Equine Dental Care is More Than Just Floating

Does your horse toss his head when you ride for no apparent reason? Does grain fall out of his mouth when he eats? Any of these symptoms could be a result of poor dental health.

Horses need regular preventive dental maintenance every six months to one year. Unlike people, horses' teeth have an eruption rate of two-three mm per year. The teeth should wear in correspondence to yearly eruption rate. Malocclusions, or improper position of the teeth, can lead to many health issues and behavioral problems.

Identifying dental problems as early as possible is important. There are several factors that come into play at a young age that might increase treatment needed, or make a remedy even possible: loss of food while eating; eats hay before his grain; grain in water bucket; difficulty chewing or excess salivation; loss of body condition; large undigested food particles in manure larger than one quarter inch; head tilting or tossing; bit chewing; tongue lolling; tries to rear while bridling; fighting the bit or resisting the bridal; bucking or failing to stop or turn; foul odor from the mouth or nostrils; traces of blood in the mouth; or nasal discharge or swelling of the face. Other horses may not show noticeable signs, because they just simply adapt to their discomfort.

Back when horses were wild, they grazed as much as sixteen hours a day on forage that both nourished their bodies and kept their teeth in good shape. A horse should spend eighty percent of the day grazing. In the wild, that was no problem, and all the chewing wore down their incisors allowing the molars to stay in constant contact. With our good feeds today horses don't wear their teeth. Many of us horse owners have them stalled, or in paddocks, but this does not stop their teeth from growing. It is not uncommon for a horse at the age of five to start having problems, because his incisors are misaligned causing him to lift off the molars too soon or late, causing sharp points along his tongue and cheeks.

The study of equine dentistry by non-dvms dates back to as early as six hundred B.C. where horses were aged according to their teeth to sell for a larger amount of money. Equine dentistry was studied and written about by Xenophon four 444 B.C.; Aristotle 384B.C; Pliney 23 B.C.; Apsyrtus 330 A.D.; Palladius 400, A.D.; etc (Tapd 1).

Equine dentistry has been practiced by (non-dvms) for centuries and 1207 A.D., is the earliest recorded, predating the first veterinary college. The first artifact found was wood block painting showing the floating of horse's teeth, which now resides at the Academy of Equine Dentistry School in Iowa. It is dated back to the 1600's and was found in England, which pre-dates the first veterinary college established at Iowa State in 1879 (Tapd 1; Jeffery 1).

Hand made equine dental instruments by blacksmiths dates back to 1918. Manufacturers Arnold and Sons (non-dvm) of England have been making dental floats and instruments longer than any other company (pre-dates first U.S veterinary college) (Tapd 1).

T.D. Hinebauch, M.S., V.S., Professor of Veterinary Science at Perdue University, personally published a book titled in 1889. In 1893, the book Horse's Teeth Veterinary Dental Surgery, for the Students, Practitioners, and Stockmen written by William Clarkes (non-dvm) was published (Tapd1).

The first Equine Dentistry School was opened in 1980; The Academy of Equine dentistry located Ferry, ID by Dale Jeffrey's, Master Equine Dentist (non-dvm). He also wrote the first "complete" dentistry book, Horse Dentistry, The Practice of Equine Dental Maintenance, written by Dale Jeffery's, Master Equine Dentist was published in 1996 (Tapd1).

Horse owners and veterinarians would not have the updated and advanced information on equine dentistry if equine dentists (non-dvms) like Dale Jefferys, Randy Reidenger and many others including (dvms) would have not devoted their lives to the health and performance and longevity of the horse through proper dental

maintenance. Today there are a few dental associations and they are mainly incorporated by non-dvms. The International Association of Equine Dentist and Canadian Equine Dental Council have continuing education seminars on malocclusions of equine teeth. There are many members involved including veterinarians who support these associations (Kohler 1).

There are some veterinarians now that mainly practice dentistry in the United States. "Dr. Tom Allen argues that a veterinarian practicing equine dentistry might successfully be able to handle a case load of two-thousand to twenty-five hundred horses a year. In many states where there may be at least six hundred thousand horses, maybe three veterinarians practice equine dentistry. That tells us veterinarians cannot get it done alone. For the dentistry field to continue blossoming, Basile says it's imperative that veterinary schools' curriculum take ownership, which is slowly happening. To date, Texas A&M University is the only school to offer electives in equine dentistry, while the University of Georgia offers one elective and clinics, and schools like UC Davis and other minimal coursework. At no major university is equine dentistry a course of study. Missouri, one of the nation's elite veterinary schools, regulate horse dentistry to a single lecture. Convincing veterinarians to look at horses' teeth, he says, 'has been like pulling teeth,' though such comments have irritated some veterinarians" (Allen 1, 3, 4; Davis 2-5).

The practice of Dental Technicians who work for various veterinarians is rising. Equine dentistry should be practiced under or by a veterinarian but to say that dental technicians or lay dentists should not practice at all will only leave many horse owners hanging and many unhealthy horses. Many veterinarians do not look at the teeth or place a full-mouth speculum in the horse's mouth during pre-purchase exams or early exams. The speculum has bite-plates [crescent-shaped] structures for the incisors to rest on, and ratchets to hold the mouth open allowing feel and touch during examination by sight as well as palpation in the mouth. This should be done, during pre-purchase exams or yearly exams. Many horses object to having a speculum placed in the mouth without a little fight when having their teeth floated or looked at.

In the old days, old granddad didn't have the option to sedate the horse; he just floated what needed to be done. Horses were the main transportation; it was common knowledge that their teeth needed to be done starting at a young age. It was much more crude back then, but we have some excellent techniques and advancement now. To sedate the horse is a much nicer and less traumatic experience, not to mention, it decreases abuse the dentist, veterinarian, and owner receives bouncing around the stall or aisle trying to hold or calm the horse. In my personal equine dental practice, I or the veterinarian I am working with, clean the sheath (penis) of the horse after the horse has his teeth done, if it needs to be cleaned. This is an opportunity to clean it safely, when many horse owners let it go. Equine (horse) dentistry is about three main points: animal welfare, safety, and saving money on feed. Having a happy, healthy horse and a safe relationship is what it should be about. Unfortunately, many horses go without any dental work and are then referred to as sassy. An explosion or accident with the rider may occur because of excessively sharp teeth, or wolf teeth (sometimes called blind wolf teeth which are not exposed through the skin) which cause the horse discomfort. I have had horses in my experience take their tongue and stick it out or along their cheek to alleviate the pain caused by their mouth. Packing feed between their cheek and teeth is also a symptom (Davis 1-5; Easley; Johnson old time1-2).

Authors Gordon J. Baker and Jack Easley have comprised a detailed description of equine teeth in their book Equine Dentistry. Horses have four types of teeth: incisors, canines, premolars (PM) and molars (M), in rostral (meaning towards the nose), to caudal (meaning towards the back of the mouth) order. Teeth embedded in the incisive (premaxilla) bone are by definition termed incisors (I); they are deciduous teeth (baby teeth) and are temporary. They loose the central incisor at two and one-half, lateral three and one-half, corner at four and one-half, and at five years then permanents are fully present. The most rostral tooth in the maxillary bone is the canine (C). All teeth caudal to this tooth (site) are molars. (C) Erupt at three-half to five- half years of age in the lower jaw, and approximately six to eighteen months later on the upper jaw. (PM) two thru four are also deciduous teeth and are temporary in rostral to caudal order until two and one-half, three and one-half, four and one-half years. The adult male horse has up to forty-four permanent teeth, and a mare might have thirty-six to forty permanent teeth with a root four inches long. Ideal conditions would allow them to have their teeth approximately twenty-five years. Deciduous molars are baby teeth replaced by permanent teeth. As the root of the baby tooth is dissolved by the permanent tooth, which

erupts from underneath, a cap is the result. The cap is then shed at different ages, usually between two and one-half to four and one-half years of age, depending on breed and proper tooth alignment during eruption. "Each type of tooth has a certain morphological characteristics and specific functions. The canine teeth are for defense and offense (for capture of prey in carnivores). Equine premolars (PM) two through four, and three molars (M) (collectively termed check teeth) function as grinders for mastication. The occlusal or masticatory surface is the area of the tooth in contact with the opposing tooth; the term coronal refers to the crown. Apical refers to the area of the tooth furthest away from the occlusal surface; i.e. the area where the roots develop and is the opposite of coronal" (3). Lingual is the area of the tooth closest to the tongue. Palatal is the area of the tooth closest to the tongue on the upper arcade of teeth. Buccal is the area of the tooth closest to the cheek. Labial refers to the rostral and rostrolateral aspect of the teeth close to the lips (Lane 4-20; Easley 31-41).

It is important to check for superior and inferior wolf teeth which are small vestigial teeth in front of the first premolars on the upper arcades. They erupt between five or six months of age, if ever, and sometimes do not come through the skin. They are then referred to as blind wolf teeth. Conformation of the head can cause the wolf teeth to interfere with the bit, causing discomfort. I have pulled plenty of wolf teeth worn flat, from the bit wearing against them. The object is complete removal (extraction) of these teeth, any roots or fragments when necessary; before riding them, to promote comfort and welfare of horse and rider (IAED 2; Lynne 2).

Canines should be reduced allowing free movement of the tongue and the bit in and out of the mouth; alleviate lip trauma, palate and tongue trauma, and reducing potential trauma to the other horses. Buff and float the tooth to remove the sharp edges. Ensure consistence, on both sides. To burr or cut the skin over unerupted canines assists in eruption. When cutting (C) because of size, they should be left at least three-eighths inch long. It is quite common to find large amounts of tarter on them. It is best to remove tarter if it looks like a round ball on the teeth. Use a pair of pliers to break the tarter off if it happens between dental visits.

"The temporomandibular joint is also marked as this joint can be affected by dental problems and also cause them" (Lynne 2). The jaw joint of the horse is the temporomandibular joint. Dentition or muscle skeleton problems in the horse can occur, and often is not checked by veterinarians during pre-purchase exams or early dental exams. Discomfort in the horse's mouth could cause him to tighten his jaw and poll (top of neck), producing tension in his back. Shanks on the bit when handled heavily by the rider can cause a tight head carriage, causing muscle skeletal problems. This can lead to lack of lateral excursion (side to side movement of the lower jaw) from overly tight or fatigued muscles in the jaw (Elliot 6).

Upper and lower arcades of teeth are made up of four quadrants right and left. The teeth are packed closely together that make them appear as one long chewing surface or arcade. "The horse has a highly specialized and finally tuned grinding machine, uniquely and perfectly designed for its intended purpose. There are important concepts of each element within the horse's mouth such as (I) length and angle, interocclusal space, occlusal angles, lateral excursion and quality of premolar contact that a practitioner specially trained in equine dentistry can accurately evaluate and correct"(Delorey 17). The lower jaw is narrower than the upper jaw. Upper arcades overhang the lower arcade of teeth approximately one-quarter to one-half inch and have angles horizontally ten to twelve degrees and reciprocal to the lowers. The teeth of the lower jaw also sit slightly inside of the upper arcades. Lateral excursion is the side-to-side action a horse makes with his jaw in motion. "A horse moves his jaw in a roughly elliptical pattern when he chews. He drops the lower jaw down, moves it over to the right or left, brings it up into contact with the upper teeth on that side, then moves the lower jaw back toward center grinding the lower teeth across the chewing surface of the upper teeth on that side" (Delorey 17).

Incisors are the front teeth under their upper and lower lips. When looking at the head from the front, (I) they should be level across the chewing surface to properly chew. If these (I) teeth make a smile like an expression on our face, termed a Ventral Curvature (VC) they are unable to have proper lateral excursion. If incisors look like an upside down smile termed Dorsal Curvature (DC) it also inhibits proper lateral excursion. Offset or Diagonal Bite the upper (I) are on a slant either left to right or right to left. They are

longer on one side than the other. From the side view of the head (I) should not over hang the lower jaw teeth or under hang lower teeth. Both (VC and DC) may occur when deciduous caps are retained on upper or lower corner incisors preventing normal growth of permanent incisors.

Distortion of a horse's jaw is termed an overbite or under bite. "Horses may be born with an overbite or under bite. This will often result in rostral and/or caudal hooks. Rostral and caudal hooks can shift alignment of bite resulting in an overbite. Resulting over bite problems- prevents a horse from chewing freely side to side resulting in improper and excessive molar wear. Rostral and caudal hooks, transverse ridges, wave complexes and sheared molar table angles will become more severe as the horse is forced to chew incorrectly overtime. It can also cause severe discomfort with the bit" (Johnson CEDM). "Under bite- can cause the lower jaw to shift forward resulting in an under bite. Resulting under bite problems -prevents a horse from chewing freely side to side resulting in improper and excessive molar wear. Ramps, transverse ridges, wave complexes and sheared molar table angles will become more severe as horse is forced to chew incorrectly over time. Ramps can also cause severe discomfort, with the bit. This can result in TMJ pain" (Johnson CEDM).

Caudal hooks are dominant lower or upper premolars overhanging opposing molars in the back of the mouth. They can be hereditary and can be caused by a horse with under bite. "Resulting problems prevents a horse from chewing freely side to side, resulting in improper, and excessive molar wear. Tight soft tissues are very susceptible to lacerations from sharp molar points. This can cause extreme discomfort as head carriage or frame is changed when riding" (Johnson CEDM).

Rostral hooks are dominating upper front premolars which overhang lower premolars in the front of the mouth. This may be hereditary and result from a horse born with an overbite. Secondary development may result to molar malocclusion that forces the jaw out of alignment (Johnson CEDM).

Ramps by definition have excessive height to the lower premolars. These can occur when caps or baby teeth are retained preventing normal growth of permanent premolars. This prevents a horse from proper lateral excursion and causes improper or excessive molar wear. It can cause a horse severe discomfort with the bit, and also force the lower jaw forward over time, causing an under bite.

A bit seat is a procedure of rounding the first premolar tooth so the cheek flesh is not pinched between the front of the first upper and lower teeth. This also prevents rostral hooks or the ramping of teeth. It does not affect the mastificory surface of the tooth but creates comfort for the horse. Bits seats are part of what is referred to as a performance float of the teeth and is generally ten dollars more than a regular float.

Upon investigation of a horse's mouth by an equine dentist, veterinarian, trainer, or owner, their client will be rewarded for their decision and expenditure, when the patient subsequently shows improvement in performance, because of the comfort after the points have been removed and "bit seats" have been provided. The improvement in performance is often noticeable right away.

A complete dental chart of before and after dental maintenance should be provided. Observations of any ulcerations (sores) to the tongue or cheeks should be recorded or any missing or fractured teeth. If any extractions are performed it may be necessary to have the veterinarian place the horse on an antibiotic if an infection is present in the mouth.

The horse should gain weight within a month, use less feed to maintain a good body condition, not toss his head in the bridle and be happier and healthier.

The dental destiny and health of our horse is in our hands. One of the most important concepts that horse owners can embrace from all this is that prevention is the absolute key to good equine dental health.

Works Cited

Allen, Tom. DVM. "A Day in the Life of…" 23 March.2005

Allen, Tom. DVM. "Horses, Back, Veterinary Services." Cleveland. Vol.33, Iss.3 March, 2002 p4E.

Baker,Gordon and Jack, Easley. Equine Dentistry. China: Harcourt Brace and Company Ltd, 1999.

Davis, Stephanie. DVM "State Laws, Dental Care, Veterinary Services." Cleveland. Vol. 35. Iss. 35. Feb. 2004.

Easley, Jack. "Teeth Do Lie." Equus. Sep, 1988: 31-42.

Elliot, Nancy. "Horses, Backs, Veterinary Services." Horse & Rider. Vol. 37. Iss 9 Sep, 1998 Vol.43. Iss. Nov, 2004. p70.

Delorey, Mary. "Advances in Equine Dentistry." Equs. Aug, 2004

Jeffery, Dale. "Texas Association of Professional Dentist Tapd." 03 Mar. 2005

Jeffery, Dale. "The Evolution of Equine dentistry IAED." 03 Mar. 2005

Johnson, David. "Equine dentist uses modern appliances to carry out old-time occupation." The Associated Press. 01 Dec. 2004.

Johnson, Thomas. Common Equine Dental Malocclusions. Advanced equine Dentistry. Nov. 2000

Kohler, Jeremy. "Despite Criticism, This Equine Dentist Says He Saves Lives." St Louis Post-Dispatch. Aug, 2000 p5.

Lane, Peter. (2001). Age Your Horse. Australia: Bendigo Modern Press. Lynne, Hanne. Equine dentistry. 14 Mar. 2005

Samolinski, Candace. "Tales From The Horses Mouth." The Tampa tribune. Mar, 2005. p1.

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