Christina Krajewski

Neue Schule Deutschland
www.neueschulebits.de

c.krajewski@nsbits.com

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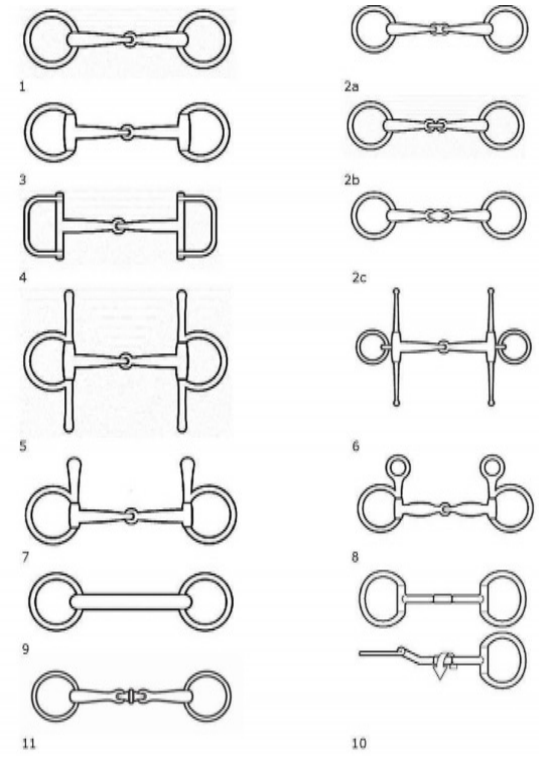
The Snaffle Bit – Action and Choice

Basis of communication

The snaffle bit is the everyday bit. It should not only be used for breaking and schooling young horses, but also remain "bread and butter" of the more experienced for daily routine work to preserve their enthusiasm and avoid dulling. Therefore, extra care should be taken to choose the optimal bit for each individual horse. It is amazing what we expect from this "piece of metal in the mouth": Not just "steering and brakes", as non-riders often believe, we aim to transmit highly differentiated signals to achieve goals as ambitious as maintaining a constant contact, raise of the forehand, and collection. To transmit complex signals, the bit has to act as a very efficient means of communication.



The FEI rules list an impressive collection of bits, which are classified as snaffles. They all have in common that rein and mouthpiece are attached directly to the mouthpiece acting as a fulcrum. No "lever" is present, which would be able to transmit rein tension to further communication points on the horse's skull. The snaffle is using the sweet spot on the tongue to communicate with the horse (see Technical Information below).

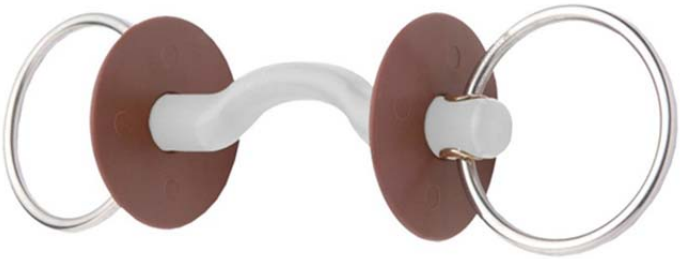
In theory, not more than 30% of the rider's aids are supposed to be rein aids, but the reality is rather different for the average rider (most of us…) Thus it can easily be imagined, that a minor disturbance of this important communication path results not only in the horse failing to understand what it is expected to do (take and maintain contact). It can even prevent it from performing the desired action. As explained earlier, the bit itself should be as unobtrusive as possible to allow the horse to focus on the signals. A comfortable, anatomically suited fit of the mouthpiece is mandatory.

An anatomically designed mouthpiece – how would that look like?

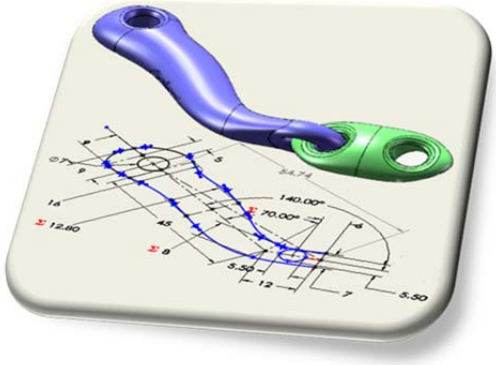
Several horse bit brands feature mouthpieces that they advertise as "anatomically shaped". Funny enough, they all look rather different. Which one is actually anatomic?

It may be easier to start by defining what is definitely not anatomic: Traditionally, thick bits have been considered horse-friendly. Nowadays we know that the space in the mouth is limited. Few horses have more than 20mm between lower and upper bars, and most of the

room below the upper palate is actually filled by the tongue. Individual differences (especially between different breeds) can amount to up to 50% and vary with the horse's age.



Many recommend a bar as the most comfortable mouthpiece. However, a bit as pictured here is much too inflexible to transmit delicate rein aids. The feeling for the horse will be comparable to trying to do ballroom dancing in ski boots. When the rider gets the impression that the horse is not reacting appropriately, he will be tempted to use the reins increasingly more vigorously and less precisely.



An anatomically suitable mouthpiece should not be thicker than necessary, but offer a wide bearing space and appropriate room for the tongue, adapted to the individual shape of the palate. An oval cross section of the cannons is a possible solution.

These pictures (by Mayura Wolla) exemplify how tongues can be of different shape and consistency: For a thick, fleshy tongue (top), a curved mouthpiece should be preferred; otherwise the tongue will be squeezed, which often results in the horse showing the tongue or pulling it over the mouthpiece. With a slim, flat tongue (bottom), a straight mouthpiece with an even bearing surface is usually a better option. Furthermore, the individual preferences and sensitivities of the horse must be taken into consideration. The acceptance depends on the shape and curvature of the cannons and of the size and angle of the lozenge.

Consequently, the anatomically correct mouthpiece looks different for every horse. Leading bit manufacturers offer a wide variety of shapes in different thicknesses (see picture on the right)

Single or double jointed – what shall be preferred?

Whereas some riders are not aware of the difference, for others this a million-dollar question which can lead to heated discussions.

If our aim is to communicate sophisticated signals, the bit should be as flexible as possible. In every advice case, we always start by trying to find a double jointed mouthpiece with which the horse is comfortable. However, this does not always offer the optimal solution: some horses need more stability to adopt a constant contact. Also over-sensitivity of the centre of the tongue or the lips (e.g. due to former injuries) can make a horse uncomfortable with a double jointed mouthpiece.

If a single jointed mouthpiece is chosen, two aspects should be taken into account:

For this type, the anatomically optimized shape is even more important to avoid a nutcracker action (see first article). The picture displays the differences: The traditional single jointed snaffle with straight cannons takes a triangular shape (which is also asymmetric) when rein tension is applied, whereas the curved cannons of the modern mouthpiece below prevent it from moving too far forwards in the mouth, reducing pressure on the thinner more sensitive part of the tongue. They sweep slightly away from the corner of the lip to lessen any chance of rubbing, the special design of the joint achieves a gentle more even weight bearing surface and is adapted to the curvature of the upper palate.

Furthermore, a single jointed mouthpiece should not be combined with fixed cheeks, having just one joint results in an inflexible construction, which is easily tilted unintentionally.

Unfortunately, these uncomfortable single jointed snaffle bits with straight cannons are still widely in use. After changing to a mouth-friendly bit with which the horse is obviously happy doing dressage or flatwork, some riders report that they have difficulties to take their horse up before a jump. With the old bit, the horse came back in fright of severe action of the bit, now that's not necessary any more and the rider needs to learn a new technique, using body balance to control the rhythm. The adaption can take some time, but it is never a good idea to switch back to the old, uncomfortable bit for show jumping! In the third article, options to establish a more effective communication without abusing the horse's mouth are discussed.

Cheek types

A loose ring snaffle offers the maximum flexibility and is the most common snaffle type. Fixed cheeks are for example Eggbutt- , D-Ring or Full Cheeks.

Fixed cheeks are less flexible than loose rings. This can be favourable for young horses, which struggle for balance while they are still growing. Fixed cheeks help to teach them to approach skinny jumps and do tight turns, and can be a valuable tool for less experienced riders that still have problems to keep a constant contact on the outer rein. All three types are dressage legal, though the sight of the severe looking Full Cheeks is not exactly common in the dressage arena. Riders often cite as a reason to use them that "they are not easily pulled through the mouth" – which is true, and can be a good one for young racehorses, which tend to panic when they are led through noisy crowds from the stable to the ring. But anyone who has problems to avoid pulling a standard loose ring (diameter 7cm) through the horse's mouth, should really work on his riding technique…

Sometimes Eggbutt snaffles are used casually, because they came with the horse, or the rider likes the look of them. Often these riders then complain that the horse does not bend or flex easily or that they get a "wooden" feeling. That can be a result of the rigidness of fixed cheeks, and switching to loose rings can be worth a try.

A cheek type, which would deserve to be more popular, is the Baucher- or Fillis snaffle. It is legal in international dressage competitions (though not in national dressage in Germany) and is strictly spoken no snaffle bit according to the definition given above. It has a small "upper lever arm" where the cheek piece is fixed. Recent investigations proved that this cheek type causes a poll relief effect (possibly after a very brief initial impulse) when the rein is taken. Baucher cheeks are helpful for horses which tend to get above the bit (especially of this is due to limited freeness of the cheeks, typical for heavier breeds).

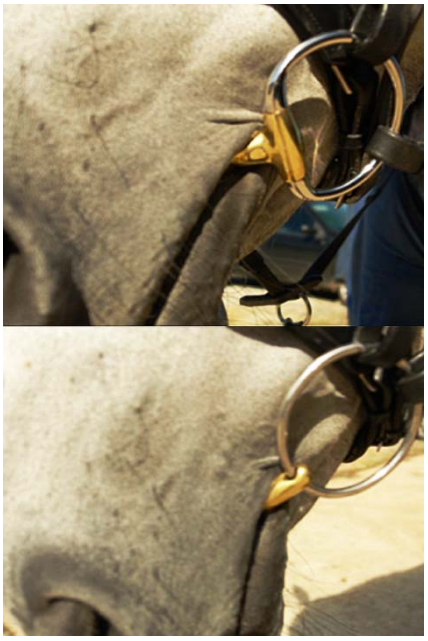
Choosing the correct width

After all these explanations and instructions about what to consider and take into account when choosing a snaffle bit, many a reader may rather feel confused instead of informed.

Fortunately, there are well-educated retailers which offer advice, bitting clinics are organized by riding clubs or livery stables, and many horse dentists and also some saddle fitters give bitting advice even coming to the stable.

However, there is one aspect where the rider's cooperation is essential: To determine the correct width for his horse's bit.

A bit with fixed cheeks may snuggle up to the corners of the lips, whereas loose rings are supposed to slide freely to smoothly transmit the rein aids. They should therefore be kept clear of the lips, with 2-3 mm distance between the hole and the lips (see picture below).



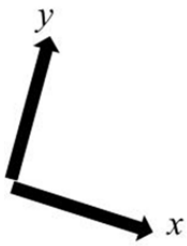
Consequently, a loose ring snaffle has to be 5-6mm wider than a fixed cheek snaffle for the same horse. If the mouthpiece is curved to allow extra room for the tongue, it should be chosen a little wider.

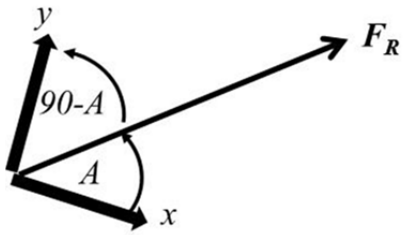
Thus if you walk into a tack shop to buy a new bit (hopefully having taken along your current bit), you should have checked in advance which size your horse actually needs. If a specialist is coming to your stable to fit a bit to your horse, you can make sure that he or she carries a proper selection in the appropriate size by providing the correct information beforehand. Some contact problems can even be solved just by using a bit in the correct width. Fortunately, not every horse is over sensitive in the mouth and needs fine-tuning.

Technical Information:

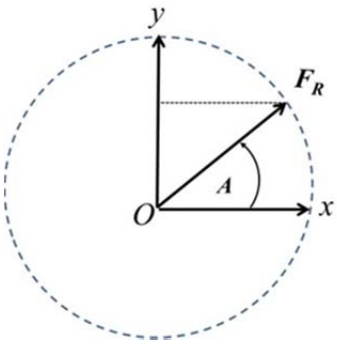
Nose line in the Vertical…

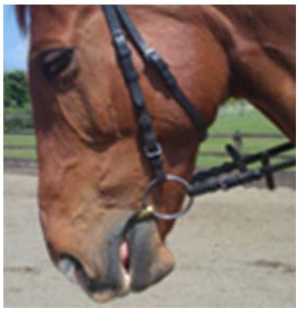
that is what the judge wants to see in the dressage arena. In the following, we explain why it is sensible to try to achieve this in all riding styles and situations.
It is this position that offers the best preconditions for the horse to be comfortable with the rein tension and understand the rider's rein aids. First, we try to understand how the rein force is distributed among tongue and lips depending on the carriage of the head:

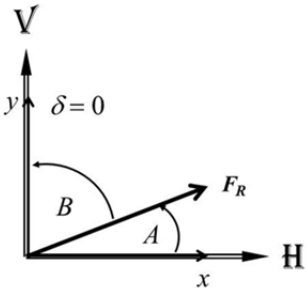




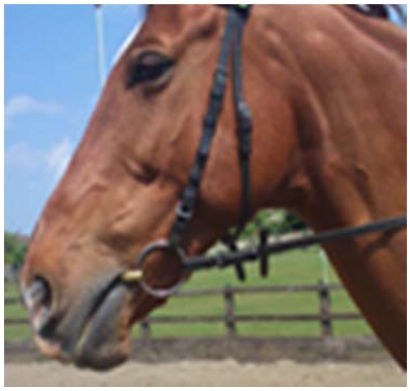
When no rein tension is applied, there is a small constant tension exerted by the cheek piece on the mouthpiece in the direction of the aperture of the lips, which is parallel to the nose line (y-direction). The rein tension applied by the rider induces a force, which is directed upward-backwards (to the rider's hands); this causes the bit to rotate into the working position (see first article) and the horse's nose line into the vertical (the current y-direction). A component of the rein force is pressing on the tongue (x-direction) and also on the lips.
As you (hopefully) remember from your math lessons, the left diagram below shows that the y-component of the rein force F_R can be calculated as sin(A) and the component in x-direction as cos(A).

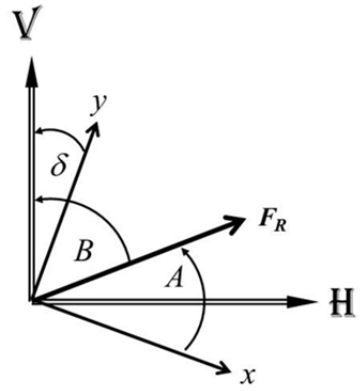






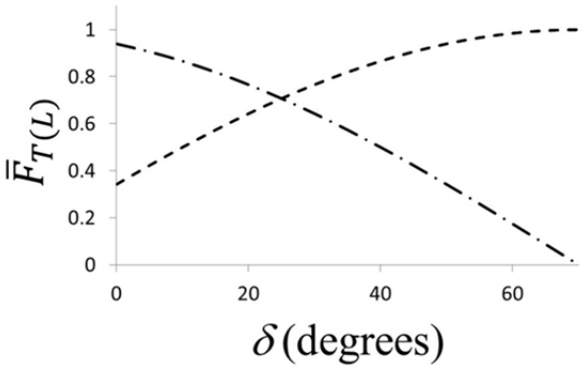
Our first guess could be that the distribution of the rein force on tongue and lips depends on the position of the rider's hands, which seem to determine the direction of the reins. A closer look reveals that they are nearly always going upward in an angle of about 20° (unless you lower your hands to your ankles or hold them above your head). More important is how the horse carries its head: If the nose (and tongue) line is above the vertical, the x- and y-direction are no longer horizontal resp. vertical.





As the direction of $\mathbf{F_R}$ stays the same, the angle A (between tongue and rein) increases, whereas B (angle between rein and lip aperture) gets smaller. You can easily see it on the photo: The higher the carriage of the head, the more of the rein tension is applied to the corners of the lips instead of the tongue.

The diagram below depicts the how the x-and y-components of F_R develop depending on the "above-the-rein" angle Delta.



Only if the nose line is vertical (δ equals zero, left side of diagram), most of the rein tension is applied to the tongue, exploiting the touch sensitive area in the middle of it, as it is supposed to do to ensure an easy communication. The more the horse lifts its head, the more pressure is applied to the corners of the lips, where it tends to hurt instead of transmitting understandable signals.