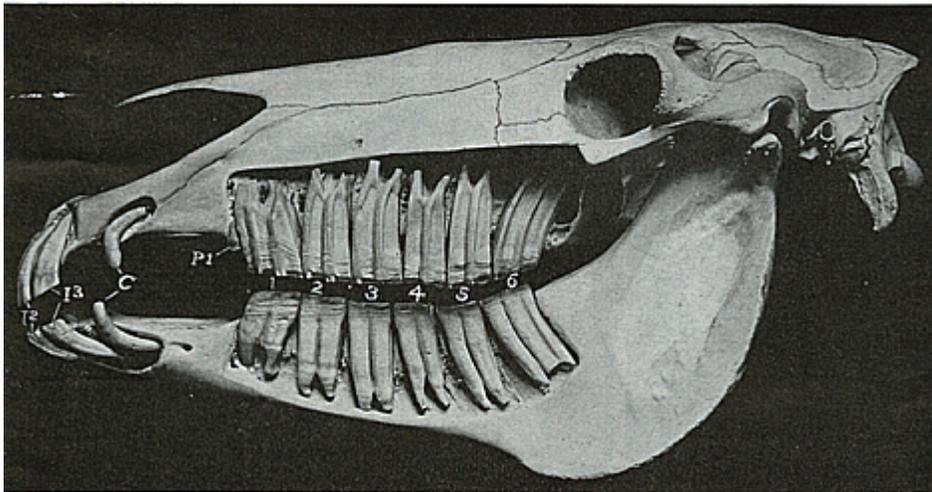


BASIC DENTAL CARE FOR HORSES

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Introduction:

In response to the expansion of grasslands in the latter half of the tertiary period, the equine has evolved as a continuously grazing animal. During this period an efficient chewing and grinding system developed in the horse so that the forage would be “ground up” sufficiently for large scale digestion to take place in the cecum and large intestine. The equine large intestine system contains large numbers of microorganisms which are necessary for grass and hay digestion. Since blades of grass contain abundant spicules of biogenic silica, chewing activity on grass quickly wears down low crowned teeth. To increase its lifespan the horse developed longer teeth called hypsodont teeth and a longer skull to accommodate rows of large tall teeth. The cheek teeth of the lower jaw became narrower than the upper cheek teeth, but their crowns are formed in such a way that the cusps interlock precisely with those of the upper teeth. Every aspect of the horse’s dental form is designed to efficiently grasp, grind, and process forage for digestion by microorganisms in the large intestine.



The horse is a continuous grazer and in its natural habitat grazes an average of 14 hours per day. As humans domesticated and confined the horse they have at the same time altered the horse’s diet and the reduced the time and frequency that the horse consumes its food. The common practice today consists of less continual grazing and more interval feeding of dry hay, grain, processed forages, and other processed concentrates. This dietary change has altered the way the chewing mechanism erupts, functions and maintains itself. Softer food , fewer hours of chewing time and less time spent nipping off blades of grass do not allow the horse to wear down its teeth as it would in a natural environment. For this reason dental care in the domesticated horse has become a very important part of normal health care.

Development of teeth:

The foal is born with 3 upper and 3 lower deciduous (baby) cheek teeth and by the time it is a weanling has 3 upper and lower baby incisors (front teeth) as well. As time progresses the skull and lower jaw increase in size enough that the deciduous teeth are replaced by permanent teeth. To do this the baby teeth are shed and replaced at intervals until the horse reaches 4 1/2 to 5 years of age. It is during this period of growth and development the total numbers of teeth increase to a maximum of 44 in total. This is the time in a horse's life that uneven growth of the jaw and uneven wear of the chewing surface of the teeth begin to occur.

If the upper cheek teeth override the lower row of teeth, then a hook forms on the top row. This hook can "trap" the lower jaw and prevent it from growing forward. If this condition is not corrected the horse may develop an overbite or a complete parrot mouth. As the various permanent premolar cheek teeth erupt the baby teeth are shed as "caps". The newly erupted permanent teeth gradually come into wear with one another. Abnormal associations between the upper and lower rows of teeth may begin to occur. These abnormal associations have been assigned names such as hooks, ramps, wave mouth, exaggerated transverse ridges, etc. From 2 1/2 to 5 years of age it is very important to maintain a normal balance between the upper and lower rows of teeth. The long term balance and well being of the teeth begins with normal development and wear patterns in the younger horse.

Wear patterns:

Cheek teeth (premolars and molars) erupt through the gum and at the time of eruption their table surface is level. Through chewing action, the table surface of the teeth gradually take on an angle of 10 to 15 degrees. This angle slopes from higher on the tongue side to lower on the cheek side of the teeth. When the horse chews, the jaw moves in a rotating motion from side to side with limited front to back excursion. The construction of the molars with interdigitations of enamel, cementum, and dentin allow for uneven, continuous wear with a sharp serrated chewing surface when the horse is eating as nature intended. Horses on diets of pellets or limited long stemmed roughage diets favor incomplete wear of the table surface, predisposing the teeth to sharp enamel edges and a vaulted ceiling of occlusion. Abnormal occlusion (malocclusion) of the incisor (front) teeth or molar (cheek) rows of teeth perpetuate abnormal wear patterns that cause the formation of hooks, ramps, wave mouth, and exaggerated transverse ridges. These abnormal developments eventually lead to severe dental disease.



Equine Dental Procedures:

Dentistry in the horse primarily involves maintaining a proper association between the opposing rows of teeth and maintains comfort in the mouth for riding with a bit in the mouth. This is primarily done in the following ways:

1. Removing deciduous teeth that are either in an abnormal position or have remained in position too long (retained caps).
2. Removing wolf teeth that interfere with the bit
3. Contouring canine teeth so they are smooth and do not interfere with the placement of the bit while bridling the horse.
4. Contouring the front upper and lower cheek teeth so they are smooth and rounded to reduce discomfort by the bit pressing in this area of the mouth. The bit tends to pull the cheek and other soft tissue against the front teeth. If the front edges of the teeth are sharp the edges can cause lacerations to that part of the mouth. The rounding of these edges is often called a “bit seat”
5. Floating sharp enamel points that form, especially on the outside edges of the upper cheek teeth and the inside edges of the lower cheek teeth.
6. Reducing dominant projections on the rows of teeth that interfere with normal chewing movement.
7. Achieving balance among the incisor and cheek teeth so that chewing on both sides of the mouth is comfortable.

Timing Of Dental Examinations And Routine Dentistry

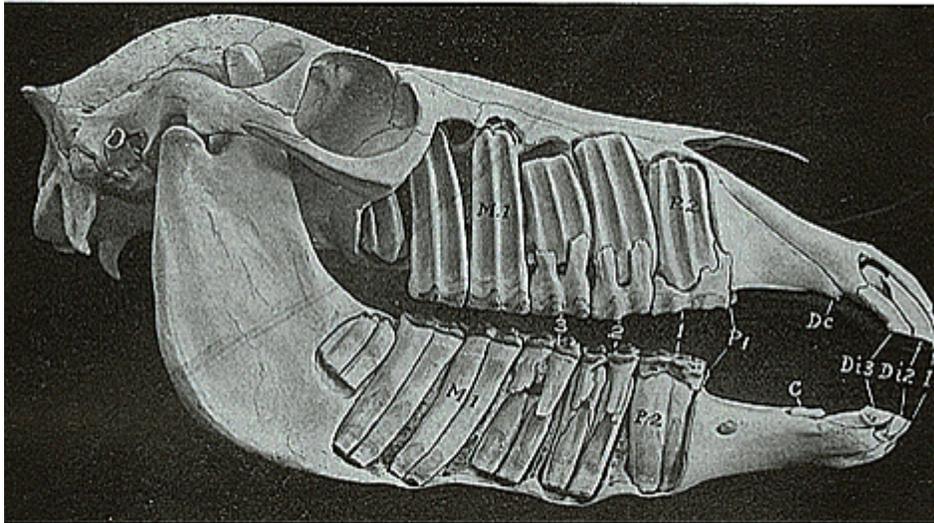
BIRTH - Examination for birth defects of the jaw, tongue, and teeth.

6-8 Months- All deciduous (baby) incisors are erupted. Check for normal occlusion of incisors and cheek teeth. Float any hooks or incisor overbites level to allow for normal growth and expansion of the jaw.

2-3 years- Before placing a bit in the mouth of the horse, examine and float teeth. Remove wolf teeth if present. Remove any retained caps. Do not remove caps before they are ready. Premature extraction of caps can result in infection of the infundibulum (cup) of the emerging permanent tooth.

3,4,5,6 years- Annual examinations and floating to remove sharp enamel points. Maintain balance of the mouth and level dominant projections such as hooks, ramps, wave mouth, exaggerated transverse ridges, and tall teeth.

Mature Horses- Examinations and floating as necessary, depending upon the use, dental health, and function of the horse. Some horses require dental care every 6 months. Most horses can be maintained adequately with annual examinations and floating.



DEFINITIONS

BIT SEAT- The contouring (rounding) of the first upper and lower cheek teeth that contact the soft tissue of the mouth when the horse has a bit placed in its mouth.

CANINE TEETH- Also termed “bridle teeth” erupt at about 4 ½ years of age. In some horses they become sharp and interfere with placement of the bit into the mouth. If this occurs they can be shortened and rounded.

ERUPTION BUMPS- These bumps are usually seen on the middle of the bottom part of the jaw . They occur if the 3 rd cheek tooth has difficulty erupting into the space between the 2 nd and 4 th cheek teeth. Extra bony tissue builds up at the bottom of the jaw as this tooth is pushed upward through the space to come into wear. Retained caps which do not shed at a proper time can also place extra pressure on this erupting tooth and contribute to the formation of the bump on the jaw.

EXAGGERATED TRANSVERSE RIDGES- Normal ridges (bumps) on the chewing surface of the cheek teeth can become exaggerated in height and limit chewing motion. When these bumps are lowered to a normal height the horse can resume normal chewing motion.

HOOKS- Projections which occur on the front or rear cheek teeth and corners of the incisor teeth. These projections occur because they are edges of the tooth not being worn down by the opposing tooth and so remain as a projection we call a hook.

INCISORS- Front teeth; uppers and lowers. The 3 sets of deciduous (baby) incisors (middle, intermediate, and corner) erupt at approximately 8 days, 8 weeks and 8 months. The permanent incisors that replace the deciduous incisors erupt at approximately 3, 4, and 5 years of age.

MALOCCLUSIONS- Abnormal associations between upper and lower teeth that cause abnormal wear patterns and inhibit normal motion of the mouth while chewing.

MOLARS- Molar teeth are the 3 rear cheek teeth. They erupt from front to back at approximately 1, 2, and 3 ½ years of age.

PREMOLARS- Foals are born with 3 upper and lower premolar cheek teeth. These teeth are shed as “caps” by the permanent premolars when they erupt at approximately 2 ½, 3, and 4 years of age.

RAMPS- Occur from uneven wear of the cheek teeth and are usually at the front or rear of the rows of teeth. Ramps involve a larger total surface of the tooth than do hooks.

WAVES- Roller-coaster-like wear in the middle of the row of cheek teeth. This situation begins with the uneven eruption and shedding of cheek teeth between 2 and 4 years of age. Once begun the condition continues and usually worsens with age unless corrected.

WOLF TEETH- Wolf teeth represent a remnant of the first premolar tooth that the horse deleted during later evolutionary development when its jaw and skull shortened. The wolf tooth is not present in all horses. The wolf teeth sit in front of the first cheek teeth and have a small root. The horse becomes irritated if the bit comes into contact and applies pressure against the wolf teeth. For this reason they are usually extracted.

