



# 2025 Winter CE Conference

February 1 and 2

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**Making Sense of a Horse's Mouth -  
Anatomy and Oral Exam Review**

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# Making sense of the horse's mouth: an anatomy and oral exam review

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## Summary

- Anatomy review
- Equipment needed for oral exam
- Five point oral exam



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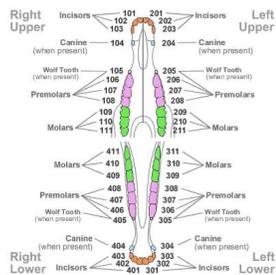
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## Triadan numbering



Courtesy Dr. Bruce Whittle

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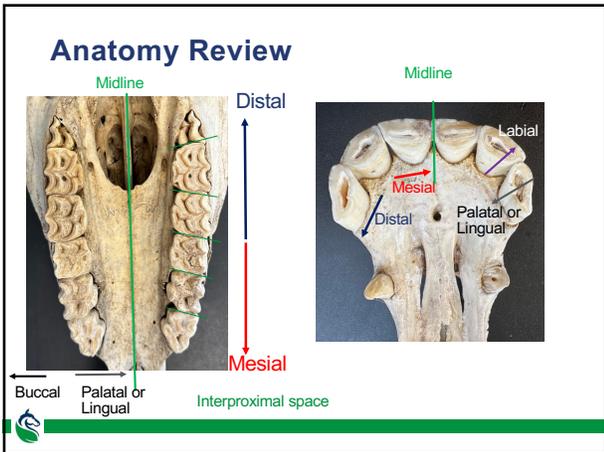
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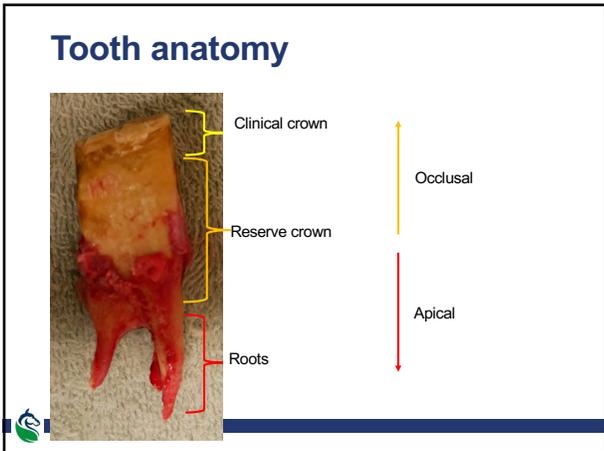
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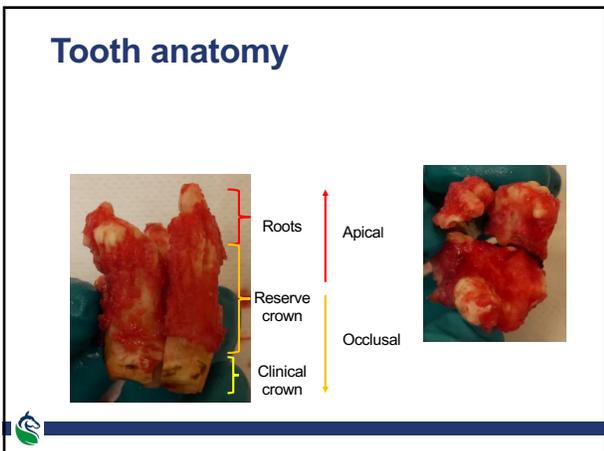
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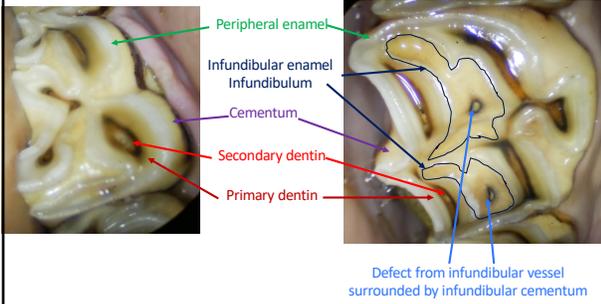
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## Tooth anatomy



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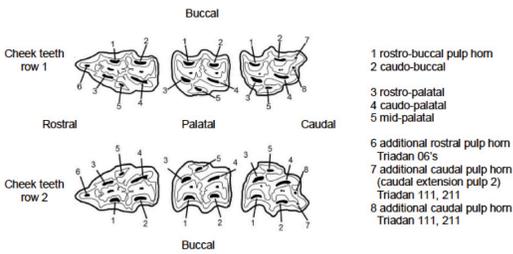
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## Maxillary Pulp Horns



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## Mandibular Pulp Horns

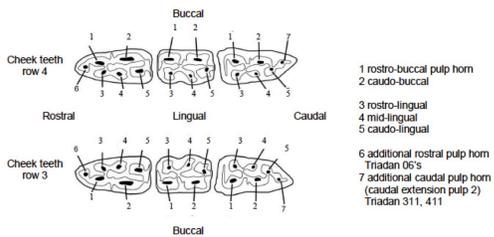


Figure 3. Pulp nomenclature system described by du Toit et al. (29) (illustration modified from Dacre et al. (23), with permission)

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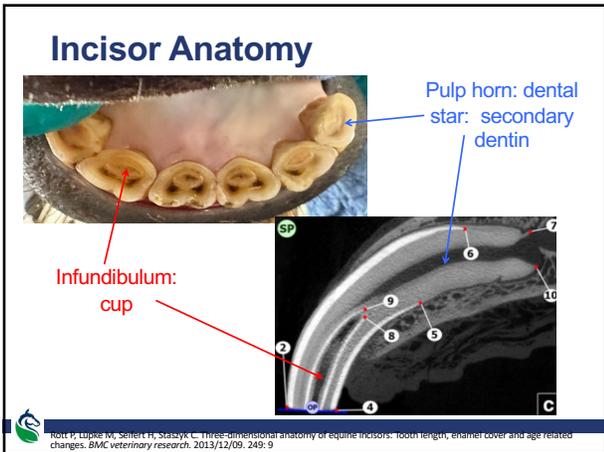
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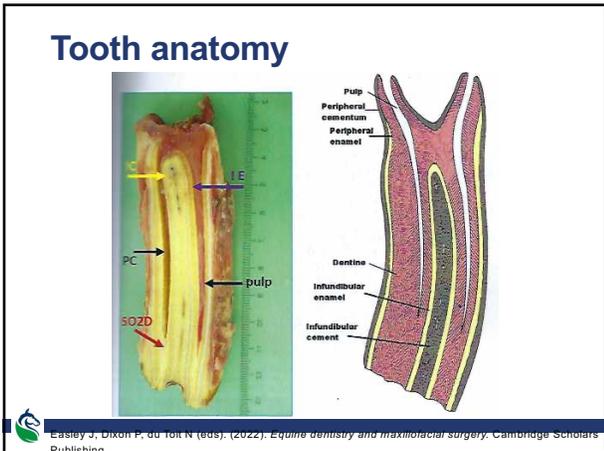
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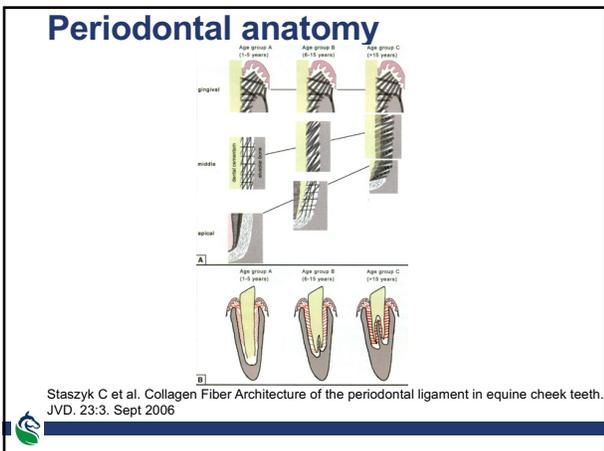
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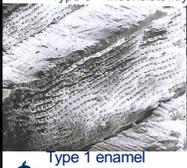
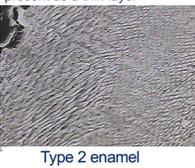
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## Enamel

- Enamel is the hardest structure in the body but very brittle
  - Can not repair itself
  - Wears the slowest
- Shiny/ clear
- There are 3 types of enamel
  - Type 1 - Inner folds- amelodentinal junction
  - Type 2 - Peripheral enamel folding- amelocemental junction
    - More resistant to cracking due to enamel decussation
  - Type 3 - Inconsistently present as a thin layer


Type 1 enamel      Type 2 enamel

Easley J, Dixon P, du Toit N (eds), (2022). *Equine dentistry and maxillofacial surgery*, Cambridge Scholars Publishing.

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## Dentine

- Most of the tooth is dentine
- Cream or brown colored
- 3 types of dentine
  - Primary dentine
    - Present when the tooth first erupts
  - Secondary dentine
    - Regular secondary dentine- periphery of the pulp canal
    - Irregular secondary dentine- in the center of the pulp canal, irregular structure
  - Tertiary dentine
    - Reactionary tertiary dentine- pre-existing odontoblasts
    - Reparative tertiary dentine- previously undifferentiated pulp connective cells that become odontoblasts
- Dentine can respond to trauma, infection or abnormal wear by sclerosis




Regular secondary dentin  
Irregular secondary dentin  
Primary dentin

Easley J, Dixon P, du Toit N (eds), (2022). *Equine dentistry and maxillofacial surgery*, Cambridge Scholars Publishing.

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## Reasons to Perform an Oral Exam

- Only a veterinarian is trained and licensed to perform this exam
- Precursor to any treatment
  - This includes floating teeth
- Evaluating any disease where a dental differential exists
- Recognize normal and abnormal
- Prevent a misdiagnosis
- Pre-purchase exam




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### Equipment needed

- **Well sedated patient**
  - 20-40 mcg detomidine/kg (9 – 18 mg detomidine for a 450 kg horse)
  - I use 8 – 10 mg detomidine for most horses
  - Butorphanol as needed
- **Bright light**
- **Full mouth speculum**
- **Oral examination instruments**
  - Dental mirror
  - Periodontal depth probe
  - Pulp horn explorer
  - Bucket with chlorhexidine and dose syringe
- **Dental chart** or other system for recording findings




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### Five Point Oral Exam

- External exam
- Occlusion
- Oral soft tissues
- Periodontal status
- Endodontic status
  
- And don't forget to get a history and do a PE before oral exam!




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### External Exam

- **Symmetry of the head**
  - Muscle atrophy
  - Anatomical or developmental changes
- **Swelling**
  - Soft tissue or bony
- **Draining tracts or wounds on the head**
- **Nasal discharge**
- **Odor**
- **Body condition score**




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## Occlusion

### Class 1 Malocclusions (focal)

- Overlong teeth
  - Ramps, waves, steps, etc.
- Tipped towards
  - Cheek (buccoversion)
  - Tongue (lingoversion)
  - Palate (palatoversion)
  - Mesio- or disto-version

### Class 2 Malocclusions

- Brachygnathism (parrot mouth)

### Class 3 Malocclusions

- Prognathism

### Class 4 Malocclusions

- Slanted incisors usually due to wry nose conformation



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## Occlusion

### • Overlong vs. overgrown

- Overlong is more correct, since horses have prolonged eruption, and are not continuing to "grow" their teeth



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## Oral Soft Tissues

### • Lacerations in the mouth

- Tongue
- Cheek
- Lips
- Hard palate/soft palate

### • Oral masses or swelling

- Abscesses
- Tumors
- Polyps

### • Draining tracts or fistulas



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### Oral Soft Tissues



Photo courtesy of Dr. Molly Rice



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### Periodontal Status

- Inflammation of the support structures of the tooth, including those below the gum line
- Periodontal pockets
  - Note depth and location
  - Normal is 1-2 mm
- Diastemata
  - Feed stasis in interproximal spaces
- Gingival recession, hyperplasia, or parulis lesions
- Halitosis
- Mobility
- Radiographs are necessary to properly stage periodontal disease



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### Valve Diastema



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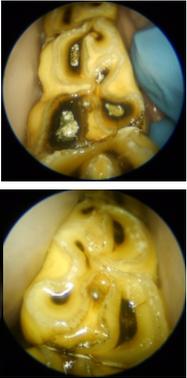
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### Endodontic Status

- **Pulp horn defects**
  - Pulp exposure
  - Abnormal shape/size
- **Infundibular abnormalities**
  - Caries of the infundibulum
  - Patent infundibulum



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### Endodontic Status: tooth failure



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### Endodontic Status

Tooth fracture: involve pulp horn?

- Yes
  - Complicated
    - Involve which part of tooth
      - Complicated crown fracture
      - Complicated crown-root fracture
      - Complicated root fracture
- No
  - Uncomplicated crown fracture



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## Practical approach to oral exam

- Gather history and draw up sedation
- Brief PE including cardiac auscultation, assessment of BCS
- Rinse mouth with dilute chlorhexidine
- External oral exam, evaluate incisors, and note any malocclusions
- Place speculum
- Observe for focal malocclusions and examine oral soft tissues
- Mirror or oral endoscopy exam, start with 100 quad first
  - Count teeth
  - Assess endodontic status then periodontal status
  - Come back to any areas that need further evaluation with periodontal probe or pulp horn explorer
- Chart findings
- Discuss findings and plan with owner



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## Troubleshooting

- Sedation
  - Use lots!
- Head stand or head sling- use it!
  - Keep the head level without hyperextending
  - Work at a comfortable height for you- standing or sitting
- Have the mouth open as much as comfortably possible for the patient
  - For my X spec and Alumaspec- the entire length of the strap is open
- Use a bright light
- Fogging
  - More chlorhexidine solution in your water or use saliva from the underside of the tongue
- Look every carefully at each tooth and compare to contralateral side or adjacent teeth
  - Easy to miss fractures, pulp horn defects, perio disease, etc



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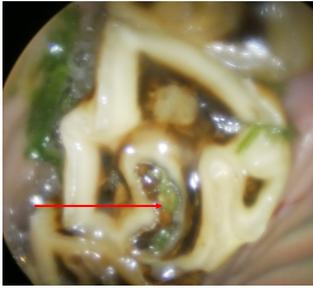
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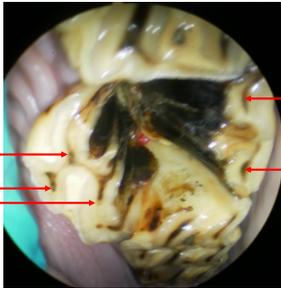
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## Questions?



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