

Guidelines on Correct Bridle Fitting



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Introduction

Horses are frequently ridden or handled in bridles. These should be fitted carefully, just like a saddle, because – just like their backs – horses' heads vary in shape.



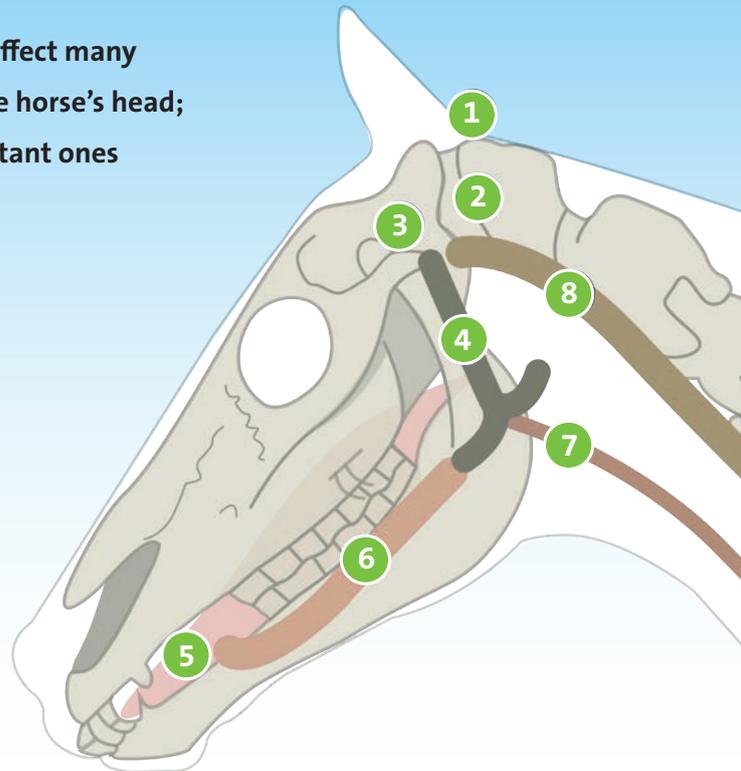
Research shows that the way a bridle is designed and fitted to a horse's head affects the pressures underneath it. Bridle design and fit can also affect how a horse moves. This is because some important structures in the head are connected to the breastbone (sternum) and the forelimb. So fitting a horse's bridle as well as possible is likely to make them more comfortable and perform better.



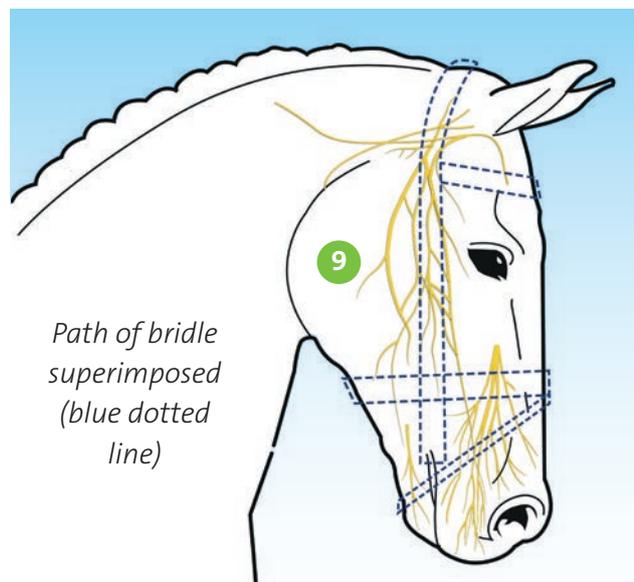
Anatomy

What important structures in the head can be affected by the bridle?

The bridle can affect many structures in the horse's head; the most important ones are shown here



- 1 Back of ear
- 2 Wing of atlas
- 3 Temporomandibular joint
- 4 Hyoid apparatus
- 5 Tongue
- 6 Muscles linking hyoid apparatus to tongue and jaw
- 7 Muscles linking hyoid apparatus to breastbone and forelimb
- 8 Muscle that flexes neck and brings forelimb forward
- 9 Nerves (shown in yellow)



Pressure Points

Where are pressure points likely to occur under a bridle?

If a bridle is not well designed and fitted, pressure points can occur over:

- Anatomical prominences (parts of the head that project outwards)
- Parts of the head that move

Movements that lead to increased pressure include swallowing, opening the mouth, moving the tongue, flexing or extending the head and neck, and moving the forelimbs. Many of these pressures are intermittent, changing from moment-to-moment during the stride or as the horse swallows.

HEADPIECE PRESSURE POINTS

Front and back of the headpiece

- Impact between the front of the headpiece and the base of the ears
- Impact between the back of the headpiece and the wings of the atlas (first vertebra in the neck)

Midline over the top of the poll

Browband attachment

- Underneath the headpiece close to the browband attachment (pressure occurs here when the horse swallows)

NOSEBAND PRESSURE POINTS

Either side of the nasal bone

Underneath the chin, over the jaw bones

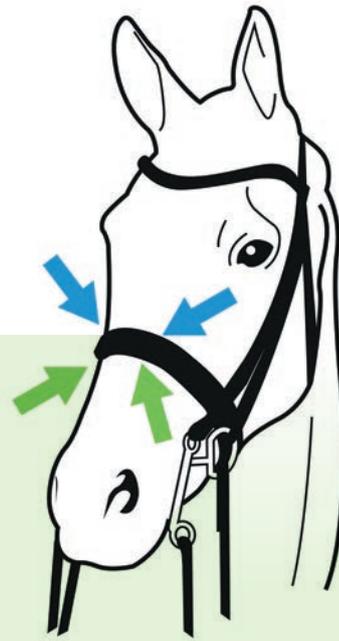


 Locations where pressure points can occur under a bridle

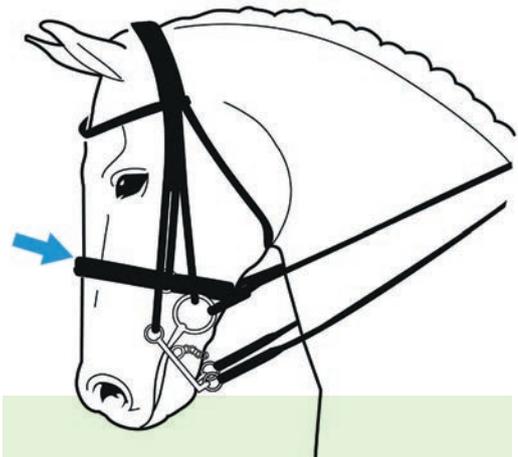


PRESSURE POINTS *(continued)*

The site of increased noseband pressure depends on the horse's head position; if the head is in a neutral position the tension may be evenly distributed under the entire width of the noseband, between its upper (blue arrows) and lower (green arrows) edges



If the head is more horizontal, there tends to be more pressure on the lower edge



If the head is more vertical, there tends to be more pressure on the upper edge

The headpiece and noseband can act as a linked unit so it is important that both are carefully fitted to avoid pressure points occurring under either the noseband or the headpiece.



Headpiece

Length

- The headpiece should be long enough to allow the browband to sit loosely well below the ears, without rubbing the base of the ears
- The top of the split in the headpiece should sit low, below the browband, to increase stability and to ensure that buckles are not sitting over anatomical prominences or the junction with the browband

Width

- The headpiece should be narrow enough to fit between the back of the ears and the wings of the atlas on either side of the head, to avoid impacting against these structures
 - *Some horses have more room at this location than others; those with less room will need a headpiece that is very narrow at the sides; this can be achieved by using a shaped headpiece or one that is unshaped but narrow*
 - *However, if the headpiece is unshaped and very narrow, pressure points can develop on the top of the head - in this situation, consider using a shaped headpiece*
- Sharp or hard edges to the headpiece should be avoided
 - *Softer and smoother edges to the headpiece are recommended to reduce impact on the ear and wing of the atlas*



Shape

- A shaped headpiece should be curved at the front edge to fit around the base of the ears, and at the back edge to fit around the wings of the atlas
 - *Shaping a headpiece at the sides so that it fits more easily between the ear and wing of the atlas reduces the chance of pressure points on these structures*
- Widening of the headpiece over the top of the head distributes pressure more widely at this site, reducing pressure and stabilising the bridle
- If a headpiece is shaped, it is very important that it is fitted to the individual horse
 - *Widening or narrowing in the wrong place could lead to development of pressure points*



A shaped headpiece should fit around the base of the ear and the wing of the atlas



Position of buckles and hard areas on the headpiece

- Buckles, thickening, and hard areas on top of a headpiece can create pressure points underneath the headpiece
 - *These should be avoided whenever possible*

Noseband design and attachments

- To avoid pressure points under the headpiece on the top of the poll, do not use a narrow or rolled noseband strap that passes under the headpiece
- If the noseband strap passes through the headpiece on the sides of the head, be careful that this is located away from the browband attachments and is well padded, to avoid creating pressure points
 - *A noseband that attaches to the headpiece on either side avoids these pressure locations – but be careful not to position the buckles close to anatomical prominences or the browband attachment*
- If the noseband attaches to the headpiece, the shape, width, and stability of the headpiece should be assessed carefully to make sure that the noseband doesn't cause the headpiece to tilt back and forth during the stride



Bridle in which the noseband strap passes through the headpiece; the right hand photo shows why this design could create pressure points (arrows)

This horse had been wearing a bridle in which the noseband strap passed through the headpiece; white hairs have formed at a pressure point



Throat lash

- With the lowest part of the throat lash positioned approximately half way along the cheek, you should be able to fit 4 adult fingers sideways (horizontally) between the cheek and the throat lash

Browband

- The browband should be long enough that it does not pull the headpiece forward onto the back of the ears
- The browband should be loose enough to move independently without pulling on the head piece and creating pressure at the sides of the head
- The browband should be positioned low enough that it avoids the base of the ear and bony prominences on the skull



Noseband

Tension

- You should be able to fit 2 fingers (or the equivalent measure with a gauge) between the noseband and the horse's face on either side of the nasal bone
 - *This recommendation, which applies to all types of noseband, avoids creating excessive pressure on the front of the nose or the lower jaw*
- Avoid using a very loose noseband because a well-fitted noseband can help to stabilise the bridle

You should be able to fit 2 fingers between the noseband and the horse's face on either side of the nasal bone



Height relative to facial crest and corners of mouth

Cavesson nosebands and the upper strap of flash nosebands:

- Should lie between the facial crest and the corner of the mouth, leaving at least one finger's width between the bottom of the facial crest and the top of the noseband
 - *A noseband that is too high and is pressing on the facial crest cannot move with the horse's head and can create a pressure point, causing discomfort and affecting the horse's movement*
 - *A noseband that is too low can create creases in the skin of the cheek between the noseband and the bit, which may cause skin abrasions*

Lower strap of flash nosebands:

- Should not pull the bit up in the mouth

Drop nosebands:

- Should be fitted high enough that they are supported by the nasal bones so that they do not compress the nostrils and sensitive tissues
- Should not be so high that they pull the bit up in the mouth

This photograph of a horse's skull shows how high up on the nose the nasal bones end (arrow); this is relevant when considering the height of a drop noseband



Grackle nosebands:

- Mexican grackles (those with a side ring) should be fitted with the upper strap above the lower end of the facial crest (i.e. the strap should pass over the facial crest itself) whilst ensuring that the ring lies behind the crest
- Standard grackles, which do not have a side ring, should be fitted so that there is at least one finger's width between the bottom of the facial crest and the top of the noseband
- The lower strap of a grackle noseband (Mexican or standard) should not pull the bit up in the mouth



A correctly fitted Mexican grackle noseband

Length of jaw pad

- Padding on the noseband under the chin should cover the bone of both sides of the jaw because these are potential pressure points

Width relative to horse's anatomy

- The noseband should not be too wide or too narrow
 - *If it is too wide it may contact the facial crest, the bit, or the corners of the mouth*
 - *If it is too narrow it can cause pressure points*

Shape

- Shaping the noseband to fit the horse's anatomy may be helpful
 - *For example, making the noseband narrower at the side may allow it to fit more easily between the bit and the facial crest*

Stiffness

- The stiffer the noseband, the further the pressure point is located from the bone
 - *Stiff nosebands may require a larger area of padding than flexible nosebands*

Padding

- Padding of the noseband where it passes over the nasal bone at the front of the face and around the jaw at the back will protect areas of potential pressure
 - *Avoid nosebands where the padding is too thick as this can cause secondary pressure points*

Rings on the side

- Nosebands that have rings on the side allow the noseband to move with the head movement more easily
 - *This reduces the risk that the noseband will cause the headpiece to move, and reduces the chance of creating pressure points*



A side ring allows the noseband to move with the horse's head



Cheek Pieces

- The cheek pieces should lie behind the facial crest, with the buckles located low enough to avoid the pressure points around the browband attachment

Bit

- A correctly fitted bit should fit snugly in the mouth so that it is stable without pulling the sides of the mouth inwards

Width

- A bit that is too narrow may pinch the sides of the mouth
- A bit that is too wide will be unstable – this can cause ulceration of the lips due to movement

Height

- The bit should sit in the corners of the lips without excessive wrinkling or tension

Shape

- The bit should fit the shape of the horse's mouth and the size of the tongue, being careful to avoid the bit knocking against any of the teeth or impacting on the roof or bars of the mouth

Type

- The type of bit should reflect the work that the horse does, what the horse finds comfortable, and the skill level of the rider
 - *Always consider the combined effect of the bit and the rest of the bridle (e.g. a bit with a long shank will encourage the headpiece to push against the back of the ears when tension is put on the reins)*



A bit that is too wide can rub the corners of the horse's lips if it moves from side to side

Fly hoods and ear bonnets

If a fly hood or ear bonnet is used, ensure that:

- This is taken into account when the bridle is fitted
- The cheek pieces are changed or lengthened to accommodate the hood
- The hood will not create pressure points under the bridle



Anatomical challenges

Large crest and small ears

In horses with a large crest and small ears, bridles tend to slide forward and off over the ears. For these horses, it can be useful to have a narrower side to the headpiece so that it fits comfortably between the ear and the wing of the atlas, with a wider lozenge on the top of the head and lower placed buckles on the check pieces to help stabilise the bridle.



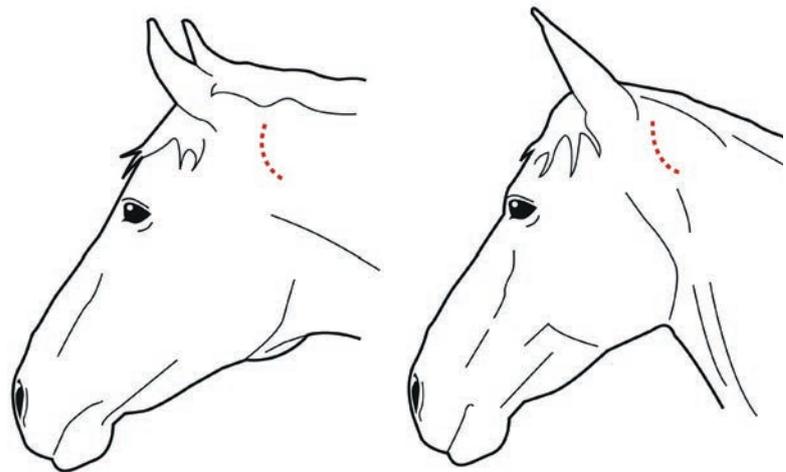
A large crest and small ears increase the risk of the bridle slipping forward and over the ears

Short distance between the ears and the wings of the atlas

In horses where the ears and the wing of the atlas are close together, the width of the headpiece needs to be carefully assessed – a shaped headpiece is likely to be beneficial.



The photograph shows the position of the wing of the atlas. This is easy to feel in most horses.

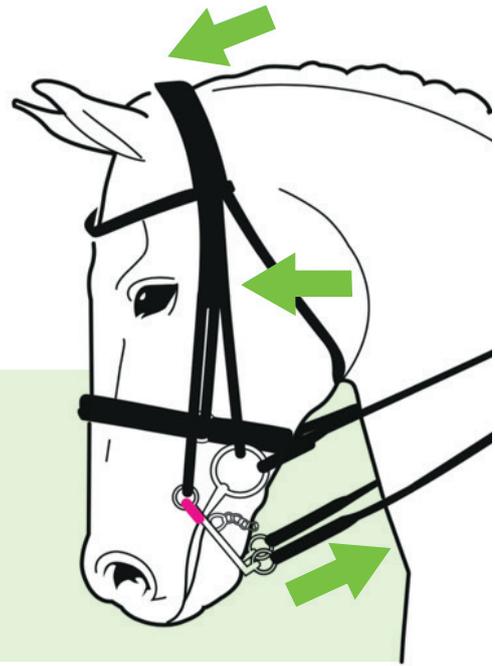


In the 2 drawings, the wing of the atlas is indicated by the red line; the horse on the right would particularly benefit from a shaped headpiece



Long bit shank in mouth with short lips

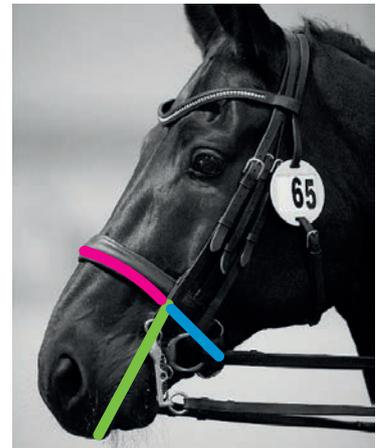
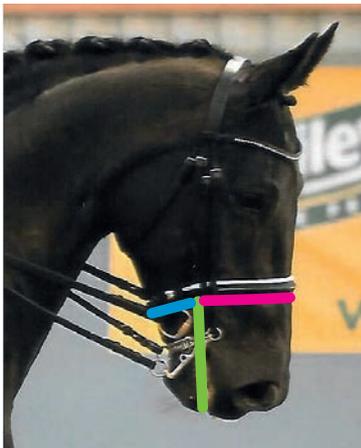
When the rein is used on a curb bit, a pelham, or any other bit with a shank, the headpiece tilts forward slightly. This is exaggerated if the horse has short lips and the bit has a long shank. The longer the top section of the bit (marked in pink in the drawing), the more tilt can occur. We should therefore take care with the type of bit and the headpiece that we use, particularly if a horse is sensitive at the back of the ears.



Tension on the curb rein at the end of the bit shank in a horse with short lips can encourage the headpiece to come forward against the ears and the cheek pieces to come forward against the eye, particularly if the top (pink) part of the bit shank is long

Unbalanced shape front to back (nose to chin)

The length of the front section of the noseband compared to the back section should be appropriate for the shape of the horse's face. A horse with a larger front section of the face (shown in pink in the photographs) will need a longer front section of the noseband, while a horse with a bigger chin (shown in blue in the photographs) will need a longer back section. Fitting this correctly will avoid rubbing on the facial crest or running the noseband strap close to the eye.



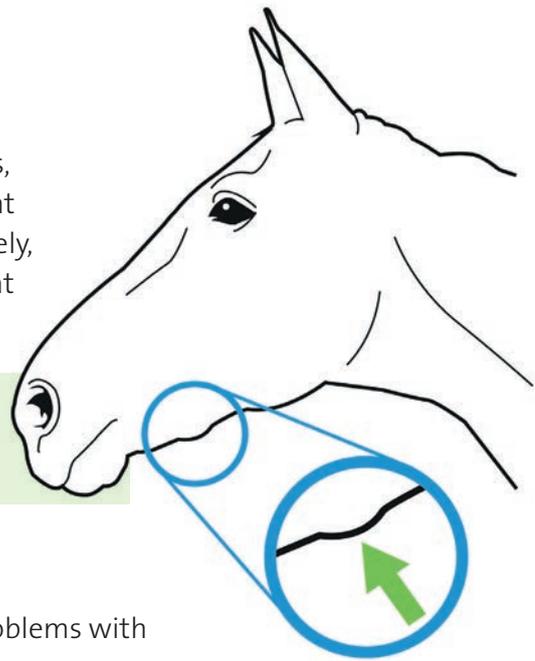
When selecting a noseband, consider the relative sizes of the front section of the face (shown in pink) and the chin (shown in blue). The dividing line between the 2 sections is defined by a line extending up the side of the face from the mouth (green line)



Anatomical prominences

Some horses have prominences on the lower jaw. This may be because of old trauma or, in young horses, it may be due to tooth roots. Make sure that the height of the noseband is adjusted to avoid these. Alternatively, consider padding either side of the prominence so that pressure on the prominence is avoided.

The 'bump' on this horse's lower jaw needs to be considered when fitting the noseband



Monitoring for problems

A number of findings should alert you to potential problems with the bridle or bit. These include:

- Hair rubs underneath the bridle or at the edges of the bridle
- White hairs under the bridle
- Rubbing or irritation of the skin under the bridle
- Skin bruising or rubbing of the cheeks (this may happen if the skin is crushed between the bit and the noseband)
- Pain when pressure is applied over potential pressure points (base of the ears, over the poll, under the browband attachment, under the noseband)
- Sores at the corners of the lips, inside the cheeks, or on the tongue
- Being head shy
- Reluctance to allow the bridle to be put on, or to open the mouth for the bit

If you notice any of these issues, the bridle and bit should be checked carefully. Remember that a horse that has lameness or pain elsewhere can move abnormally and this can lead to problems with the bit and bridle. Your veterinarian should be contacted if you have any concerns.

Caring for your bridle

It is important to take good care of your bridle, both for your safety and for the comfort and health of your horse.

- Wash off the bit every time the bridle is used, ensuring that you remove all food and crusted material
- Check that the bit edges are smooth
- Clean and condition the bridle regularly to keep it soft and hygienic
- Take the bridle apart regularly to clean it and to check it for safety; safety checks should include:
 - *Checking the leather for stretching, changes in length, cracks, tearing, and damage*
 - *Checking all buckles, billets, and stitching*





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Further Reading

If you would like to learn more about bridle design and fitting, good sources are:

Murray, R, et al. A bridle designed to avoid peak pressure locations under the headpiece and noseband is associated with more uniform pressure and increased carpal and tarsal flexion, compared with the horse's usual bridle. *Journal of Equine Veterinary Science*. 2015;35:947-55 (abstract available at: <https://www.sciencedirect.com/science/article/abs/pii/S0737080615005535>)

Murray, R. Don't forget about the bridle! The importance of correct bridle fit. Presentation at World Horse Welfare's conference 2019 (available at: <https://www.worldhorsewelfare.org/about-us/our-organisation/our-past-conferences> (watch from 48:30 minutes onwards))

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