

EQUINE DENTAL CARE



The “**INs**” of
Equine Care

DID YOU KNOW...

Unlike dogs and cats, horse teeth keep erupting & are ever changing. Eating wears the teeth down, but uneven edges can develop; causing sores on the cheeks and tongue.



The adult male horse has up to 44 permanent teeth, and a mare might have 36-40 permanent teeth with a root four inches long!!!

TALKING POINTS:

- × The horse's mouth
- × Types of teeth & functions
- × Malocclusions / Problems
 - × Equine dentistry
 - × Aging by teeth
 - × Tools of the Trade
 - × Questions

UNDERSTANDING EQUINE MOUTH



Terms:

Mandible or Arcade or Jaw

Incisors

Molars

Pre-Molars

Canines

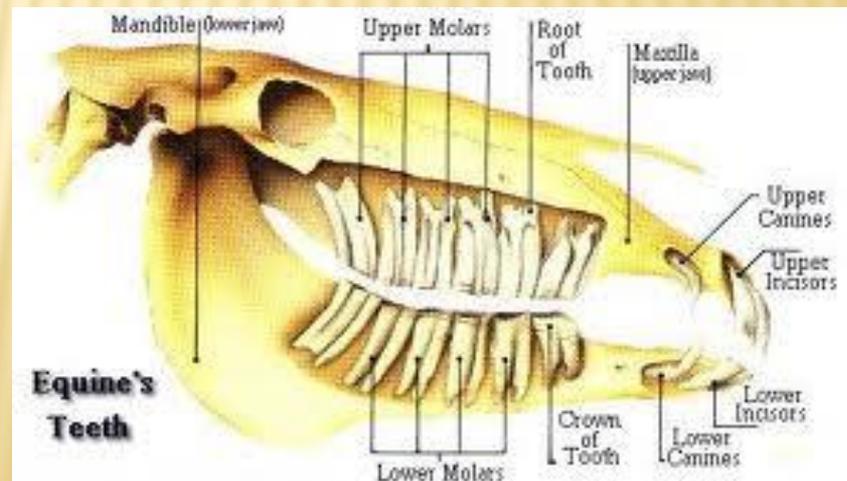
Wolf Teeth

Malocclusions= Hooks – Ramps – Points

TMJ joint

Rostral (meaning towards the nose)

Caudal (meaning towards the back of the mouth)



HOW DO HORSES EAT?

- ✘ Horses use their very dexterous lips to choose their feed and draw it into their incisors (also known as nippers).
- ✘ With their incisors, they tear the grass from the ground, and with their tongue, move the food back to the molars.
- ✘ The molars act as a millstone, grinding the grass, hay, or grain into digestible sizes easy to swallow.



UNDERSTANDING EQUINE MOUTH

- ✘ Diet is strictly plant based.
- ✘ To digest the amounts and types of roughage, they have to do a whole lot of chewing.
- ✘ Constant chewing wears away the teeth on a constant basis.
- ✘ Types of tooth that has both soft and hard parts, and the teeth erupt continually, but very slowly, at a rate of about 2-3mm a year.

TOOTH ERUPTION

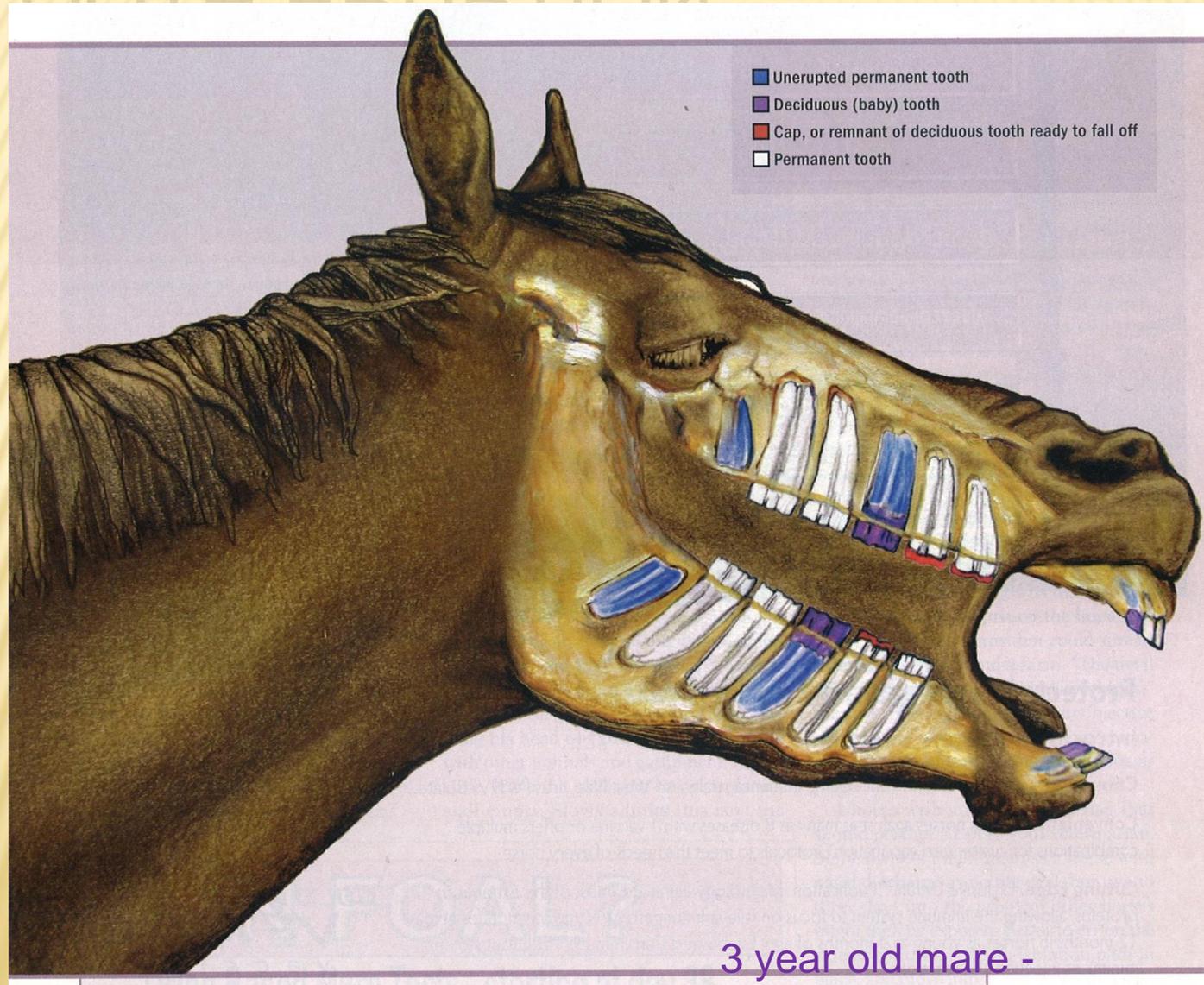


Illustration
from
The HORSE
March 2011

INCISORS



- ✘ Incisors are the front teeth. Also known as nippers, they are used to tear grass out of the ground.
- ✘ Should have a flat table surface.
- ✘ Erupt from the middle out to corners at:
2½ , 3½ , 4½ years of age.



INCISORS



- 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.



Severe Smile Mouth



Incisors Etched Prior to Cutting



Held Open to Show the Finished Work



Normal



Smile



Slant



Tall



Irregular



Frown

Incisor Abnormalities

MOLARS & PRE-MOLARS

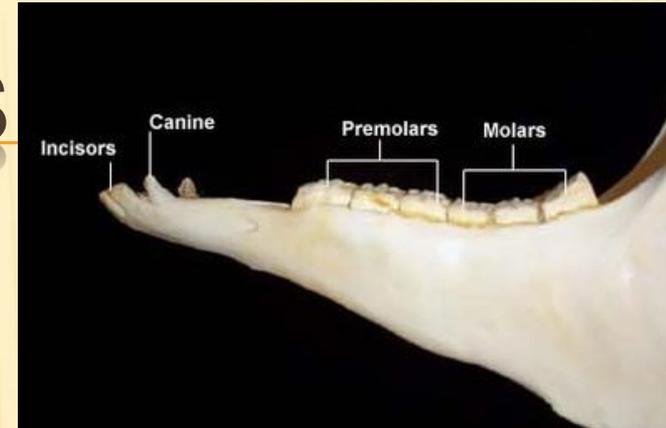
- ✘ Premolars and molars are the cheek teeth used to grind and chew food.



- ✘ All teeth caudal to the canine (site) are molars.

MOLARS & PRE-MOLARS

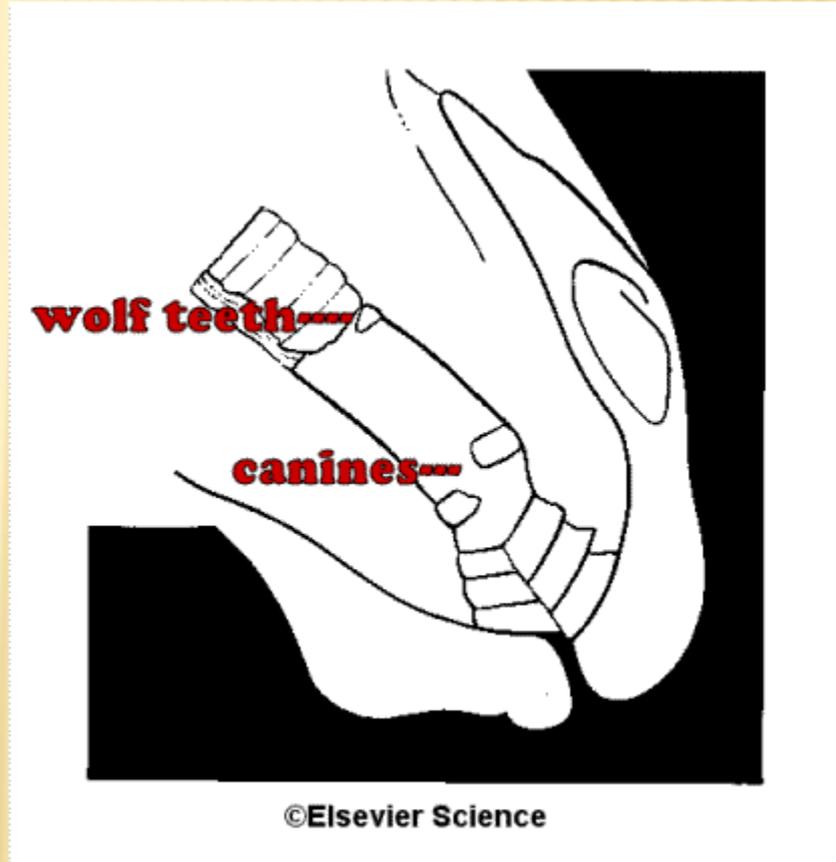
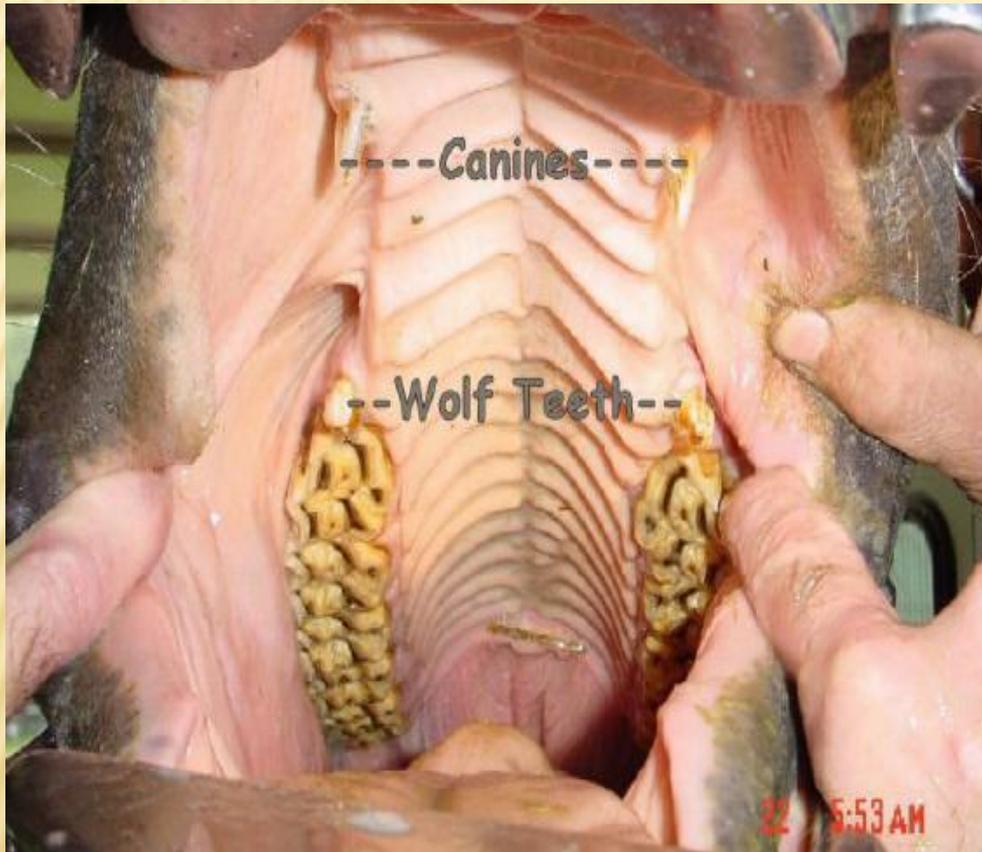
- ✘ Erupt at 3 ½ to 5 ½ years of age in the lower jaw, and approximately 6 to 18 months later on the upper jaw.
- ✘ (PM) 2 thru 4 are also deciduous teeth and are temporary in rostral to caudal order until 2 ½ , 3 ½ , 4 ½ years.
- ✘ Ideal conditions would allow them to have their teeth approximately 25 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 2 ½ to 4 ½ years of age, depending on breed and proper tooth alignment during eruption.



WHAT'S THE DIFFERENCE BETWEEN CANINE AND WOLF TEETH?

- ✘ **Canines (Tusks, tushes or bridle teeth) & Wolf Teeth are sometimes confused with one another.**
- ✘ **Canines are usually buffed or rounded off and only removed if infected & loose.**
- ✘ **Wolf Teeth are commonly extracted to improve performance.**

CANINE & WOLF TEETH



Photos from horsedentist.com

CANINES

- ✘ **Canines are commonly found in stallions & geldings, but are not often seen in mares.**
- ✘ **Canines usually erupt at 4 to 6 years of age; lowers first.**
- ✘ **Wolf Teeth erupt at 6 to 15 months, although variations will be seen.**



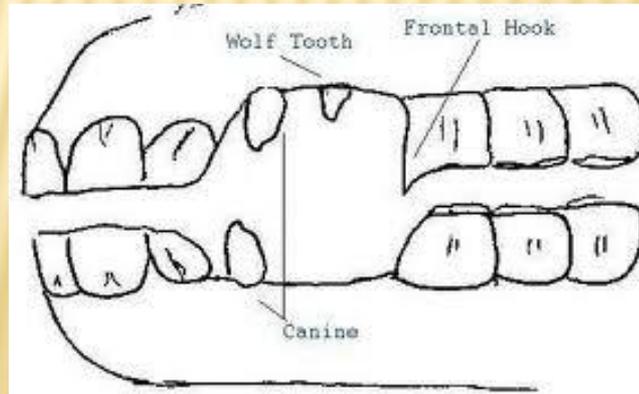
WOLF TEETH

- ✘ Wolf teeth are vestigial premolars, remnants of the *hyracotherium* stage in a horse's development when seven molars were present.
 - ✘ Wolf teeth sit just forward of the first major premolar.
 - ✘ Likely resultant performance problems - head throwing, lugging, getting "behind" or "over" the bit.
- Makes a strong case for their removal prior to training or major events.**



BLIND WOLF TEETH

- ✘ These are wolf teeth that have not erupted through the gum, but can cause extreme discomfort from the bit while the horse is ridden.
- ✘ Can find these by feeling the gums.
- ✘ Blind wolf teeth are often removed.

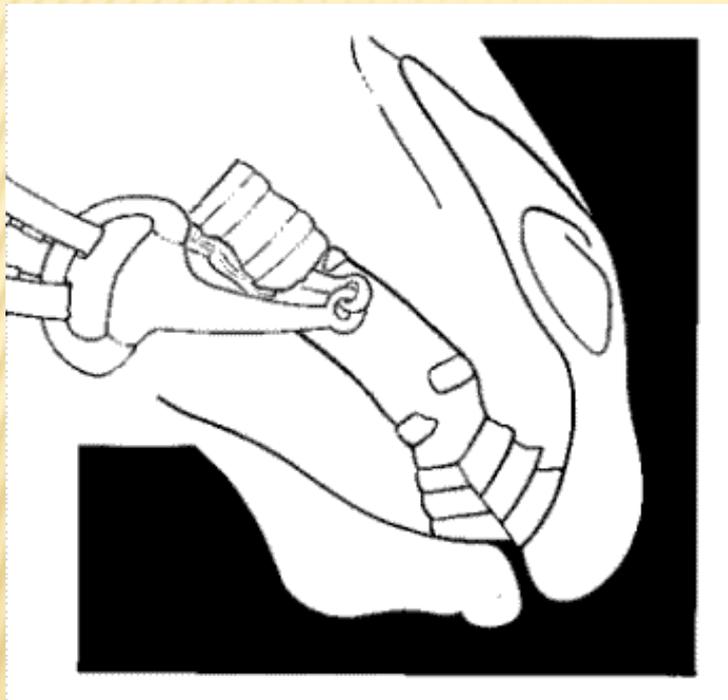


BIT SEATING

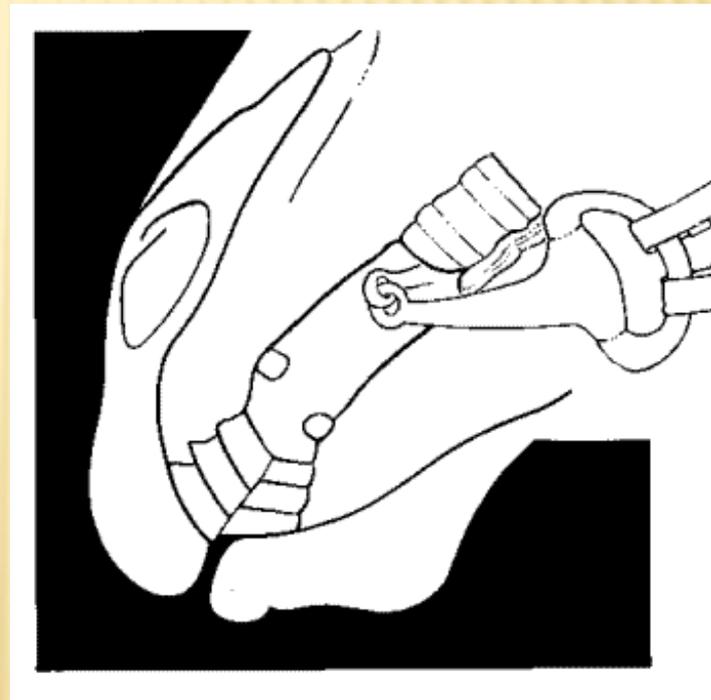
- ✘ The creation of bit-seats is a technique in which the first major premolars - the teeth against which the bit rides - are carefully rounded and shaped, thereby lifting the bit up and off of the sensitive bars, reducing tongue pressure and making certain that sensitive cheek tissue is not pinched between the bit and tooth.
- ✘ Bit-seats provide for much greater comfort for the horse, and often result in great improvements in performance.
- ✘ The installation of bit-seats reduces a great number of performance vices: headshaking, evading the bit, lugging, etc.
- ✘ Bit-seats are a "must" for competition horses, and for horses in which a high degree of performance is expected.
- ✘ Performance Horse Dentistry!

BIT SEAT

Before Dentistry



After Dentistry



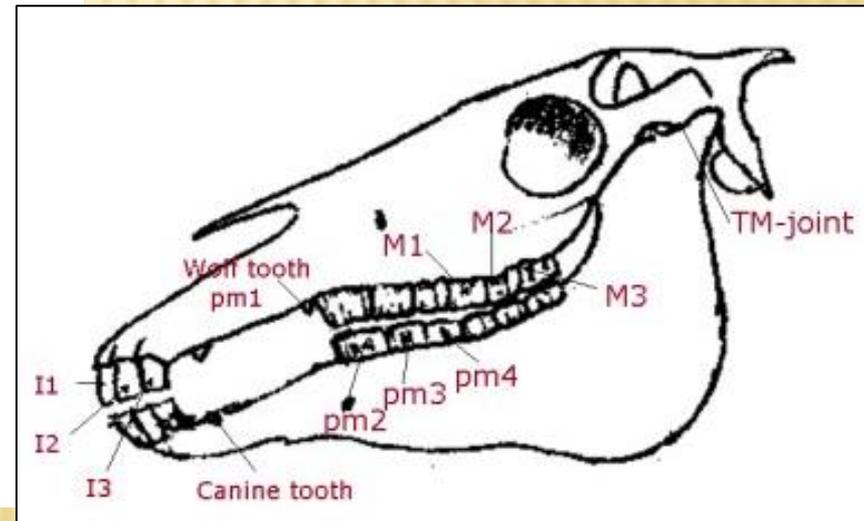
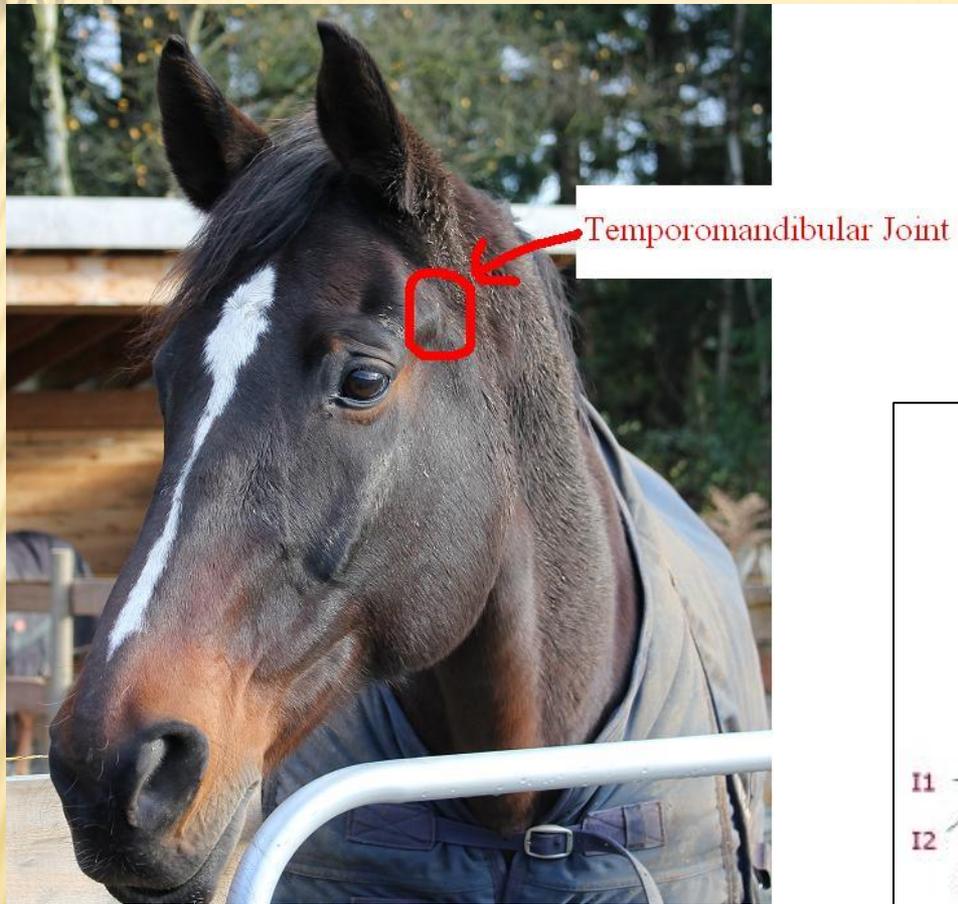
“Bit seats decrease bit pressure on the tongue because the bit has a notch to rest in. This often results in an immediate improvement in performance.”

False statement.
Listen to why
this is misleading!

TMJ JOINT & THE 3 POINT BALANCE

- ✘ Whole-mouth-dentistry, or *equilibration*, considers and maintains the working relationships of all the teeth, primarily through crown-height reduction.
- ✘ Its goal is to achieve a *three-point-balance* between the incisors, the molars, and the temporomandibular joint (TMJ).

TMJ



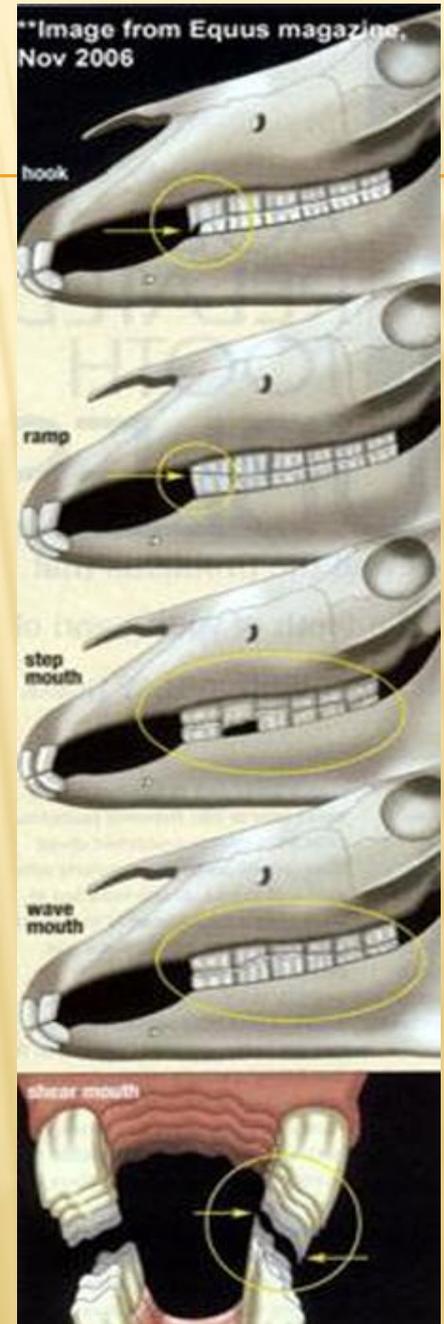
The jaw joint of the horse is the temporomandibular joint. Discomfort in the horse's mouth could cause him to tighten his jaw and poll (top of neck), producing tension in his back

MALOCCLUSIONS

Malocclusion is a problem in the way the upper and lower teeth fit together in biting or chewing.

The word *malocclusion* literally means "bad bite."

HOOKE, RAMP, STEP MOUTH, WAVE MOUTH, SHEAR MOUTH



PARROT OR MONKEY?

- ✘ Distortion of a horse's jaw is termed an overbite (parrot) or under bite (monkey).



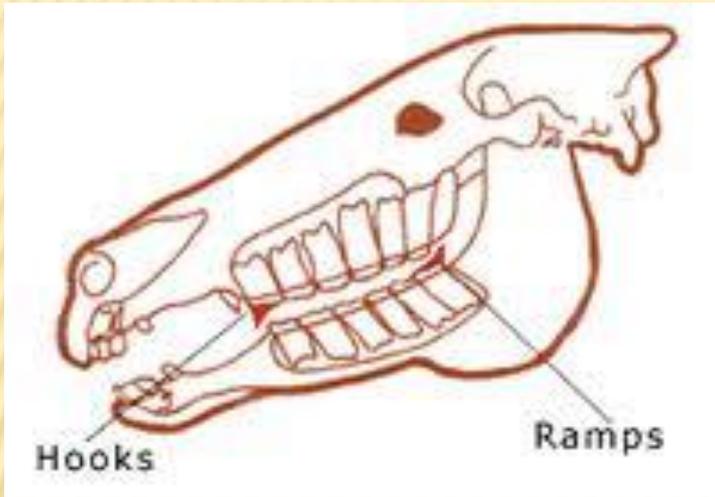
Resulting over/under bite problems- prevents a horse from chewing freely side to side resulting in improper and excessive molar wear. Rostral and caudal hooks, transverse ridges, wave complexes and sheared molar table angles will become more severe as the horse is forced to chew incorrectly overtime.

HOOKS

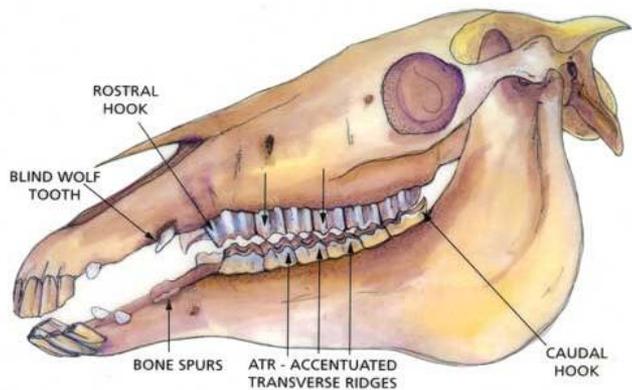


This occurs when the upper jaw is slightly forward of the lower jaw creating a situation where the first upper premolar does not meet the lower premolar and hence, **the front part of the tooth grows long and sharp.** Left unattended this hook can grow into the lower jaw causing intense pain and infection. Sometimes accompanied by lower ramps at the back of the jaw.

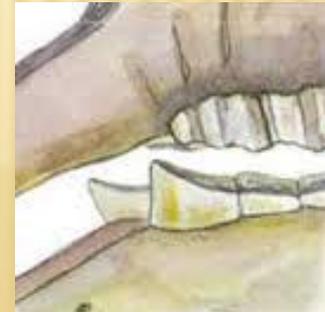
RAMPS



A ramp is basically the same thing as a hook, but its on the lower jaw. Ramps can be associated with the first lower premolar (#6) or the last lower molar (#11). They can cause the same complications as hooks.



Images Courtesy of Thomas J. Johnson, DVM



STEP MOUTH

- ✘ This occurs when one cheek tooth is either missing or is completely overpowered by the opposing cheek tooth. This abnormality allows the opposing or dominant tooth to grow into the gap left by the missing or weak tooth creating a situation where the lower jaw is unable to move forward or backward. This inability to move makes it nearly impossible for the horse to break at the poll and hence collection is unable to be achieved.

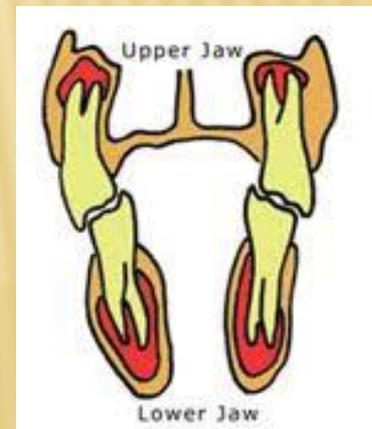
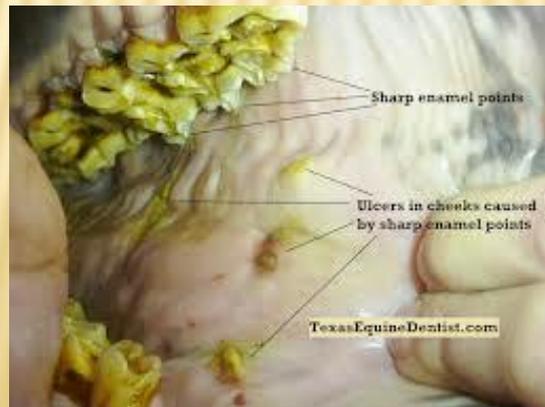
WAVE MOUTH

- ✘ This abnormality is similar to a step mouth, but with more teeth involved. There are both high and low points on each arcade creating a situation where the movement of the jaw is severely inhibited in all directions causing difficulty chewing as well as difficulty with collection and performance.



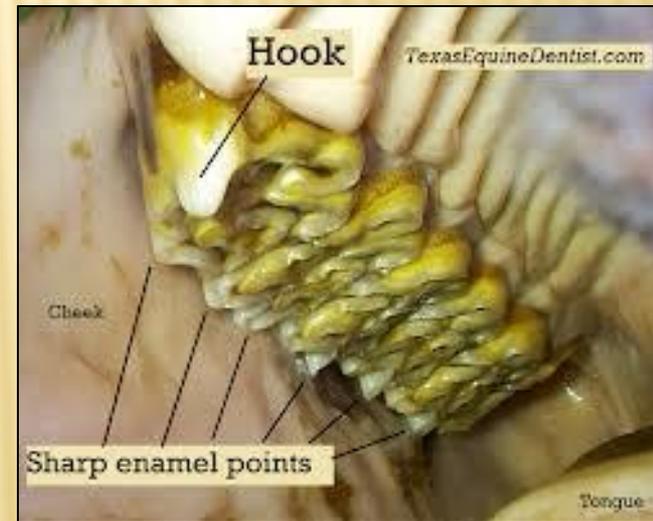
SHEAR MOUTH

- ✘ This occurs when the horse is not chewing evenly on both sides of the mouth causing uneven wear patterns in both the incisors and the cheek teeth. The points associated with a shear mouth can be excessively sharp and cause severe damage to the delicate tissues of the cheeks and tongue.



UNDERSTANDING EQUINE MOUTH

- ✘ Upper jaw is wider than the lower jaw
- ✘ As teeth erupt and are worn away by chewing, the **edges that do not meet together continue to grow without being worn down and get sharp.**
- ✘ Sharp points = pain and discomfort = eroding the cheeks & tongue.
- ✘ Inhibit chewing motion = poor digestion = weight loss, poor performance, and increasing the risk of choke and colic.



WHY DENTAL CARE IS NEEDED

- ✘ The periodic removal of these sharp points is necessary to minimize oral pain and will prolong the length of life as well as improve the quality of life of your horse.



WHAT IS THE DIFFERENCE BETWEEN “FLOATING” AND DENTISTRY?

- ✘ FLOATING = removal of sharp edges that develop on the molar arcades as a result of the honing action of chewing.
- ✘ Whole-mouth DENTISTRY, or *equilibration*, considers and maintains the working relationships of all the teeth, primarily through crown-height reduction & 3 POINT BALANCE.

AGING A HORSE BY IT'S TEETH

- ✘ There are four major ways to estimate age of horses by appearance of their teeth:
 - + Occurrence of permanent teeth*
 - + Disappearance of cups*
 - + Angle of incidence*
 - + Shape & the surface of the teeth*

*The age of a horse can be estimated by observing the eruption & wear patterns. **The key word is “estimated”, since eruption & wear can vary greatly.**

DENTAL CRITERIA FOR AGING

Summary of dental criteria for aging--(note that these are approximate ranges only, references vary)

Criteria	Incisor 1	Incisor 2	Incisor 3
Deciduous eruption	8 days	8 weeks	8 months
Permanent eruption	2 ½ years	3 ½ years	4 ½ years
Cup disappears	6 years	7 years	8 years
Dental star appears	8 years	9 years	10 years
Round table shape	9 years	10 years	11 years
Triangle table shape	14 years	15 years	17 years
Biangular table shape	18 years	19 years	21 years
Galvayne's groove			10-30 years (upper incisor)
Seven year notch			7 and 11-17 years (upper incisor)

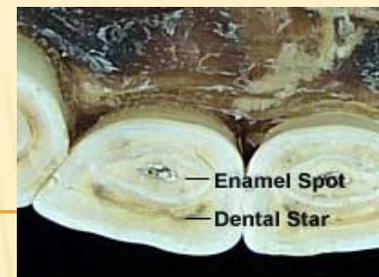
Type of tooth	Number	Deciduous	Permanent
Incisor	First (central)	birth to 8 days	2.5 yrs
Incisor	Second (intermediate)	4.5-6 weeks	3.5-4 yrs
Incisor	Third (corner)	6-9 months	4.5-5 yrs
Canine		Absent	3.5-5 yrs, some around 6 yrs (if ever)
Premolar	First (wolf)	Absent	6 months to 3 years (if ever)
Premolar	Second	birth to 2 weeks	2-3 yrs
Premolar	Third	birth to 2 weeks	2.5-3 yrs
Premolar	Fourth	birth to 2 weeks	3-4 yrs
Molar	First	Absent	9-12 months
Molar	Second	Absent	2 yrs
Molar	Third	Absent	3-4 yrs



Table, Information & following diagrams from

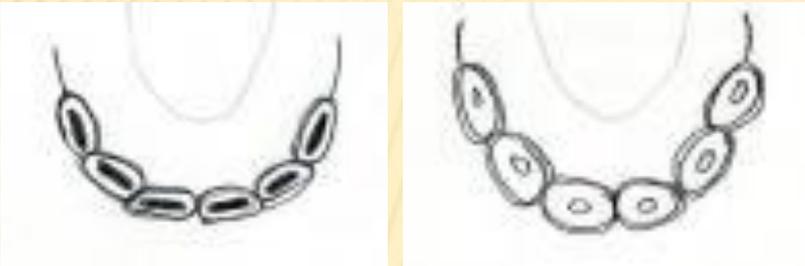
<http://loudoun.nvcc.edu/vetonline/vet221/dentistry/lesson12a.htm>

CAPS, CUPS & STARS

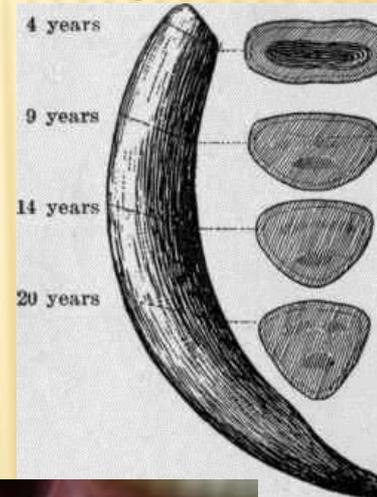
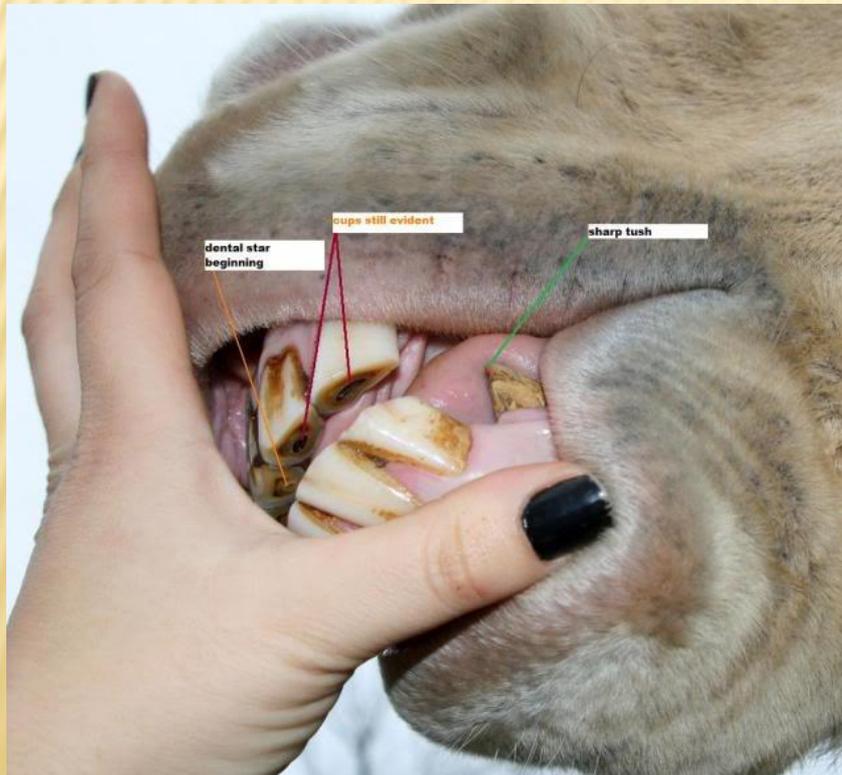


- ✘ As the adult teeth erupt, the deciduous teeth are pushed out of the alveolus, but they remain attached to the adult tooth as it erupts. At this stage, the deciduous tooth is called a CAP.
- ✘ At age 5 there is a dark brown or black cavity, known as the CUP, in the center of the tooth that corresponds to the infundibulum. As the teeth wear, the cup disappears and a small spot of enamel appears in its place at around age 10. The enamel spot disappears at about 15.
- ✘ The dental STAR is the dark dentin that appears on the occlusal table as the wear approaches the level of the pulp chamber. It is not really star shaped, but is a line that appears rostral to the cup (or the enamel spot) by about 8 years of age. The dental star persists for years and changes shape to match the diameter of the pulp chamber, eventually becoming round by 18 or 20.

CAPS, CUPS & STARS



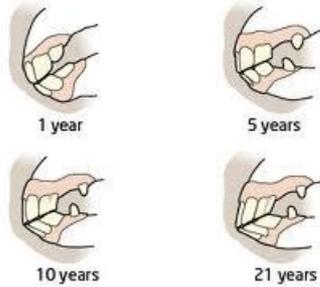
A diagram of the occlusal tables of the incisors showing the disappearance of the cup: 5 years old on the left and 10 years old on the right.



Cross section of an incisor tooth showing how the shape changes.



AGE BY ANGLE

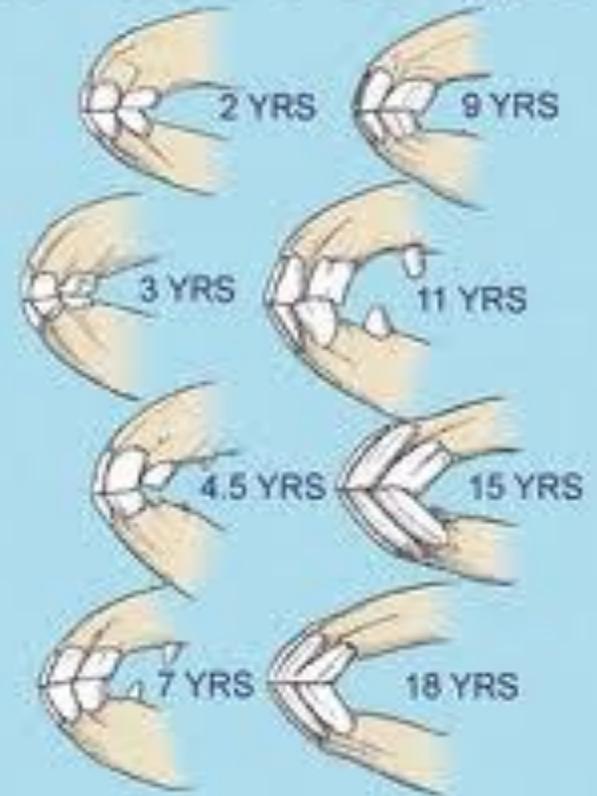


View the horse from the side. The older the horse gets, the more acute the angle becomes.

If you also look at the arcade of the incisors you will notice that in the young animal, the incisors form a semicircle. The incisors of the older animal will form a straight line.

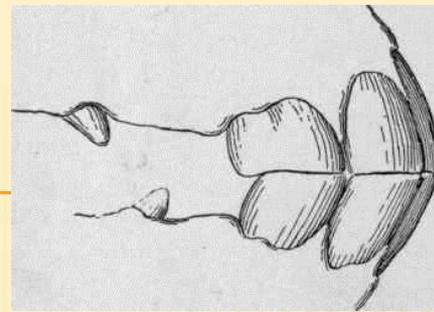


How Teeth Change as Your Horse Ages



From the book, *The Coloring Atlas of Horse Anatomy*, courtesy of Alpine Publications, 800-777-7257

7 & 11 YEAR NOTCH



- ✘ The seven year notch (seven year hook) is a $\frac{1}{8}$ to $\frac{1}{4}$ inch hook or projection that occurs on the distal occlusal surface of the upper third incisors. The hook is the result of uneven wear of the incisor that commonly occurs around age 7, and then may disappear, then redevelop at age 11, only to disappear by 18.
- ✘ So if you see a notch or hook on the upper third incisor, all it really tells you is that the horse is at least 7 years old and less than 18.

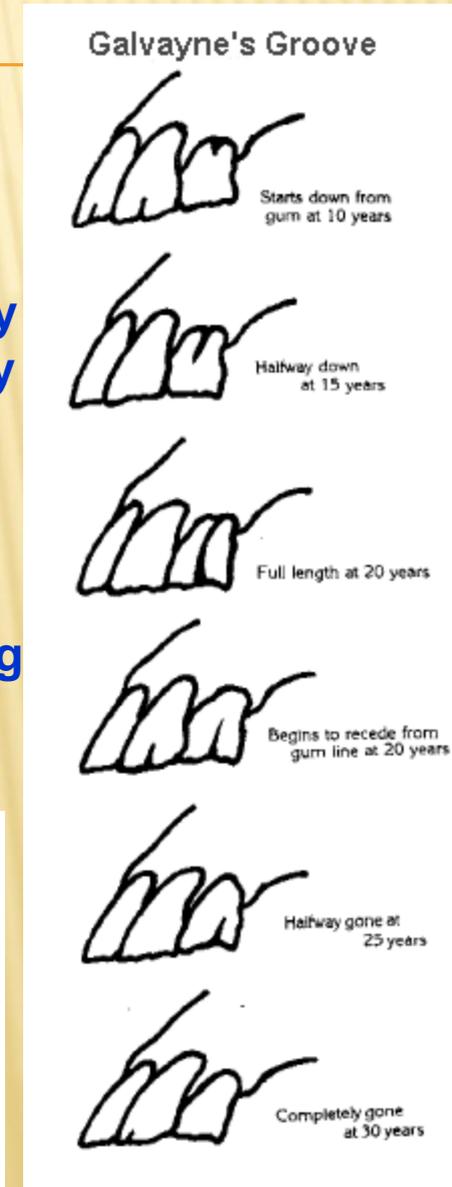
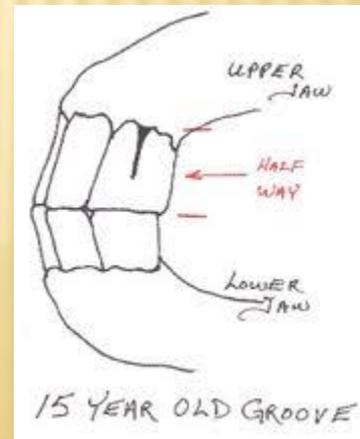
GALVAYNES GROOVE

- ✘ Galvayne's groove is a shallow groove on the labial surface of the upper third incisor extending from the gingival margin to the occlusal edge. It is not always obvious.
- ✘ If stained, it appears as a dark line. It appears at the gingival margin at about 10 years of age. By 15 it is halfway down the crown. By 20 it extends the entire length of the tooth. At 25 it starts to disappear so that is it only visible on the lower half of the tooth and by 30 it is gone. So if you see Galvayne's groove, it tells you that the horse is at least 10 years old.

GALVAYNE'S GROOVE



The Galvayne's groove got its name from Sidney Galvayne, a 19th-century horseman born in Australia who gained recognition as an excellent judge of a horse's age by examining it's teeth while traveling Europe in the 1880s.



AGING OR ID

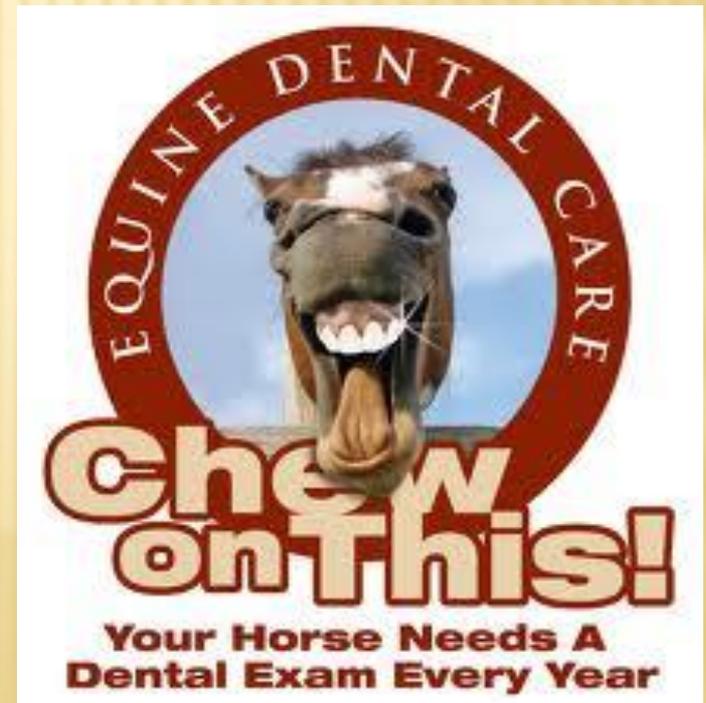
- ✘ It's an art rather than science...



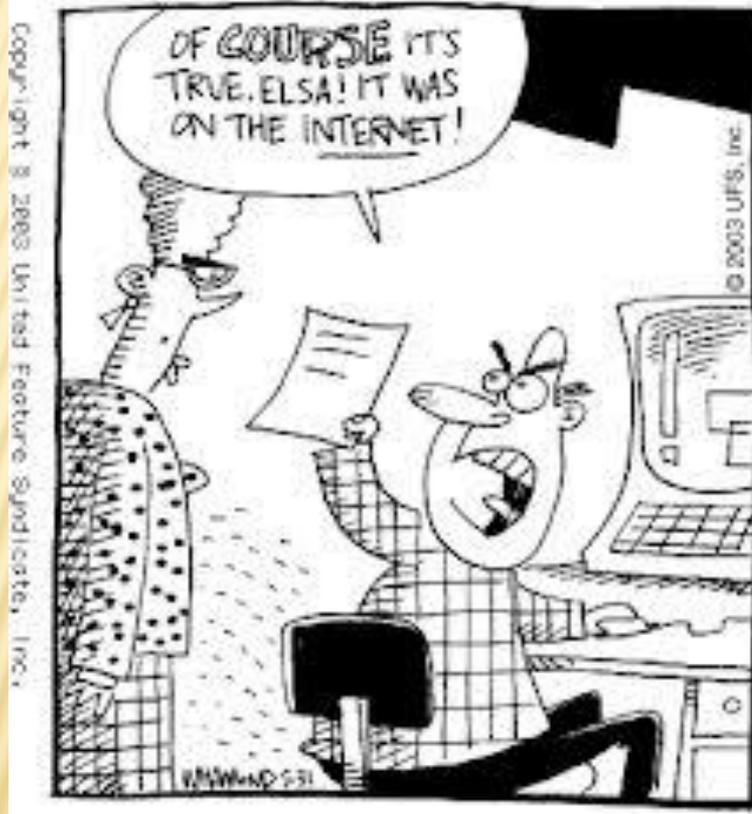
- ✘ NOW you should know why they say, "Don't look a gift horse in the mouth!"

TIME FOR A CHECK - UP

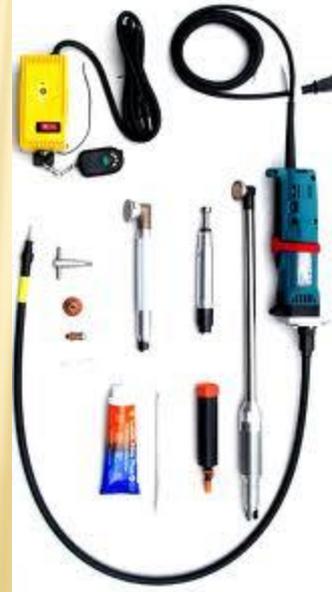
Horse teeth should be examined annually and worked on; if necessary to reduce pain, mouth odor, problems with wearing a bit, problems eating and weight loss.



POWER TOOLS ARE NOT BAD!



HAND TOOLS VS. POWER TOOLS



TOOLS OF THE TRADE

✦ Speculum, Float-Rasp, Cutters, Forceps, Extractor, Head stand



QUESTIONS?

I know you
wanna
Ask..



**Thank-you Greg for a WONDERFUL presentation!
Also Thanks to all of the kitchen help & our loyal
sponsors, NAGY's Collision Specialists!**

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CREDITS / REFERENCES

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