

BITTING MECHANICS.

This is a much talked about subject at present as it has been the subject of research by the Mc Phail Chair, but we still are limited on our knowledge of exactly how a bit works on each conformation type. Our understanding and therefore choice of bit is largely based on trial and error, and then oral information about success and failure, however, biting is much more complicated than just “it works on my horse” and why this is so is for this discussion.

Many parts of the bridle play a role in communicating with the horse. The bit is not purely the effect of the metal mouthpiece. Acceptance of the bridle (bit) is a necessity for all training, and problems with bit acceptance are one of the most difficult to erase. It is with this in mind that we should first understand the mouth itself.

The Oral Cavity;

This is made up of the bars, tongue, teeth, roof of the mouth, lips and gums. We include the corners of the mouth as well in biting even though they are between the outside pressures and the oral cavity.

The tongue; is composed of muscles which give it tremendous mobility, it is strong and elastic with a bump on it roughly halfway along situated approximately where the molars start. It is often used by the horse to push against the action of the bit, moving it forward in the mouth.

The edges of the tongue are far more sensitive than the centre. Tongues come in all sizes and shapes and need to lie comfortably in the mouth with relaxation , so that the tongue conforms to the shape of the bit. Discomfort means the horse changes the position of the bit and tries to stabilise it and is constantly moving or resisting it's action.

The bars and gums; this is the area around the tooth that is fleshy and in the horse there is an area between the incisors and molars, the interdental space, where no teeth are present. Bars are sensitive to pressure, the further forward you go down towards the incisors the narrower the bars become and the more easily bruised and damaged, they are very sensitive in the front. Wide bars with lots of flesh are less sensitive than narrow bars with little flesh covering, this is usually a genetic trait ie Cobs, Quarter Horses and Ponies have wide bars, Thoroughbreds, Arabs and some crosses have more narrow bars.

The Hard Palate or Roof of the Mouth; this is bone covered by soft connective tissue and skin – this is very sensitive and too much pressure here will cause a horse to evade and alleviate the discomfort at any cost. Conformation of the Hard Palate varies greatly, some horses have very deep arches to the roof, others have very shallow, causing them to have difficulty with Jointed bits.

Lips and Corners; pressure from these is mainly from snaffle bits. They are fleshy, sensitive, muscular areas for feeling and moving the mouth surrounding its opening. They provide a tougher elastic support for the bit, but are easily pinched and rubbed raw. Again, conformation of the lips is very individual, large rubbery lips get easily pinched both by the bit and against the bars if they are excessively turned in, while smaller lips get rubbed.

External pressure points on the head;

The curb groove; The curb chain or strap sits here and its action is to put pressure low and against the jaw to promote flexion. The jaw has the mandibular nerve, a very large, sensitive nerve that runs down the under part of each jaw and goes into the bone just above the chin. If the chain stays flat and low it causes flexion, but if it rides higher or twists it causes pain and resistance, bruising the area and in some cases can cause formation of bony splints like growths which are extremely painful.

Poll pressure; this is a combination pressure and works with the bit and /or the noseband. If you push down on a horse's head its reflex chain reaction is to push against this and raise the head (a gag action). With a curb bit the lever effect and the curb chain work in combination with poll pressure to lower the head. This area is very easily damaged as it has a lot of innervation.

Nose pressure; this is a complex area of bone and cartilage with nerves to the lips, pressure on the side of the nose where the trigeminal nerve runs will cause the horse to turn his head, this is how a bosal works, nosebands also use this pressure point in their effects so fitting a noseband too low will damage the bone where it is brittle, cause undue pressure on the nerve and can also damage the soft cartilage, whilst also restricting the ability of the horse to breathe. It will also negate the correct effect of the noseband and so it will not do the correct job.

Conformation of the head:

This is surely one of the most overlooked areas of equestrian study. The shape and length of the head, thickness of the tongue, height of the roof of the mouth, position of the curb groove, and width of the face influence how a bit works on each horse, so what works wonderfully on one horse may be totally wrong for another even if the problem seems to be the same.

Thick tongue versus thin tongue; a thick tongue means the bit hits the bars much later in the action and there is less room for the bit in the mouth. Using a thick bit on this type of mouth (which is often seen as mild) will cause discomfort as the horse always has the feeling of fullness in the mouth and this impedes the swallow process, without which there is no relaxation of the jaw. A thinner tongued horse has less problems in this department, as the bit sits more comfortably and correctly in the mouth.

Low palate versus high palate; A low palate means any port is too much pressure, so on curbs go for the wider tongue groove type. With snaffles a single joint in it's return to neutral can bother the roof of the mouth and bruise the palate so these conformed horses are better with a double joint which has less lift to it. Higher palates allow the bit to act more efficiently.

Short versus long mouths; this refers to the length of the mouth opening from the lip corners to the nose. Depending on the breed, the lip may be quite short or can be long in relation to the placement of the teeth in the jaw, thus interfering with the action of the bit, and the place it lays on the tongue. The shank length on a Pelham or Curb can cause the mouthpiece to rotate too near teeth in a short mouth if it has a high port.

Narrow versus wide jaw bones; Narrow jaws can be bruised by single jointed snaffles as this conformation really increases the nutcracker action, a large plate in the mouth as with a Dr Bristol or some of the larger plates, lozenges or beans in the French family can also interfere for these horses, use a Dick Christian type bit or smaller lozenge. Horses with wide jaws don't get off that lightly either, in general a double joint will work in a similar way to a straight bar on this conformation , so sometimes control is an issue.

Shallow versus deep bottom jaws; a shallow lower jaw does not allow the tongue to expand down and out to alleviate pressure after the bit has acted, so these horses find somewhere else to put the tongue, either over the bit, out to the side, between the teeth or drawn back in the mouth. A deeper jaw is preferable.

Narrow corners of the lips; this type of lip is easily made sore especially by Gags and Elevators or by high hand carriage, use a bit which sits on the bars and acts there, this is usually a form of straight bar.

Fleshy lips; easily pinched, so don't use loose rings or sliding cheeks if possible, if you do use some type of guard, another possibility is to use a Fulmer snaffle as the loose ring effect is outside the ball cheek. Watch the fit of curb chains on these horses as they can catch on the lips.

Lower or higher curb grooves; this is a problem to be assessed with the length of the lip, as Thoroughbreds often have long lips so the curb chain does not sit in the curb groove when the bit is fitted correctly at the teeth and lips, using a double bridle does not cause the same problem however as the curb bit sits below the snaffle and so lowers the chain into the groove correctly. A Pelham and Kimblewick though often fit poorly on Thoroughbreds and can damage the jaw bone with the curb chain when it works higher up the bone.