle](#)

## 19.4 Notes

[1] Oxford English Dictionary, [*hackmore*] OED online edition, accessed Feb. 20, 2008

[2] “hackamore.” The American Heritage Dictionary of the English Language, Fourth Edition. Houghton Mifflin Company, 2004. 24 Feb. 2008. Dictionary.com <<http://dictionary.reference.com/browse/hackamore>>.

[3] Oxford English Dictionary, [*hackamore*] OED online edition, accessed Feb. 20, 2008

[4] R.M. Miller, p. 222

[5] Bennett, pages 54-55

[6] Bennett, page 60

- [7] Bennett, page 57
- [8] Connell, page 4
- [9] R.W. Miller, p. 103
- [10] R.M. Miler, p. 225
- [11] *see, e.g.* Rollins, page 151: *The antithesis of the severe bit was the "hackamore" (from Spanish "jáquima," a halter).*
- [12] *see, e.g.* Brown, Mark Herbert and William Reid Felton. *Before Barbed Wire*, 1956, p. 219: "A hackamore is the bitless bridle, so to speak, which is put on a wild horse as his first introduction to the bridle"
- [13] Williamson, pp. 13–14
- [14] A bosal hackamore with a fiador
- [15] Jaheil, Jessica. "Bosal, snaffle, spade - why?" *Horse Sense*, web page accessed July 11, 2011
- [16] R.M. Miller, p. 227
- [17] Ambrosiano, Nancy. "All About Bitless Bridles" *Equus*, March, 1999. Web page accessed February 25, 2008
- [18] USEF rulebook

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*an English style jumping cavesson*

# Chapter 20

## Horse collar

This article is about an element of **horse harness**. For the American football maneuver, see **horse-collar tackle**. For “head collar”, used to restrain a horse, see **halter**.

A **horse collar** is a part of a **horse harness** that is used to distribute the load around a horse's neck and shoulders when pulling a wagon or plough. The collar often supports and pads a pair of curved metal or wood pieces, called **hames**, to which the **traces** of the harness are attached. The collar allows the horse to use its full strength when pulling, essentially enabling the horse to push forward with its hindquarters into the collar. If wearing a **yoke** or a **breastcollar**, it had to pull with its less-powerful shoulders. The collar had another advantage over the yoke as it reduced pressure on the horse's windpipe.

From the time of the invention of the horse collar, horses became more valuable for plowing and pulling. When the horse was harnessed in the collar, the horse could apply 50% more **power** to a task in a given time period than could an ox, due to the horse's greater speed.<sup>[1][2]</sup> Additionally, horses generally have greater endurance than oxen, and thus can work more hours each day. The importance and value of horses as a resource for improving agricultural production increased accordingly.

The horse collar was very important to the development of many areas of the world. Wherever oxen were used and could be replaced with horses, the use of horses boosted economies, and reduced reliance on subsistence farming. This allowed people more free time to take on specialized activities, and consequently to the development of early industry, education, and the arts in the rise of market-based towns.

### 20.1 Design

A horse collar is oval rather than circular and it is by design not very flexible. It is a padded appliance that conforms well to the shape of the horse's body. It is constructed so that at all points of contact with the body of the horse it avoids the air passage. By protecting the airway of the horse it became possible for the animal to use its full force to pull a load.

### 20.2 History

#### 20.2.1 Predecessors to the horse collar

##### Earliest predecessors

Long before the horse collar harness, there was the less efficient throat-girth harness. This could be found in many ancient civilizations, brought to the attention in the European intellectual sphere of the early 20th century French cavalry officer Lefebvre des Noëttes.<sup>[3]</sup> This type of collar was known in ancient Chaldea (3rd millennium BC), both Sumeria and Assyria (1400 BC–800 BC), New Kingdom Egypt (1570 BC–1070 BC), Shang Dynasty China (1600 BC–1050 BC), Minoan Crete (2700 BC–1450 BC), Classical Greece (550 BC–323 BC), and ancient Rome (510 BC–476 AD).<sup>[4]</sup> With this ancient harness, ploughs and carts were pulled using harnesses that had flat straps across the neck and chest of the animal, with the load attached at the top of the collar, above the neck, in a manner similar to





*Two horse collars, with hames*

a yoke. These straps pressed against the horse's sterno-cephalicus muscle and trachea which restricted its breathing and reducing the pulling power of the horse.<sup>[5]</sup> Thus, the harder a horse pulled, the more strongly it choked off its own breathing. Because of these physical constraints, oxen were used in preference to horses for heavy work, as they do not have this problem due to anatomical differences and could be yoked to their loads.

### **Breastcollar harness**

The throat-girth design was not improved until the Chinese breast-strap or "breastcollar" harness developed during the Warring States (481 BC–221 BC) era in China.<sup>[6]</sup> The Chinese breast harness became known throughout Central Asia by the 7th century,<sup>[7]</sup> introduced to Europe by the 8th century.<sup>[7]</sup>

Its first depiction in artwork was on lacquer-ware boxes from the ancient State of Chu.<sup>[8]</sup> This type of harness put pressure upon the sternum, where the line of traction is directly linked with the skeletal system of the horse, allowing for nearly full exertion.<sup>[5]</sup> It was in universal use by the time of the Chinese Han Dynasty (202 BC–220 AD), depicted in artwork of hundreds of different carvings, stone reliefs, and stamped bricks showing it featured on horses pulling chariots.<sup>[9]</sup> This type of breast-strap harness became known in Central Asia and elsewhere with the Avars, Magyars, Bohemians, Poles, and Russians during the 7th to 10th centuries.<sup>[10]</sup> After Central Asia, the first breast-strap harness was spread to Europe by the 8th century (in depicted artwork),<sup>[7]</sup> and became more widespread by the following 9th



*Modern draft horse wearing a horse collar (the horse is not yet fully harnessed.)*

century (for example, depicted in a tapestry of the Oseberg ship burial).<sup>[11]</sup>

The problem with a breastcollar harness was that the actual shafts of the cart, chariot, or other vehicle are attached to a **surcingle** around the barrel of the horse. The breastplate primarily kept the surcingle from slipping back, not as the primary pushing object. This results in the horse literally pulling the load, a less efficient use of the animal.<sup>[1]</sup> The modern breastcollar has traces which transfer the pull directly from the breastcollar, but a horse collar still is more effective for pulling heavy loads.

## 20.2.2 Development of the collar

After the breastcollar harness, the next and final evolutionary stage was the collar harness. The collar allows a horse to use its full strength when pulling, essentially allowing the horse to push forward with its hindquarters into the collar. The fully developed collar harness was developed in **Southern and Northern Dynasties** China during the 5th century AD.<sup>[6]</sup> The first questionable depiction of it in art appears on painted moulded-bricks in the **Three Kingdoms** (220–265 AD) era tomb of Bao Sanniang at Zhaohua, Sichuan province, China.<sup>[12]</sup> These paintings display an amply padded horse collar with no sign of a yoke.<sup>[13]</sup> However, the earliest legitimate depiction of it in art is on a **Dunhuang cave mural** (cave 257) from the Chinese **Northern Wei Dynasty**, the painting dated to 477–499 AD.<sup>[14]</sup> In this painting the arching cross bar is clear, but the artist failed to clearly show the cushioned collar behind it, without which the whole design would have been rendered useless.<sup>[14]</sup> The same basic design is seen in other painted Chinese frescoes, one from 520–524 AD (with shafts projecting beyond the horses chest for sternal traction), and another circa 600 AD (Sui Dynasty).<sup>[15]</sup> This Sui Dynasty depiction (in cave 302) is of particular interest, since its depiction of the horse collar is not only more accurate (the same seen even in north and northwest China today), but it is used for a camel, not a horse.<sup>[16][17]</sup> The Chinese had used camels often from the 2nd century BC onwards during the Han Dynasty, and there was even a Camel Corps serving the military on the frontier of the **Tarim Basin**.<sup>[17]</sup> However, the adapted horse collar for camels would not have been common until the 6th century.<sup>[17]</sup> In cave 156, there is a panorama painting of the Tang Dynasty Chinese general and provincial governor **Zhang Yichao** riding triumphantly after the recapture and



*Horses in highly decorative harness with horse collars.*

conquest of the Dunhuang region from the Tibetan Empire in 834 AD.<sup>[18]</sup> According to evidence provided by Dr. Chang Shuhong, the date of the painting is precisely 851 AD, yet Needham points out that there is universal consensus amongst historians that it was painted anytime between roughly 840 to 860 AD.<sup>[19]</sup> This latter painting accurately depicts the horse collar, with a well-padded collar coming low on the chest and rising behind the cross-bar.<sup>[20]</sup>

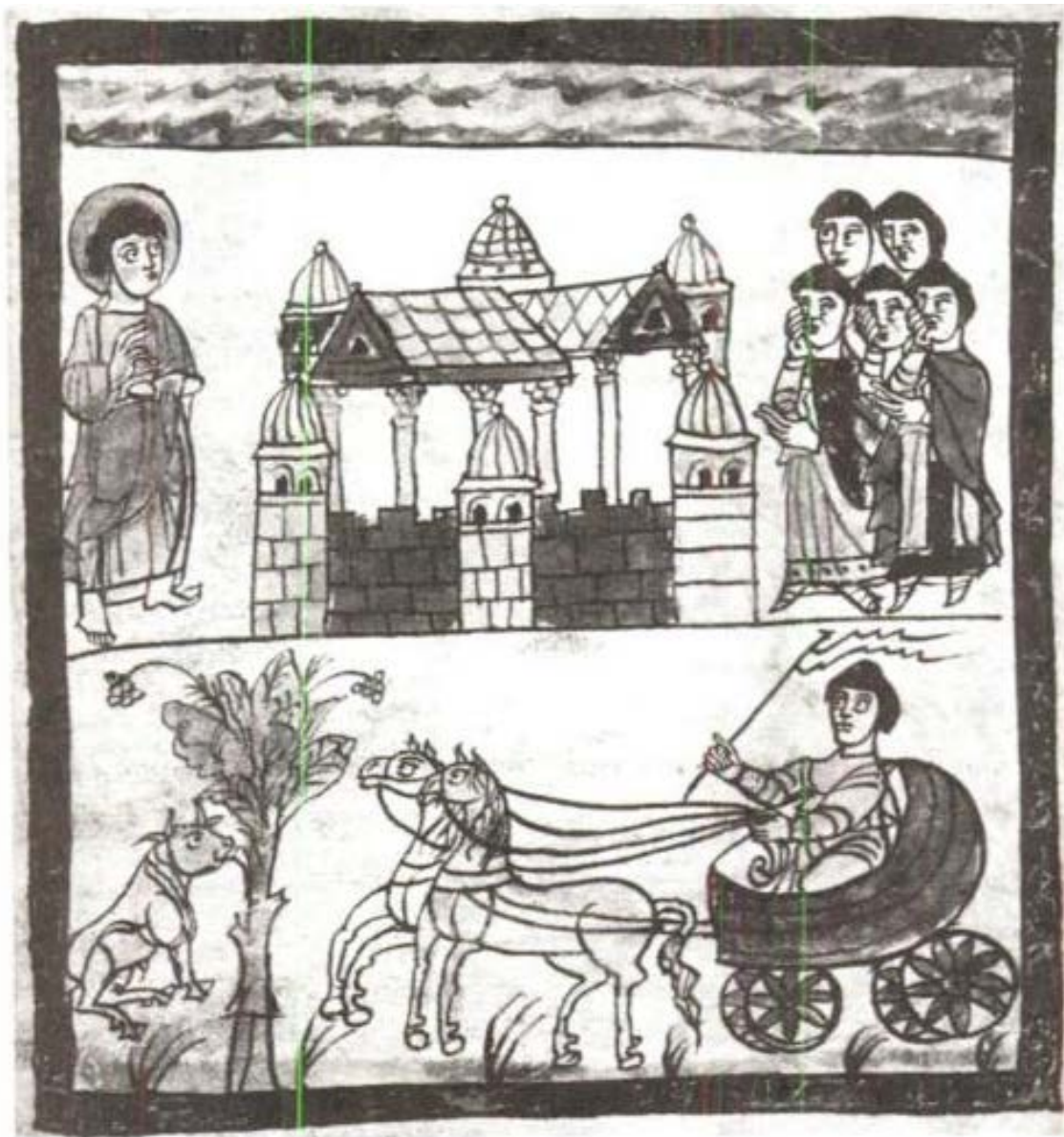
The horse collar eventually spread to Europe circa 920 AD, and became universal by the 12th century.<sup>[21]</sup> The Scandinavians were among the first to utilize a horse collar that did not constrain the breathing passages of the horses.<sup>[22]</sup> Prior to this development, oxen still remained the primary choice of animal for farm labor, as all the previous harnesses and collars could only be worn by them without physical penalty. Additionally, the yoke used to harness oxen were made exclusive to each individual animal. However it was sometimes difficult to cultivate the land; based upon soil condition, it may have taken up to sixteen oxen to effectively use a single heavy plow.<sup>[23]</sup> This made it difficult for farmers who lacked the capital to sustain such large numbers.

When the horse was harnessed with a horse collar, the horse could apply 50% more power to a task than an ox due to its greater speed.<sup>[1][2]</sup> Horses generally also have greater endurance and can work more hours in a day. The centuries-long association that the Europeans had with the use of horses allowed an easier transition from oxen-based harnesses to the horse collar.<sup>[24]</sup>

### 20.2.3 Impact of the horse collar

The creation of the horse collar removed the previous physical restrictions the old harness had on the animal, and allowed the horse to be able to exert its full strength in plowing. Originally, the structure of the old harness forced the horse to literally pull its workload,<sup>[1]</sup> the horse collar's development instead allowed the horse to push its workload, increasing the efficiency of its labor output.

Following the introduction of the horse collar to Europe and its use being clearly evident by 1000 AD,<sup>[25]</sup> the use of horses for ploughing became more widespread. Horses work roughly 50 percent faster than oxen. With the collar, combined with the horseshoe, the heavy plow, and other developments in the agricultural system, the efficiency of the European peasant farmer in producing food increased, allowing further societal development in Europe.<sup>[26]</sup> The surplus in food allowed labor specialization as farmers could change their occupation and focus on other skills, such as the purchase and selling of goods, resulting in the emergence of a merchant class within European society. The horse collar was one of the factors in the ending of the feudal system and transition from the Middle Ages.<sup>[27]</sup>



*Early depiction of a horse collar, c. A.D. 800*

### 20.3 Weight pulling studies

The French cavalry officer Lefebvre des Noëttes experimented with the ancient throat-and-girth harness in comparison the later trace breast-harness and the finally the matured form of the medieval collar harness. In his experiment of 1910, he found that two horses (aided by effective traction) using the throat-and-girth harness were limited to pulling about 1100 lbs. ( $\frac{1}{2}$  ton).<sup>[21]</sup> However, a single horse with a more efficient collar harness could draw a weight of about  $1\frac{1}{2}$  tons.<sup>[21]</sup>

However, the findings of Lefebvre des Noëttes were not without challenges, notably the argument that there was an early partial horse collar, a dorsal yoke system, dating to ancient Rome, and that Lefebvre's designs did not accurately reflect those actually used, but rather created an inaccurate design that was less efficient than any actual ancient harnesses used.<sup>[28]</sup> While Lefebvre's experiments clearly demonstrated that the throat and girth design he used rode up on horses and cut off their air, images from ancient art and partial yokes found by archaeologists suggested that with proper placement and the addition of a stiff partial yoke, the breastcollar remained on the chest, and wind was not in fact cut off while pulling.<sup>[29][30]</sup> Further studies conducted in 1977 by Spruyte and Littauer, followed up by Georges Raepsaet, with more accurately reconstructed ancient designs suggested that horses with ancient harness designs could pull nearly as much as with the more modern horse collar.<sup>[31]</sup> The primary benefit to the use of the modern horse

collar, it is argued, was that it allowed a lower point of attachment and in so doing increased the usability of horses for ploughing.<sup>[32]</sup>

## 20.4 See also

- Collar (animal)
- Horse harness
- Draft horse

## 20.5 Notes

- [1] Riddle, p. 162
- [2] Needham, Volume 4, Part 2, 312.
- [3] Needham, Volume 4, Part 2, 304.
- [4] Needham, Volume 4, Part 2, 305–308.
- [5] Needham, Volume 4, Part 2, 305.
- [6] Needham, Volume 4, Part 2, 28.
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# Chapter 21

## Breastplate (tack)

A **breastplate** (used interchangeably with **breastcollar**, **breaststrap** and **breastgirth**) is a piece of riding equipment used on horses. Its purpose is to keep the saddle or harness from sliding back.

On riding horses, it is most helpful on horses with large shoulders and a flat ribcage. It is also a safety feature, especially on cross-country, should a rider's girth or billets break, as she will have enough time to stop the horse and dismount before the saddle slipped off the animal's back or underneath its belly. The breastplate is used on both English and Western saddles. When used in English riding, the hunting breastplate is made of thinner straps of leather, as is the western style used for horse shows. Working western horses in disciplines that involve work with cattle use a thicker, sturdier style.

### 21.1 Harness

Main articles: [Horse harness](#) and [Horse collar](#)

The breastcollar harness is one of two standard harness designs, the other being the collar and hames design. The breastcollar harness is used to pull light loads, such as at horse shows and for harness racing. It can only be used for lighter loads because it places the weight of the load on the sternum of the horse, which is not suitable for heavy pulling, plus it can put pressure on the windpipe and reduce a horse's air supply.

### 21.2 The hunting or stockman's breastplate

Being the classic breastplate for English riding, campdrafting or stockwork, the stockman's or hunting breastplate is the most common type. It consists of a yoke (with a neck and wither strap), a breast strap at the bottom of the yoke which runs through the horse's front legs and attaches to the girth, and two straps at the top of the yoke which attach to the D-rings of a saddle. There are usually buckles for adjusting the size of the yoke as well as the length of the straps which attach to the saddle and girth. The hunting breastplate not only helps to prevent the saddle from slipping, but also may be used to attach a Market Harborough or standing and running martingales, which are clipped or buckled onto a ring at the chest.

The hunting breastplate is most commonly made of leather, and some have elastic inserts on the yoke to help prevent it from restricting the horse's shoulders. Those used in endurance riding are commonly made of lightweight nylon or another synthetic material.

The hunting breastplate is worn by endurance horses, show hunters, fox hunters, equitation horses, eventers (it can be seen used in all three phases), and show jumpers. It is also occasionally seen in flat racing, as well as steeplechase.

#### 21.2.1 Disadvantages

Because the hunting breastplate is attached to the D-rings of the saddle (which are known to be pulled out under great pressure), it is not as reliable as equipment attached to the saddle by means of the billets. Therefore, the breastcollar



*Western style breastcollar*

is sometimes preferred on cross-country.

The hunting breastplate also tends to have a restrictive effect on the shoulder, even when correctly fitted.

Additionally, a hunting breastplate may cause the tree points of a poorly fitting saddle to dig into the sides of the horse's withers, creating rubs and great discomfort. In this case, it is best to get the saddle properly fitted before using a hunting breastplate.

### **21.3 Western styles**

The variation of a breastplate used for western riding is referred to as a breast collar. The term "breastplate" is occasionally used, though western riders generally use "breast collar" to refer to both designs. A working western breast collar may be of either a breastplate or breastcollar design. attach to the dee rings that hold the latigo of the





*A pony wearing a hunting breastplate. Note where it attaches to the D-rings of the saddle.*

cinch, while one suitable for a horse show may attach to decorative dees located above the cinch rings, nearer the swells of the saddle. In either case, an additional strap usually runs between the front legs and attaches to the cinch. Some, though not all breastcollars for western riding also have a wither strap.

## 21.4 Fitting

The breastplate should not be fitted in any way that will restrict the horse's movement. Special attention should be paid to the shoulders, chest, and the area between the horse's front legs. In general, a fist should fit between breastplate and the horse's chest, and there should be a hand's width between the wither strap and the withers. The breast strap should have some slack, and care should be taken that its buckle doesn't rub the sensitive skin in the area. It should also be adjusted so that the chest straps lie above the point of the shoulder so that the horse's motion is not restricted.

## 21.5 The breastcollar/ polo breastplate

The breastcollar consists of a chest strap, which buckles to one billet of the saddle, runs around the horse's chest, and attaches to the first billet on the other side. It also has a wither strap, which is used to adjust the height of the breastcollar, and prevents it from slipping down too far. The breastcollar is often made of leather, strong elastic, or webbing.

The breastcollar is more secure than the hunting breastplate, because it attaches to either the front billet of the saddle, or to the front branch of a split-end girth (which is even more secure). It is therefore most desirable in eventing, especially on the cross-country phase, polo, and other jumping disciplines. It is not used in dressage, hunt seat, or equitation.

This style of breastcollar does not interfere with the horse's shoulders, as some other styles can do. However, this style may interfere with the horse's ability to breathe when it puts its head far down. Thus, this style is not desirable



*A western style breastplate, usually referred to as a breast collar*

for jumping and riding in steep terrain.

### **21.5.1 Disadvantages**

- Tends to restrict the shoulders more so than other breastplates.

### **21.5.2 Fitting**

The breastcollar should be fitted so the chest strap is horizontal from chest to girth. The wither strap should be adjusted so that it is not so low that it interferes with the horse's shoulders, or so high that it presses against the animal's windpipe. As a general rule, a fist should fit between the wither strap of the breastcollar and the withers, and the chest strap and the chest of the horse.

## **21.6 Breastgirth/loop breastplate**

The breastgirth is made of strong elastic, and runs from either the D-rings of the saddle, or is attached to a loop that runs around the saddle's stirrup bars. Although similar to the breastcollar, there is no wither strap. Breastcollars are usually seen in show jumping and eventing (usually on the cross-country phase). They are desirable because they tend to be less-restrictive to the shoulders, so the horse is better able to pick up his front legs and fold over a jump.



*This racehorse wears a breastcollar*



*A breastgirth.*

### **21.6.1 Fitting**

If the breastgirth is not adjusted correctly, it will restrict the horse's breathing because it will press on the windpipe. Additionally, it is not as secure as the breastcollar when it is attached to the D-rings. The breastgirth should be adjusted so it does not restrict the horse's breathing. It should cross at the base of the neck, and may be adjusted snugly.

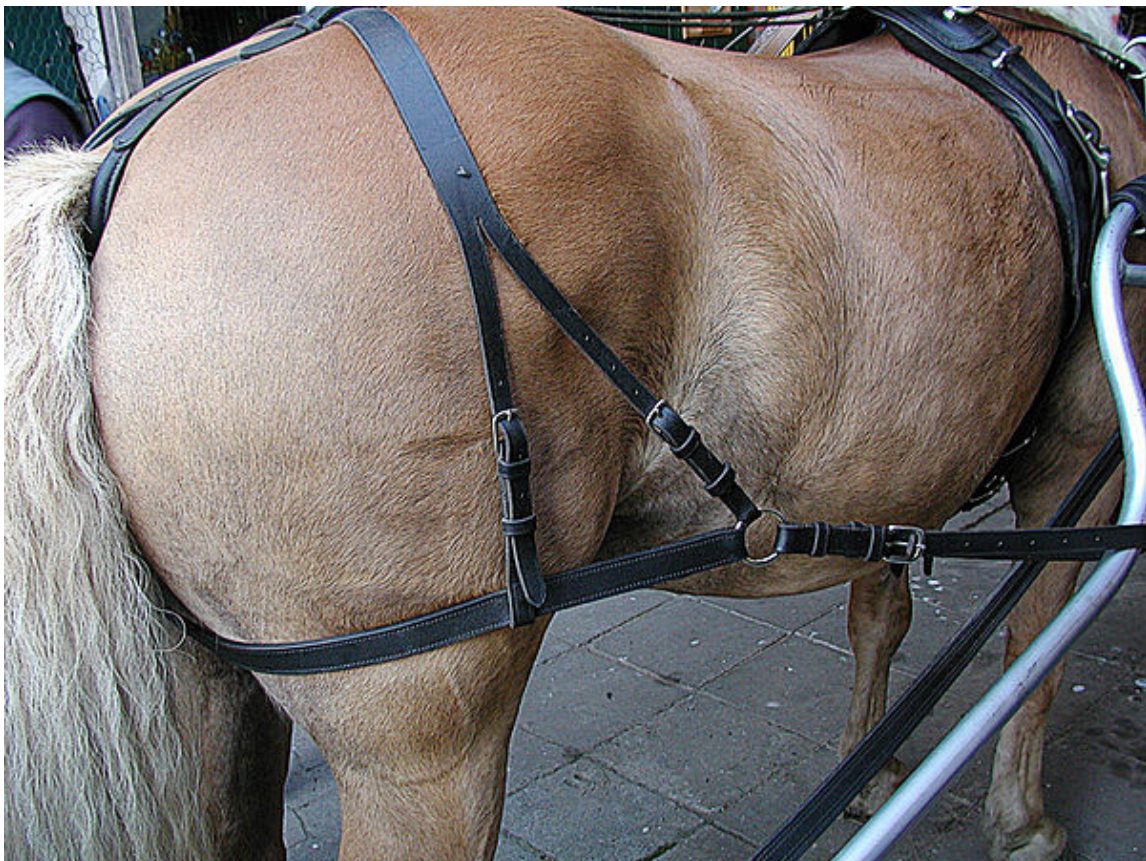
## **21.7 References**

## Chapter 22

# Breeching (tack)

For other uses, see Breeching.

**Breeching** (/ˈbrɪtʃɪŋ/ “britching”) is a strap around the haunches of a draft, pack or riding animal. Both under saddle



*Harness breeching*

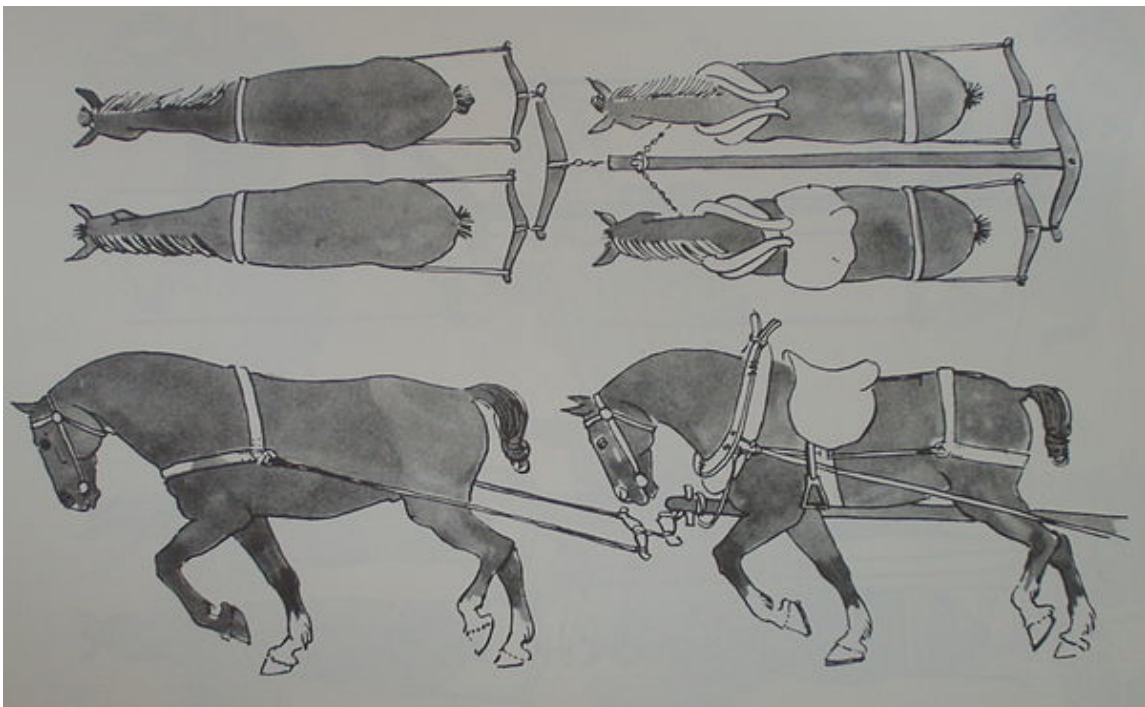
and in **harness**, breeching engages when an animal slows down or travels downhill and is used to **brake** or stabilize a load.

### 22.1 Harness breeching

When a horse, mule, or other animal is in **harness**, harness breeching (also known as full breeching) helps the animal to slow or control the forward movement of a **vehicle**. Animal-drawn vehicles have either a pair of shafts or a single pole projecting forwards for about the length of one animal. An animal between shafts wears harness breeching,



*Breeching on a horse in a light cart*



*Breeching on wheelers, attached to their collars, which are attached in turn to the vehicle pole*

which attaches forward to the shafts. As the animal slows, the vehicle runs forward, and the shafts pull the breeching forward against the haunches of the animal, which can thus slow the vehicle. A vehicle with a pole has a pair of

animals either side of it – their breeching works in a similar way, attaching forward to the pole either directly or by way of their collars. In a larger team, the **leaders** are in front of the shafts or pole and thus cannot slow the vehicle; nevertheless, they sometimes wear breeching for show.



*Team of six, with the wheelers in breeching*

Breeching may be omitted where the animal does not need to provide substantial braking. For example, in very light harness, such as in a **sulky** used for **harness racing** or in a light cart used with **fine harness**, the weight of the vehicle and passenger is little enough that the girth and **crupper** of the harness provide sufficient braking support. Breeching may also be omitted if the vehicle has efficient brakes on the wheels – examples include larger **carriages** and modern vehicles with **disk brakes**. Similarly, breeching and the requisite shafts or pole are not needed for a dragged load such as a **plow** or a log that will not move on its own, nor for a **canal boat**, which is towed by a long rope from the bank.

Historically, additional animals were sometimes used to brake very heavy vehicles on steep downhill, being hitched in harness breeching *behind* the load. This is still done when logging in very steep terrain.

Breeching is not normally used for oxen in yokes, where braking is provided by pulling back on the yoke or girth (depending upon the type of yoke).

## 22.2 False breeching

On a light vehicle with shafts, *false breeching* is sometimes fitted to the vehicle, instead of using harness breeching. A horizontal strap is attached between the shafts of the vehicle, just behind the animal. When the animal slows or goes downhill, the vehicle runs forward, pushing the false breeching against the **haunches** of the animal, which can then push backwards to slow the vehicle. False breeching is generally limited to use with well-trained, steady animals, because if the animal **rears** or falls there is a risk of the false breeching running up over its back. It is sometimes used to help show off the animal's haunches, which would be partly covered by harness breeching.<sup>[1]</sup>

## 22.3 Saddle breeching

On both pack and riding stock, if breeching is used then generally a breastplate is used as well.



*Oxen harnessed to a cart by bow yokes alone*

### 22.3.1 Pack animals

Breeching may be used to stabilize the pack saddle of a packhorse or other pack animal, by keeping the saddle from sliding forward, especially on downhill tracks. Pack horse breeching may be supplemented with a crupper to provide additional stability.

### 22.3.2 Riding animals

Breeching is occasionally used in a similar manner as that of a pack saddle, especially when riding mules. Mules often have lower withers and flatter backs than horses, making it likely that the saddle will slide forward when going downhill with a rider. However, a crupper is more commonly used on riding animals in general.

## 22.4 Training

An animal is often trained in harness with breeching before being hitched to a vehicle.

## 22.5 See also

- Driving (horse)

## 22.6 References

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*Breeching on a pack horse*

## **22.7 External links**



*Saddle breeching with crupper in a 15th-century drawing by Albrecht Dürer*

## Chapter 23

# Trace (tack)

In transport, a **trace** is one of two, or more, straps, ropes or chains by which a *carriage* or *wagon*, or the like, is drawn by a *harness horse* or other *draught animal*. The once popular idiom: “kick over the traces” comes from a frisky animal kicking one or both feet outside a trace. Unable to understand the entanglement, the animal may become wildly confused and out of control, possibly even breaking away. Hence, to “kick over the traces”, when referencing a person, means to become wild and uncontrollable.

### 23.1 See also

- Horse harness
- horse tack

## Chapter 24

# Harness saddle

Not to be confused with the saddle of a **postilion rider**.

A **harness saddle** is an element of **horse harness** which supports the weight of shafts or poles attaching a vehicle



*Horse wearing a harness saddle with attached breeching and horse collar*

to a horse. Like other types of **saddle**, it lies on the horse's back directly behind the withers, often has an internal supportive framework, often called a *saddle tree*, and usually is secured on either side by a girth passing beneath the horse. Unlike riding saddles, it is an integral part of the harness and is not used as stand-alone equipment.

### 24.1 Manufacture

The harness saddle usually has a supportive internal structure, often called a harness saddle tree<sup>[1]</sup> that is to be custom fitted to an individual horse, and has fittings (buckles, rings, etc.) for attachment of other pieces of harness. The tree was traditionally made from a steel or iron plate<sup>[2]</sup> but in modern times can also be made of flexible plastic.<sup>[3]</sup>



*Harness saddle with additional support*

In the United States during the late 19th century, at the height of use of horse-drawn vehicles, a pre-fabricated tree and fittings could be ordered by a saddle maker and assembled to suit the user. Many different trees, fittings, and assembly practices were patented.<sup>[4][5]</sup>

## 24.2 Use

The harness saddle supports the weight of the shafts or pole, and in a two-wheeled vehicle, also supports part of the vehicle's weight. In addition, it offers a base for fittings such as *terrets* and a point of attachment for a *bearing rein*.

A harness saddle is normally used on the horses next to the vehicle (in a team, the *wheelers*). It may also be used for show on leaders in a team.

The saddle is held in position by a girth strapped firmly around the heartgirth area of the horse. When traces are used, a *back band* runs through the saddle, joining at the sides to a loose strap under the belly, the '*belly band*'; both attach to loops around the shafts or to a pole. The back band may be fixed or it may be free to slide through the saddle from side to side; it is normally fixed for a four-wheeled vehicle with independently hinged shafts, but sliding for a vehicle with rigid shafts (such as a two-wheeled cart). This allows the horse to twist in the shafts on a side-slope.

Certain designs of harness saddle have a groove in the top, into which fits a chain that is hooked to the shafts. The belly band also hooks onto the shafts from beneath.

For display, a saddle pad may be placed beneath the saddle; historically in England a saddle pad, also called "housing" or "saddle cloth", was shaped to match the contour of the saddle,<sup>[6]</sup> in the manner of an English numnah today.

For heavy use, the saddle may be six or more inches long, front to back.<sup>[6]</sup> For very light use, saddle and girth may be replaced by a surcingle.

### 24.3 History



*Horse harnessed with a shaft bow and saddle*

The harness saddle has at least two lines of evolution, both departures from the very ancient throat-and-girth harness . One line was developed as a refinement of that harness and involved a wide variety of martingale and breastplate type straps in front of the shoulder and between the forelegs, all attached to a saddle and girth. This line is documented in Byzantium in the 10th century and Khmer in the 12th century, and occurs today in Japanese plough harnesses and Indian tongas. The other line, far more successful, evolved in China from ancient withers-straps that originally were used with a breastplate-and-breeching harness without a girth. This was the Han departure from the throat-and-girth harness. A minority of 2nd century Han art shows this new breastplate-and-breeching harness with a girth added to it, and in that context ancient Chinese texts sometimes refer to the withers-strap as a saddle. This 2nd century harness saddle supported one of two arches attached to shafts, and had terrets through which the reins were carried.<sup>[7]</sup> The other arch resembles the shaft bow that is in use today in Finland and Russia.

A horse wearing a shaft bow also commonly wears a collar and a saddle. In a troika, only the center horse wears a saddle. The side horses may wear collars, breastplate-and-breeching, or surcingles. An example from 1912 shows a team of three horses in Russia, all wearing collars, the center horse wearing a shaft bow and harness saddle.<sup>[8]</sup>

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## Chapter 25

# Martingale (tack)

A **martingale** is any of several designs of **tack** that are used on **horses** to control head carriage. Martingales may be seen in a wide variety of **equestrian** disciplines, both riding and **driving**. Rules for their use vary widely; in some disciplines they are never used, others allow them for schooling but not in judged performance, and some organizations allow certain designs in competition.

The two most common types of martingale, the standing and the running, are used to control the horse's head height, and to prevent the horse from throwing its head so high that the rider gets hit in the face by the horse's **poll** or upper neck. When a horse's head gets above a desired height, the martingale places pressure on the head so that it becomes more difficult or impossible to raise it higher.

### 25.1 The standing martingale

The standing martingale, also known as a “tiedown” or a “head check,”<sup>[1]</sup> has a single strap which is attached to the girth, passes between the horse's front legs and is fixed to the back of the noseband. To prevent it from catching on other objects, it also has a neck strap. A variation is attached to a **breastplate** in lieu of a neck strap. When correctly fitted for English riding, it should be possible to push the martingale strap up to touch the horse's **throatlatch**.

A variation of the standing martingale, called a *tiedown*, is seen almost exclusively in the **western riding** disciplines. A tiedown is adjusted much shorter than a standing martingale and is intended primarily to prevent the horse from flipping its head up when asked to abruptly stop or turn in speed events. Users also claim that it gives the horse something to brace against for balance. It consists of an adjustable strap, one end which attaches to the horse's breastplate and the other which attaches to a **noseband** on the bridle. The noseband can be of leather, but may also be of lariat rope, or even plastic-covered cable, which can make the western tiedown considerably harsher than the English-style standing martingale. It is properly adjusted when it puts no pressure on the horse's nose when held at a normal position, but will immediately act if the horse raises its nose more than a few inches.

With both pieces of equipment, the slack is taken up out of the strap when the horse raises its head above the desired point, and pressure is placed on the horse's nose.

The standing martingale is competition legal for **show hunter** and **hunt seat equitation** riders over fences in the US, **show jumping** competitions in the UK, and is permissible and in common use in **fox hunting**, **polocrosse**, **horseball**, and **polo**. It is also seen on some **military** and **police horses**, partly for style and tradition, but also in the event of an emergency situation that may require the rider to handle the horse in an abrupt manner. It is not legal for flat classes. The tiedown is commonly seen in **rodeo** and speed events such as **gymkhana** games, but is not show legal in any other western-style **horse show** competition.

#### 25.1.1 Safety and risks

The standing martingale is more restrictive than the running martingale because it cannot be loosened in an emergency. A horse that trips in a standing martingale could potentially fall more easily because its range of motion is restricted. If a horse falls wearing an incorrectly fitted standing martingale, the animal cannot extend its neck fully, plus will have a more difficult time getting back up.





*The standing martingale.*

Due to the risk of injury to the cartilage of the nose, the martingale strap is never attached to a drop noseband. Because of the risk of both nose and jaw injuries, it also should not be attached to any type of “figure 8” or “grackle” noseband. A standing martingale can be attached to the cavesson (the upper, heavier strap) of a flash noseband, but not to the lower, “flash” or “drop” strap.

Any martingale may cause pain to the horse if misused in combination with certain other equipment. If used in conjunction with a gag bit, a standing martingale can trap the head of the horse, simultaneously asking the horse to raise and lower its head and providing no source of relief in either direction. This combination is sometimes seen in polo, in some rodeo events, and occasionally in the lower levels of jumping.

Overuse or misuse of a martingale or tiedown, particularly as a means to prevent a horse from head-tossing, can lead to the overdevelopment of the muscles on the underside of the neck, creating an undesirable “upside down” neck that makes it more difficult for the horse work properly under saddle. It may also lead to the horse tensing the back muscles and moving incorrectly, especially over fences. This may put excessive pressure on the horse’s spine, reduce the shock-absorbing capacity of the leg anatomy, and can over time lead to lameness. There is also a risk of accidents: If a horse is sufficiently “trapped” by a combination of a too-short martingale and too-harsh bit, the horse may attempt to rear and, inhibited by the action of the martingale, fall, potentially injuring both horse and rider.

## **25.2 The running martingale and German martingale**

The *running martingale* consists of a strap which is attached to the girth and passes between the horse’s front legs before dividing into two pieces. At the end of each of these straps is a small metal ring through which the reins pass. It is held in the correct position by a neck strap or breastplate.

A running martingale is adjusted so that each of the “forks” has about an inch of slack when the horse holds its head in the normal position. When correctly adjusted, the reins make a straight line from the rider’s hand to the bit ring



*The tiedown*

when the horse's head is at the correct height and the running martingale is not in effect.

When the horse raises its head above the desired point, the running martingale adds leverage through the reins to the bit on the bars of the horse's mouth. The leverage created by this pressure encourages the horse to lower its head. A running martingale provides more freedom for the horse than a standing martingale, as the rider can release pressure as soon as the desired result is achieved. Additionally, if a horse happens to trip on landing after a fence, the rider can loosen the reins and the horse will have full use of its head and neck.

Because of this safety factor, the running martingale is the only style of martingale permitted for use in eventing competitions and horse racing. Some show jumpers also prefer the running martingale due to the extra freedom it provides. Running martingales are also used outside of the competition arena on young horses being trained in the



*Running martingale. Note the rings that go around each of the reins, and the rein stops between the martingale rings and the bit rings.*

Saddle seat, western riding, and many other disciplines.

The German martingale, also called a Market Harborough, consists of a split fork that comes up from the chest, runs through the rings of the bit and attaches to rings on the reins of the bridle between the bit and the rider's hand. It acts in a manner similar to a running martingale, but with additional leverage. It is not show legal and is used primarily as a training aid.<sup>[2]</sup>

### 25.2.1 Safety and risks

A running martingale is generally used with rein stops, which are rubber or leather stops slipped onto the rein between the bit and the ring of the martingale. Rein stops are compulsory at Pony Club and British Eventing Events. They are an important safety feature that stops the martingale from sliding too far forward and getting caught on the bit ring or on the buckles or studs that attach the reins to the bit. Sanctioning organizations require a running martingale to be used in conjunction with rein stops if the reins are buckled to the bit.<sup>[1]</sup>

The primary difficulty in use of a running martingale is the inability to raise the horse's head in the event of the animal bucking. If adjusted too short, lateral use of the reins may be impeded. If used improperly, the force exerted by the



*The German martingale or Market Harborough*

running martingale on the horse's mouth can be severe and for this reason the standing martingale is preferred in some circles. Improper use includes use on the reins of a curb bit; adjustment too short, so that the equipment pulls the horse's head below the proper position.

### 25.3 The Irish martingale

The Irish martingale is not a true martingale in the sense of a device that affects the rider's control over the horse. Thus, it is sometimes known as a semi-martingale. It is a simple short strap with a ring on either end. The reins are each run through a ring on either side before being buckled. The Irish martingale's purpose is not to control the head, but to prevent the reins from coming over the horse's head, risking entanglement, should a rider fall. It is used mostly in European horse racing.

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*Irish martingale joins the reins, seen here on a racehorse*

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# Chapter 26

## Crupper

A **crupper** (<sup>[1]</sup>*/ˈkrʌpər/*; occ. spelled **crouper**<sup>[2]</sup>) is a piece of tack used on horses and other equids to keep a saddle, harness or other equipment from sliding forward.

### 26.1 Construction

The crupper consists of a loop (the crupper itself) and an adjustable strap (crupper strap or back strap) that connects the crupper to back of a riding saddle or the other parts of a harness. The strap runs from the horse's dock, over the croup, to the saddle or to the back band (sometimes called the saddle) of a harness.<sup>[3][4]</sup>

Usually made of leather, the crupper loop is stuffed, traditionally with linseed to keep it supple in use, and molded into a tube that is shaped into a loop. The crupper may be sewn to its strap, or attached to the strap by one or two buckles. If the crupper has no buckle, then the skirt of the horse's tail is folded up onto the tailbone and the tailbone is slipped through the crupper. If it has buckles, the crupper is unbuckled and passed under the dock.

### 26.2 Use and safety

A crupper is used to keep the equipment placed on a horse's back from slipping forward. Cruppers are seen most often on horse harnesses. They are also used on the surcingles of biting rigs, riding saddles, and, occasionally, pack saddles.

A crupper needs to be snug enough to keep the saddle or harness in place, but not so tight that the horse is irritated or the skin of the tail is damaged. Cruppers are adjusted to engage only when needed; pressure is not meant to be constantly applied. If a crupper is too tight, it can cause severe chafing, discomfort and sores. If it is too loose, the saddle or harness may not stay in the proper position.<sup>[5]</sup> If used in an improper manner for too long a period of time, the horse may even become disabled in the hindquarters.<sup>[6]</sup> The loop of a crupper is kept very clean.<sup>[7]</sup>

The crupper is used to stabilize the saddle or surcingle, not provide leverage. A sudden slip or jerk on a crupper could severely injure the horse's tailbone.

#### 26.2.1 Driving

For driving, a crupper is used to prevent the parts of a harness that fit around the barrel of the horse (the girth, bellyband, back band and saddle<sup>[4]</sup>) from slipping forward. The crupper is adjusted to allow about an inch of play between the crupper and the dock.<sup>[5]</sup> Some harnesses with breeching use this as an anchor instead of a crupper.<sup>[8]</sup>

#### 26.2.2 Riding

A crupper is used on riding saddles when riding a horse or mule with low withers in steep terrain. Cruppers are most often used in activities such as endurance riding, mounted orienteering, competitive trail riding, and for recreational



*Crupper attached to the back of a saddle*

trail riding in mountains.

When riding, cruppers are particularly useful on animals with low withers,<sup>[3]</sup> because this conformation allows the saddle to slip forward as the animal travels downhill. Though not a substitute for a correctly fitted saddle, they are often used on mules, as many saddles, particularly those made for horses, are more likely to slide forward on a flatter-backed mule.<sup>[9][10]</sup>

The crupper strap may be single or double (forked).<sup>[11]</sup> It usually attaches via a snap or buckle to a crupper ring at



*Antique Japanese cruppers designed for saddles*

the center of the cantle of the saddle, or to a pair of rings (dees) on either side of the cantle. Many riding saddles today are manufactured without properly placed rings, though rings can be added. Or, in lieu of rings, a design used on English saddles utilizes a t-shaped brace that is inserted under the saddle between the rear panels and the tree.<sup>[12]</sup>

Cruppers are not common on western saddles,<sup>[11]</sup> but some English saddles are designed with crupper rings, particularly those designed to fit mules.<sup>[13]</sup>

Cruppers are seen on the saddles of some horses used to work cattle with a lance (such as horses of the *buttero* in Europe), but not on horses used to work cattle with a lasso.

### 26.2.3 Packing

On pack horses, saddle breeching alone is quite common. However, sometimes a crupper is used in addition to breeching.<sup>[3][14]</sup>

## 26.3 History

A crupper has been a standard part of mule saddles for centuries. In the 1614 spurious *Avellaneda Segunda Parte to Don Quixote*, a mule crupper is mentioned several times, and it is translated as “crupper” in two 18th Century English translations.<sup>[15][16]</sup>

Cruppers were once part of the standard design of cavalry saddles. The McClellan saddle used by the United States Army utilized an optional crupper into the early 20th century, though difficulties with proper fitting eventually led the army to discontinue its use.<sup>[6][17]</sup> Cruppers continue to be part of the ceremonial tack for some cavalry regiments and tent pegging teams.

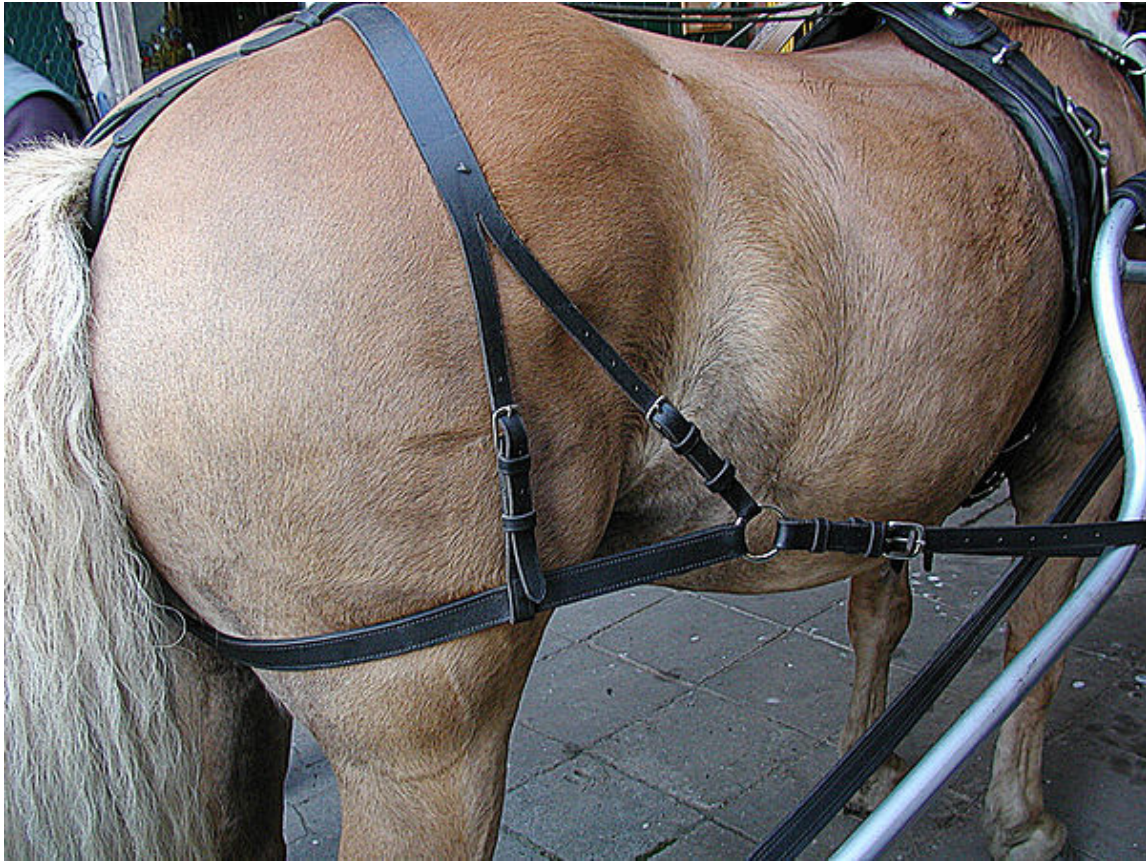




*Crupper on a harness without breeching.*

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## 26.5 External links



*Traditional attire and tack of a buttero, utilizing a crupper.*

## Chapter 27

# Terret

For other uses, see [Terret \(disambiguation\)](#).

A **terret** is a metal loop on horse harness, guiding the reins and preventing them from becoming tangled or snagged



*The reins of the front pair of this team run through terrets on the bridles of the rear pair.*

on the harness.

The reins run from the hands of the driver, through the terrets, and then attach to the horse's bit to guide the horse. Most harness has two pairs of terrets, one on the harness saddle, and one on the hames of the collar (or on the neck-strap of a breast collar). Terrets are commonly made of brass or steel, and they may stand up stiffly, or they may consist of a hinged ring. They are usually circular, but may be U-shaped or square.

Where a horse is driven behind another (such as in a team of four or more, or in tandem), each terret on the rear animal's harness may be divided into two, allowing the reins for the forward and rear animals to be kept separate. There may also be an additional pair of *head terrets* on the rear animal's bridle, taking the reins for the forward animal.

The word terret may also be used for other metal loops for attaching ropes or chains, such as the ring on a dog collar. The word derives from the Old French *toret* or *touret*, meaning small and round.<sup>[1]</sup>

## 27.1 References

[1] *Oxford English Dictionary* 1933: headword “Terret”

## 27.2 See also

- Horse tack
- Horse harness
- Draught horse
- Horse-drawn vehicle

## Chapter 28

# Bit mouthpiece

This article is about the part of a bit that goes into the mouth of a horse. For an overview of bits in general, see [Bit \(horse\)](#). For types of bridles, see [Bridle](#).

The **mouthpiece** is the part of a horse's bit that goes into the mouth of a horse, resting on the bars of the mouth in the sensitive interdental space where there are no teeth. The mouthpiece is possibly the most important determinant in the severity and action of the bit. Therefore, it should be carefully considered when choosing a bit for a horse. Some mouthpieces are not allowed in [dressage](#) competition.

The other parts of the bit are the [bit rings](#) on a [snaffle bit](#), and the shanks on a [curb bit](#). These pieces do not go inside the mouth, but rather are the parts of a bit that are outside the mouth, where the [bridle](#) and [reins](#) attach.

### 28.1 Design concepts

Particular mouthpieces do not define the type of bit. Often, bits with mouthpieces, such as those which are single- or double-jointed, are incorrectly referred to as snaffles, which is a term that describes a direct action bit rather than a leverage bit, not the mouthpiece. Although some mouthpieces are marked as “severe” and others as “mild,” this is all relative. A heavy-handed rider can make even the mildest bit uncomfortable, and a skilled, light rider can ride in a much harsher mouthpiece without damaging the mouth or causing any distress in the horse. Additionally, the type of bit has a great impact on the action of the mouthpiece. Snaffles are generally considered the mildest, curbs and gags the harshest. It is difficult, therefore, to compare a harsher-type bit with a mild mouthpiece (such as a pelham with a rubber mullen mouth), and a milder-type bit with a harsher mouthpiece (like a snaffle with a slow twist). In general, however, the mouthpiece can have a marked difference on the severity. Snaffles with twisted wires are never considered mild, while a pelham with a low port may. In short, there are many factors in the biting equation which must be considered to get a true estimate of the action and severity of a bit.

Various types of metal or synthetic substances are used for bit mouthpieces, which may determine how much a horse salivates or otherwise tolerates a bit; a horse having a moist mouth is considered more relaxed and responsive. Commonly used metals include [stainless steel](#) and [nickel alloys](#), which generally do not rust and have a neutral effect on salivation; [sweet iron](#), [aurigan](#) and [copper](#), which generally tend to encourage salivation, and [aluminum](#), which is considered drying and is discouraged as a mouthpiece metal. Synthetic mouthpieces may be made with or without internal metal cable or bar reinforcement. [Rubber bits](#) are generally thicker than metal bits, but other types of plastics are also used, often the same size as some flavored.

### 28.2 Bits without Joints

#### 28.2.1 Straight-bar and Mullen mouth

**Types of Bits:** All types.

**What it is:** The mouthpiece is a straight bar of material, without any joints or ports. In the mullen mouth, the bar has a slight bow to it, curving gently to allow some room for the tongue.



*Single-jointed pelham.*



*The rider's use of their hands is one of the most important factors when determining the severity of the bit*



*Straight bar mouthpiece*



**Action:** The mullen mouth and straight bar are fairly similar in action, placing pressure on the tongue, lips, and bars. The mullen provides extra space for the tongue, instead of constantly pushing into it, resulting in more tongue relief, and making it more comfortable, but the mullen does not have as high of a port as a curb, thus does not offer full tongue relief. This bit is generally considered a very mild mouthpiece, although this varies according to the type of bit leverage (snaffle, pelham or curb), and improper use may make it harsh, since the majority of the bit pressure will be applied on the sensitive tongue.

**Materials:** Rubber is very common, as are other synthetic materials. Stainless steel is also a favorite, but copper and sweet iron are not as popular.

**Uses:** Seen in all equestrian activities, although less commonly in *dressage*. Usually not as popular for snaffles or gags as for bits that use leverage (pelham, Kimblewick, and curb). The straight bar is common in stallion in-hand bits.

**Variants:** A variant that is somewhat between the mullen and a low port, seen primarily in western riding is called a “sweetwater” bit and is a very wide, low port slightly more arched than a mullen that offers full tongue relief, puts pressure only on the bars, and is primarily used as a curb mouthpiece. Spade and “half-breed bits also have a straight bar mouthpiece, but with the addition of a port, spoon, or other accoutrements, and thus are not truly classified as a mullen or straight bar mouthpiece.”

## 28.2.2 Ported

**Types of Bits:** All types, including driving bits.

**What it is:** The middle of the mouthpiece has a “port,” or curve, which may vary in size from “low” to “high.” The port is different from the mullen mouth in that the curved portion does not extend the width of the mouthpiece, but is only an inch or two in the center of the bar.

**Action:** Ported bits act on the lips, tongue, and roof of the mouth, and may apply extra pressure to the bars. The action of the port is directly related to its size. Low ports provide some tongue relief, similar to the mullen mouth, as they provide more space. Larger ports will press on the hard palate (roof of the mouth) when the reins are pulled, act as a fulcrum, and transfer that pressure onto the bars. Recent research has shown that the port must be 2-2.5” (5–6 cm) or more in height before it will touch the hard palate. Thus the mildest port height is not necessarily the lowest ported bit, as commonly believed; it can also be the highest port possible that will not come in contact with the hard palate.

**Materials:** Always metal, often stainless steel but also may be sweet iron or copper.

**Uses:** Very uncommon in snaffles and gags (although it can be found). One of the most common mouthpieces in pelhams, Kimblewick, and curbs. Very popular in the Western disciplines.

## 28.3 Jointed/single-jointed

**Type of Bits:** Very common on snaffle bits, but seen on all bit families including Kimblewicks, pelhams, gags, and curbs.

**What it is:** The mouthpiece has one joint in its center. It “breaks” upward toward the top of the mouth with direct pressure, and outward toward the front of the mouth when used with leverage pressure from a bit shank.

**Action:** The single-jointed mouthpiece applies pressure to the tongue, lips, and bars. Due to the V-shape of the bit when the mouthpiece is contracted, it causes a “nutcracker” action, which has a pinching effect on the bars. It also causes the joint of the bit to push into the sensitive roof of the mouth if used harshly. A single-jointed bit with a curved mouthpiece has a more “U” shape tends to decrease the pressure on the roof of the mouth.

**Materials:** often stainless steel, but may be made of any bit metal (copper and sweet iron are both popular), happy mouth material, or have a rubber covering on each joint.

**Uses:** This is one of the most common mouthpieces found on a snaffle, and is popular for all equestrian sports.

**Cautions:** Curb bits with a single joint are often called *cowboy snaffle*, *Argentine snaffle*, or *Tom Thumb snaffle*. However, these bits all are actually curb bits because they have shanks and operate with leverage. Thus, when the reins are pulled, the horse is subjected both to the nutcracker action of the jointed mouthpiece and the leverage of the curb, which also causes the jointed bit to rotate and press into the tongue. Therefore, such bits can be very harsh, particularly in the hands of an inexperienced rider. Adding a solid “slobber bar” at the end of the shanks may reduce,



*A medium-height port on a curb bit, offering room for the tongue without acting on the hard palate.*

but does not eliminate, this problem.

## 28.4 Double jointed bits

Double-jointed bits reduce the nutcracker effect because they conform better to the horse's "U" shaped mouth, instead of the "V" created by a single joint. In this respect they are milder, and many horses prefer a double-joint over a single joint.

Many of the double-jointed bits (especially the French link and Dr. Bristol) are occasionally "added to" by twisting the cannons of the mouthpiece. This greatly increases the severity of the bit, as these cannons act directly on the tongue and bars in addition to the regular action of the bit. A relatively "kind" French mouth can therefore be turned into a severe bit when the cannons are twisted or if the mouthpiece is put onto a gag bit. All references below are based on the cannons being smooth, not twisted.

### 28.4.1 The French mouth/ French link

**Types of Bits:** snaffle, gag, pelham, curb (including driving bits)



*Single-jointed pelham.*



*Single-jointed snaffle, mouthpiece wrapped in rubber to make it milder*



*A French Link mouthpiece*

**What it is:** The mouthpiece has two joints due to a central link. This link is flat, short and has bone-shaped, rounded corners. Some French link snaffles are not flat, but are rounded in the same manner as the rest of the mouthpiece.

**Action:** One of the mildest mouthpieces, the two joints reduces the nutcracker effect which is found in single-jointed bits, and encourage relaxation. Applies pressure to the lips, tongue, and bars of the mouth.

**Materials:** Usually stainless steel, also copper (either just the link or the whole bit).

**Use:** Commonly seen on snaffles, rather rare in gags, pelhams, or curbs. This is one of the most popular mouthpieces for dressage work. However, it is used in many English-styled disciplines. It is rarely used in the Western-styled disciplines.



*A Dr. Bristol link is flat, but set at an angle when compared to a French Link. This bit also has a slow twist to add to the severity.*

### 28.4.2 The Dr. Bristol

**Types of Bits:** snaffle, gag

**What it is:** The mouthpiece has two joints due to a central link. This link is flat, but longer and more rectangular in shape than a French link. It is also usually set at a slight angle to the plane of the bit.

**Action:** The double joint reduces the nutcracker effect found in single-jointed snaffles. However, the middle link is angled relative to the side pieces of the bit. Typically this means that the thin edge of the rectangle presses into the tongue, creating a very small bearing surface. When a full-cheek Dr. Bristol is used, however, the bit can be rotated so that the angled middle joint lies flat with its broad side against the tongue; when used this way the bit is relatively mild. This latter method is only possible because bit keepers ensure the bit stays in a fixed position in the horse's mouth, and thus bits that do not use bit keepers (e.g., a D-ring or eggbutt) do not have this milder option.

This bit can put pressure on the tongue, although it also adds pressure to the bars and lips of the mouth.

**Materials:** Usually stainless steel, also copper.

**Use:** Commonly seen on snaffles, very rare in gags. This bit is seen in many of the English disciplines, but is not used in Western disciplines. Rare in dressage due to its potential severity. Legal for use in the United States,<sup>[1]</sup> but often not allowed in sanctioned Dressage competition in other nations.<sup>[2]</sup> Seen in many jumping disciplines.

### 28.4.3 The ball joint

**Types of Bits:** snaffle

**What it is:** Similar to the French-link, except there is a round "ball" on the middle link.

**Action:** double joint reduces the nutcracker effect. The ball tends to concentrate pressure on the tongue. More severe than the French link, less than the Dr. Bristol. Also applies pressure to the lips and bars of the mouth.

**Materials:** Usually stainless steel



*The ball joint*

**Use:** Rather rare type of mouthpiece, seen in the English disciplines. Permitted in *dressage*.

#### **28.4.4 The ported link**

**Types of bits:** snaffles

**What it is:** Double jointed bit similar to a French link, except the middle link has a slight upward (toward the roof of the mouth) curve, like a port.

**Action:** Similar action as French link, but possibly provides more room for the tongue.

#### **28.4.5 The broken Segunda**

**Types of Bits:** snaffles, usually with a Dee-ring

**What it is:** Similar to the ported link, except the middle link is much higher and makes a clear upside-down “U”.

**Action:** Supposed to encourage the horse to soften and stay light in the bridle. The bottom of the “U” can be quite sharp, however, and can dig into the tongue to the point of cutting it. Therefore, they are best left to skilled riders with a very light contact.

### **28.5 Multi-jointed bits**

Bits with more than two joints tend to wrap around the lower jaw of the horse. In general, they are considered more severe than double-jointed bits. These bits are *not* permitted in *dressage*.

### 28.5.1 Waterford

**Type of Bits:** snaffle, pelham, gag, curb

**What it is:** The mouthpiece is made of 5-9 joints and is very flexible.

**Action:** Due to the many joints, the waterford has many bumps, which can act as pressure points. The idea is that the great flexibility will discourage the horse from leaning on it.

**Materials:** Stainless steel.

**Uses:** Most common in the English disciplines, especially *show jumping* and *eventing*. Used mainly on strong horses. Not permitted in dressage, not commonly used in hunt seat riding. Rather rare in a pelham, very rare in a curb bit.

### 28.5.2 Chain mouth

**Types of bits:** gag, curb

**What it is:** As its name suggests, this mouthpiece is several links of chain.

**Uses:** Seen in the Western disciplines.

- Note: There are some chain bits made of bicycle chain rather than link chain. These bits are considered by most horsemen to be too severe for use and many categorize them as cruel. These bits are not allowed in competition.

## 28.6 Twisted/serrated bits

All twisted mouthpieces are considered more severe than smooth mouthpieces. In general, they are not appropriate for novice riders or those with harsh or unskilled hands. Neither these nor any bits should be used to the point where they cause bleeding of the horse's mouth.

If a rider believes such a bit would benefit his horse, he should first look at the animal's training and his own skills. Many problems can be resolved through proper training, rather than harsher biting. Usually, it is the less-skilled riders who find the need to use harsher bits, because they can't control their horses in anything else.

That being said, there are cases in which skilled riders can use such bits to their advantage, and improve the horse's training. These bits are NOT permitted in dressage competition, and are generally not used for schooling dressage horses.

### 28.6.1 Slow twist

**Types of Bits:** Snaffle, pelham, gag

**What it is:** A mouthpiece (usually single-jointed) with a slight twist in the cannons. Thicker and with fewer twists than a wire bit, has fewer edges than a corkscrew.

**Action:** The twist causes edges that result as pressure points in the horse's mouth. Increases pressure on the tongue and bars, also acts on the lips. Generally considered strong and fairly severe.

**Materials:** Usually stainless steel

**Uses:** Most commonly found on snaffles, quite rare on pelhams and gags. Usually seen in English disciplines. *Not* permitted in dressage competition.

- Note: The slow twist is often incorrectly used to refer to the corkscrew or a wire bit. These bits are *not* the same.

### 28.6.2 Corkscrew

**Types of Bits:** Snaffle, driving bits (curbs)



*The slow twist is thicker than the twisted wire bits*

**What it is:** The mouthpiece (usually single-jointed) has many rounded edges. However, it is not actually “corkscrew” in shape, but more has a more “screw-like” mouthpiece with blunt edges. Thicker than a wire bit, thinner than a slow twist.

**Action:** The edges amplify pressure on the mouth, especially the bars and tongue. Considered severe.

**Uses:** Mostly seen in English-type disciplines, and in driving. *Not* permitted in dressage.

- Note: The name is often incorrectly used to refer to the slow twist or wire bit. These bits are *not* the same.

### 28.6.3 Single Twisted Wire

**Types of Bits:** snaffle, gag, curb

**What it is:** Mouthpiece is a single-jointed bit made of a thin twisted piece of wire for each joint.

**Action:** The wire bit is extremely severe. It is not only very thin, but it has twists in it that cause pressure point.

**Materials:** Stainless steel preferred for English disciplines, sweet iron and copper seen in Western disciplines.

**Uses:** The twisted wire is *extremely* severe. It is not permitted for dressage. It is more commonly seen in the Western disciplines than the English, although the jumping disciplines occasionally feature wire bits. These bits are for strong horses that pull or take off, and those with “hard” mouths. It should only be used by skilled riders with soft hands. Some people do not use these bits because they believe them to be cruel, although many trainers agree they are appropriate in certain circumstances with particular horses.

- Note: The wire bit is often incorrectly referred to as the slow twist or corkscrew. These bits are *not* the same.

### 28.6.4 The double twisted wire

**Types of Bits:** snaffle, gag, curb

**What it is:** Bit has 2 mouthpieces, each one single jointed and made of twisted wire.





*Twisted wire.*

**Action:** The two joints amplify the nutcracker action. The wire makes the mouthpieces thin and sharp. The two mouthpieces cause extreme pressure on the bars. This bit is *very* severe, and should only be used by skilled riders with soft hands. Some people do not use these bits because they believe them to be cruel.

**Materials:** Metals, usually stainless steel but also sweet iron and copper

**Uses:** *Not* permitted for dressage. Very severe, used on horses that are very strong.

### 28.6.5 The saw chain mouth

**Types of bits:** snaffle

**What it is:** As the name suggests, the mouthpiece is made out of a piece of chainsaw.

**Uses:** *Extremely* severe, and quite uncommon. The majority of trainers will not use such a bit. Note: due to the extreme severity, most equestrian organizations would not permit this bit in competition.

## 28.7 The double-mouth/scissors/"W" or "Y" mouth

**Types of Bits:** snaffle, gag, curb

**What it is:** Bit has two mouthpieces, each one single jointed.

**Action:** The two joints amplify the nutcracker action. They also cause extreme pressure on the bars. This bit is *very* severe, and should only be used by skilled riders with soft hands. Some people do not use these bits because they believe them to be cruel.

**Materials:** Metals, usually stainless steel but also sweet iron and copper.

**Uses:** *Not* permitted for dressage. Very severe, used on horses that are very strong.

## 28.8 Hollow mouth

**Types of bits:** snaffle, pelham, gag

**What it is:** A mouthpiece (usually single jointed, but not always) that is hollow in the middle, making it very light. The mouthpiece is usually thicker than average.

**Action:** The thick, hollow mouthpiece spreads out pressure, thought to make it less severe. However, this effect will vary with the mouth structure of the individual horse. Some horses prefer a smaller diameter bit in their mouth because their mouths do not have room for the thick mouthpieces, and in such cases a hollow mouth bit may cause discomfort.

## 28.9 Roller bits

### 28.9.1 The cricket, cherry roller and other roller bits

**Types of bits:** snaffle, curb, gag, pelham

**What it is:** A cricket is a single roller placed within the port of a curb bit. usually containing copper, often producing a rattling or “cricket-like” sound when the horse moves it around.

The cherry roller bit has multiple rollers along its mouthpiece and may be of steel, copper, or alternate between the two. The mouthpiece may be jointed or straight.

**Action:** Rollers are supposed to help a horse relax its jaw and accept the bit. They encourage salivation and may also calm nervous horses or provide an outlet for nervous tongue movements. Rollers do not affect the severity of the bit.

**Uses:** Crickets are very commonly seen on western curb bridles, particularly certain Spanish and California styles such as the spade, half breed, or salinas mouthpieces and are legal for western pleasure competition. Cherry rollers are mainly an English-style bit, but are not permitted in dressage.

### 28.9.2 The Magenis

**Types of bits** snaffle

**Types of Bit rings:** Usually eggbutt or loose ring.

**What it is:** The Magenis is a single-jointed bit with “rollers,” or bead-like structures that may spin around, in its mouthpiece. The mouthpiece is squared off.

**Action:** The rollers are supposed to activate the horse’s tongue and help the horse relax and accept the bit. Rollers may also help distract a nervous horse. The edges of the square mouthpiece create pressure points, making the bit severe.

**Uses:** Seen in the English disciplines, not permitted in dressage. A fairly uncommon bit.

## 28.10 Key bit

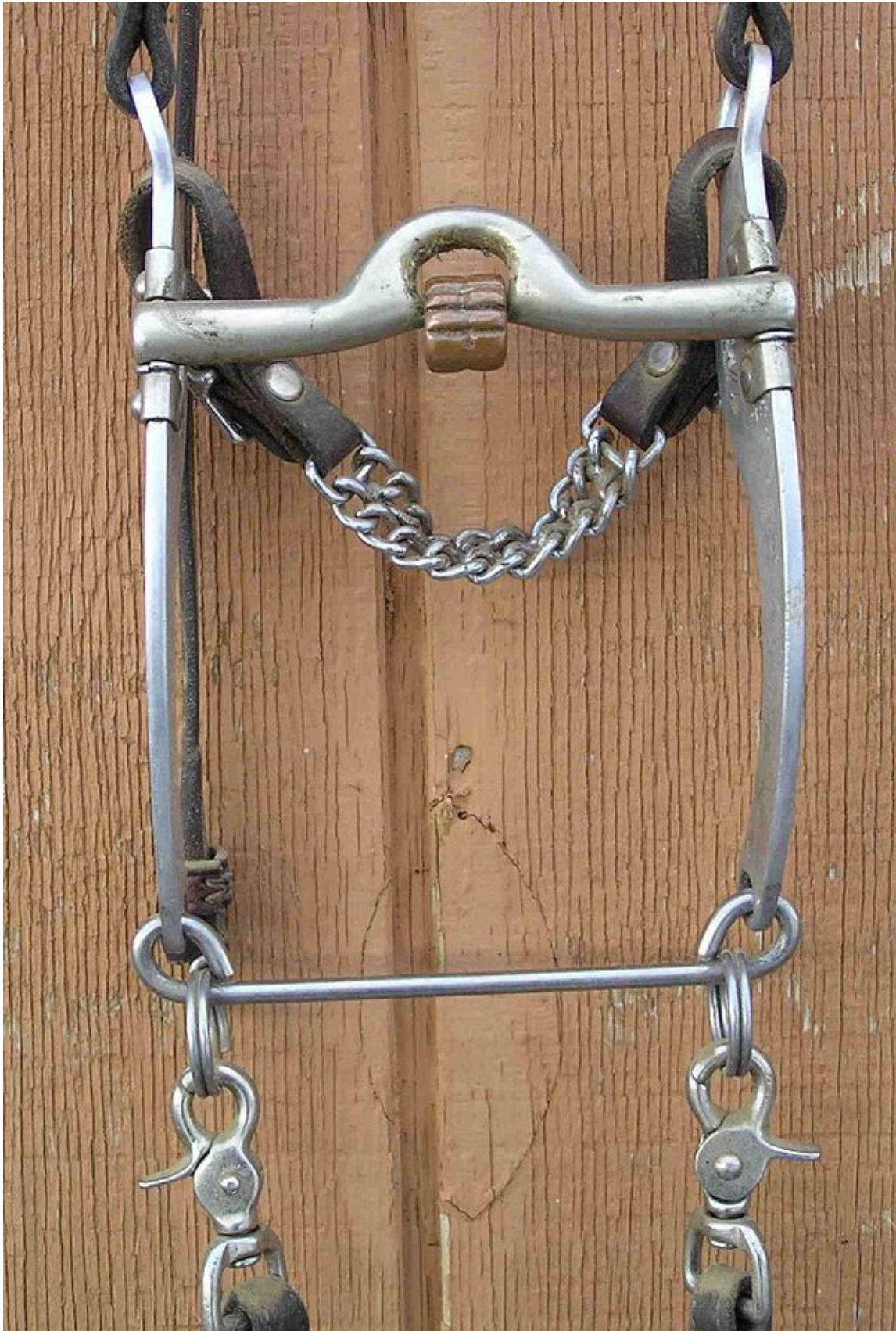
**Types of Bits:** snaffle

**What it is:** The center of the mouthpiece has short “keys” extending from it, which are movable on the bit. The keys rest on the tongue, below the bit.

**Action:** The keys are supposed to encourage the horse to relax, as the horse plays with them in his mouth. Mostly used for breaking in young horses.

## 28.11 Tongue bit/tongue correction bit/tongue port

**Types of bits:** usually snaffle, sometimes pelham



*A curb bit with a roller or cricket.*

**What it is:** A flat piece of rubber that slides on a mullen mouth, or a metal bit that already has a flat piece in the

center of the mouthpiece. The flat piece is wide and goes backwards in the mouth.

**Uses:** the purpose of this bit is to prevent a horse from getting his tongue over it. It can be useful in retraining, and for horses for whom this is a habit. This therefore gives the rider more control. Not permitted in dressage.

## 28.12 Mouthpiece thickness

A standard mouthpiece is 3/8 inch in diameter, measured one inch out from the bit rings (the area that usually come in contact with the bars). The common belief is that a thinner mouthpiece increases the severity of the bit, because it decreases the bearing surface and makes the bit “sharper.” However, up to a point, some horses perform better with a thinner mouthpiece to a thicker one because there is less metal in their mouth and therefore more room for the tongue. This is mostly true if the rider has soft hands. Thinner mouthpieces are also preferable when using a **double bridle**, as the horse has even less room for its tongue with two bits in his mouth.

On the other hand, very thin bits (such as the twisted wire bits) have a marked severity over thicker bits. Some wire bits may come in a thickness as low as 1/16 inch, making them *extremely* severe to the point where it is easy for any rider to cut and ruin the horse’s mouth, especially the lips. Many horsemen, even the most skilled riders, will not put such a harsh bit in their horse’s mouths. Many equestrian organizations do not allow a bit to be 1/4 inch or thinner in diameter.

If the rider gives crude aids, it is generally best to pick a bit mouthpiece that is thicker. This may also be true with some horses with relatively thin bars, such as some **Thoroughbreds**.

## 28.13 Mouthpiece material

- **Stainless steel:** The most popular material for bits. It is strong, easy to clean, and doesn't rust. It is considered to be a neutral metal that does not encourage or discourage salivation. However, the **chrome** and **nickel** used in most stainless steel may be drying.<sup>[3]</sup>
- **Copper:** Warms up quickly, but does not last as long as stainless steel. It is supposed to encourage the horse to salivate and accept the bit. There are some people who refuse to use copper bits because they believe them to be distasteful, and that to be the reason why some horses chew them so readily. Because these bits wear out fairly quickly, they should be checked regularly to make sure they are maintaining their integrity.
- **Copper alloy:** by combining copper with a harder metal, the bit lasts longer. In horse equipment, the most common copper alloys are:
  - **Brass alloy:** The most common copper alloy used in bits is **brass**, created by combining copper with **zinc**. Two common brass alloys used in bits are **Aurigan**, a patented alloy of copper, zinc and silicon. Another, less expensive version, is an alloy of copper, zinc, and silicon with **nickel** or **aluminum**.
  - **Nickel silver** or **German silver:** An alloy of copper with **nickel** and sometimes **zinc**. More common on a bit shank or as a substitute for **silver** in decorative elements on a **saddle** or **bridle**.
- **Sweet iron:** actually **cold-rolled carbon steel**: easily rusts, which encourages salivation from the horse and acceptance of the bit.<sup>[3]</sup> This metal is used in many **Western riding** disciplines, and is not as popular in **English riding**.
- **Nickel alloy:** Actually an **Alloy steel**, is less expensive than stainless steel, but durable. May be drying, but less so than aluminum.
- **Aluminum:** Considered a poor choice for a mouthpiece as it tends to dry out the mouth<sup>[3]</sup> and may be toxic. Occasionally seen in cheap western-style bits and is generally avoided. However, can be durable if made correctly, and are inexpensive.
- **Rubber:** softens the action of the bit. All rubber bits are very gentle, but are easily chewed and destroyed. Bits that add rubber to an underlying metal mouthpiece last longer, but the rubber must be periodically replaced. A waterproof self-sticking **latex** bandaging product called **Sealtex** is often used to add rubber to a metal bit.
- **Synthetics:** Any number of tough plastics are used for bit designs, combining the softness of rubber with more durability. The best are not easily destroyed by chewing.



*A sweet iron mouthpiece with copper inlay, designed to encourage salivation and a soft mouth*

## 28.14 See also

- Bridle
- Bit (horse)
- Bit ring
- Bit shank

## 28.15 References and external links

- [The Bit Gallery](#)

[1] Rule DR 121



*A copper mouthpiece.*



*A metal bit covered with a latex rubber material*

[2] Example: Equine Canada Rules Section E Dressage Article 4.3

[3] Hill, Cherry. "Sweet Iron Bits." *Horsekeeping.com* 2006. Accessed 17 January 2010

## Chapter 29

# Lead (tack)

This article is about livestock equipment. For leads used on small animals, see **Leash**. For the young children's horse show class, see **Leadline**. For other uses, see **Lead (disambiguation)**. For yet more other uses, see **Lead line**.

A **lead**, **lead line**, **lead rope** (USA) or **head collar rope** (UK),<sup>[1]</sup> is used to lead an animal such as a horse. Usually, it is attached to a **halter**. The lead may be integral to the halter or, more often, separate. When separate, it is attached to the halter with a heavy clip or snap so that it can be added or removed as needed. A related term, **lead shank** or **lead chain** refers to a lead line with a chain attached that is used in a variety of ways to safely control possibly difficult or dangerous horses if they will not respond to a regular lead.

### 29.1 Variations

A lead can be made from a variety of materials, including **cotton**, horsehair (woven or braided hair, usually from a horse's tail), **leather**, **nylon** or other synthetic materials. Lead ropes, as the name implies, are round and made of various types of rope, usually between 5/8 and 3/4 inch (about 2 cm) in diameter.<sup>[2]</sup> Lead lines are usually flat webbing or leather, and are generally .75 to 1 inch (1.9 to 2.5 cm) wide, though may be narrower for show use.<sup>[2]</sup> Flat lines are less bulky and more comfortable in the hand for leading and animal, but may lack adequate strength for tying.

A lead most often attaches to the halter with a sturdy snap. In some cases, the lead is tied or **spliced** permanently to the halter. A lead for a horse usually is in the range of 9 to 12 feet (2.7 to 3.7 m) long, but longer and shorter lengths are seen.

The lead shank consists of a lead, usually a flat line, with a chain end, or, less often, thin nylon or rope. The chain end ranges from 18 to 30 inches (46 to 76 cm) long and has a snap or clip on the end that attaches to the halter, and a ring on the other end that is attached to the lead line.<sup>[2]</sup> Some lead lines are permanently sewn to the chain shank, others have buckles or clips allowing the chain to be removed. Lead shanks are usually used on potentially difficult or dangerous horses, such as **stallions** or those that, for various reasons, will not respond to a regular lead. For this reason, in some regions, lead shanks are sometimes called "stud chains." They are also commonly seen on in-hand horses of all ages and sexes at some horse shows, as the chain shank can also be used to transmit commands quickly but inobtrusively, encouraging a prompt response from the horse.

For aesthetic purposes, the lead may be the same color as the halter, and sometimes even made of the same materials.

### 29.2 Use

Leads are used to lead, hold, or tie an animal or string of animals. A horse may be led by a person on the ground, sometimes called "leading in-hand," or may be led by a rider mounted on another horse, a process called "ponying." A "string" of animals refers to animals tied to one another by their leads, whether the human leads the horses in hand or from another horse. Horses requiring physical conditioning, such as **Polo ponies** or **roping horses**, may be conditioned in strings. **Pack horses** are often led in strings on the trail, usually with the handler ponying the first pack horse and for the rest, the lead rope of one horse is tied to the tail or saddle of the horse in front of it.



*Lead clipped to a horse's halter*





*A lead shank applied under the chin. (note: Image has been reversed)*

### 29.3 Safety in leading

By tradition, the handler leads a horse from the horse's left ("near") side, though situations may arise when a horse needs to be led from the right ("off") side. In some areas, particularly in the American west, the handler may be in front of the horse while leading, though this technique does place the handler at risk due to not being able to see what the horse is doing.

When leading a horse, the handler usually holds a single thickness of the lead with the right hand, while carrying the gathered slack of the lead in the left. The excess line should be laid in back-and-forth loops that fall on either side of the hand; holding the excess in circular loops, wrapping, or coiling the lead around the hand is dangerous, the handler can be dragged, injured or even killed if the horse pulls away, tightening the loops of the lead around the hand.

When used to lead a horse in hand, the materials used in a lead, particularly synthetics, may put a handler at risk of a rope burn should the horse pull the lead from the handler. Some handlers wear gloves while leading a horse.

### 29.4 Tying

Lead ropes may be used to tie up animals. Common methods of tying off a lead include the halter hitch and a subset of other loop knots, collectively known among equestrians as *safety knots* and *quick release knots*. If the animal begins to panic, a person can pull the working end to quickly release the knot before it becomes too tight to untie quickly. The purpose of such a knot is to be easy to untie even when under significant tension. However, some animals do learn to untie themselves and may require the loose end of the rope to be passed through the slipped loop to prevent this occurrence, or be tied with alternative methods of restraint.



*A group of horses being led together by a single handler*



*Horse led from the side, excess lead rope folded and held, not wrapped around the hand*

Animals, usually horses, may also be placed in crossies, usually for grooming, tacking up and related activities.



*Wrapping the lead rope around the hand can have disastrous consequences*

Crossties are commonly made from two lead ropes, each attached to a wall with the snap end placed on either side of the horse's halter. This technique of restraint keeps the horse from moving around as much as with a single lead, and is particularly handy when people are working on both sides of the animal. However, the method also presents some danger to the animal if it **rears** or falls. Ideally, crossties are attached at one end with either a quick release **panic snap** or breakaway mechanism.

Flat lead shanks and thin diameter ropes generally lack the strength to securely tie a large animal such as a horse or cow, but may be more comfortable in a person's hand for leading. Ropes of a thick diameter (3/4 in or more) and high tensile strength generally are adequate to tie a large animal that resists being tied; thinner and/or weaker leads generally will break if significant tension is put on them. A common point of failure is the **snap fastener** used to attach the lead to the halter.

An animal that panics and attempts to escape while tied with a lead can cause itself serious injury or damage the objects to which it is tied. When an animal is left unattended or if a safety knot is improperly tied and cannot be released, views differ as to whether a lead rope should be made strong enough not to break under tension, or if it should have safety elements that allow it to give way when tension reaches a certain point in order to minimize potential injury. Some people carry a very sharp knife in a belt holster or boot or keep a sharp knife in a convenient location in order to cut a lead in case of emergency. In other cases, particularly on leads used to restrain an animal in a horse trailer, a **panic snap** may be used, though releasing the snap while under extreme tension also may put a handler at some risk of injury.

## 29.5 Use of a shank

Hard jerks on a lead shank can frighten a horse, damage the head, or cause a horse to rear. Light, short tugs are generally enough to get the attention of a horse. The chain should only come into action when pulled, not when hanging loosely. The handler does not hold the chain itself, as it can hurt the handler's hands should the horse pull back or move its head quickly.



*A lead rope tied to a fencepost with a safety knot known as a "figure 8" halter hitch.*



*A horse in crossies. Either chain or rope are used to restrain the animal. Crossies are not used to lead the animal, only for restraint*

### **29.5.1 Chain shank attachments**

- **Over the nose:** The shank is run through the left ring of the halter (on the side of the face), wrapped once around the noseband of the halter, threaded through the right side nose ring of the halter, and attached on the upper right ring of the halter (near the ears of the horse). In some places, this configuration is called a “stallion chain,” though the setup is used on horses of all sexes under some circumstances. If the chain is not attached to the upper right ring, the halter can slide into the horse’s eye when the shank is applied. When pressure is



*A lead shank applied through the mouth. Generally not permitted under the rules for horse shows in the United States.*

applied, the shank puts pressure on the nose of the horse, encouraging the animal to become more aware of the handler's signals. If the shank is used harshly, the handler can damage the horse's nose. An alternative use is to take the chain over the nose, around and under the chin, and attached back to itself.

- **Under the chin:** the shank is run through the lower left ring of the halter, under the chin, through the lower right ring of the halter, and attached either back to itself or to the upper right ring. This tends to make a horse raise his head, but also has a stronger disciplinary effect. The chain, if too short to be attached back on itself, can also be run through the left ring and attached to the right ring, though the halter may also be moved off-center when the shank is applied, and the snap may be subject to pressure that may cause it to fail.
- **Chain through mouth:** The chain is run through the left lower ring, through the mouth, through the right lower ring, and attached to the upper right ring. This is quite severe and can damage the mouth if used harshly.
- **Chain over gum:** similar to the chain through the mouth, except the chain is rested on the upper gum of the horse's mouth, under the upper lip. The most severe attachment, may cause bleeding if the horse resists.

## 29.6 See also

- Longe line
- Rein
- Lead (leg)
- Lead change



*A lead shank applied around the nose.*

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*Shank over the gums.*



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