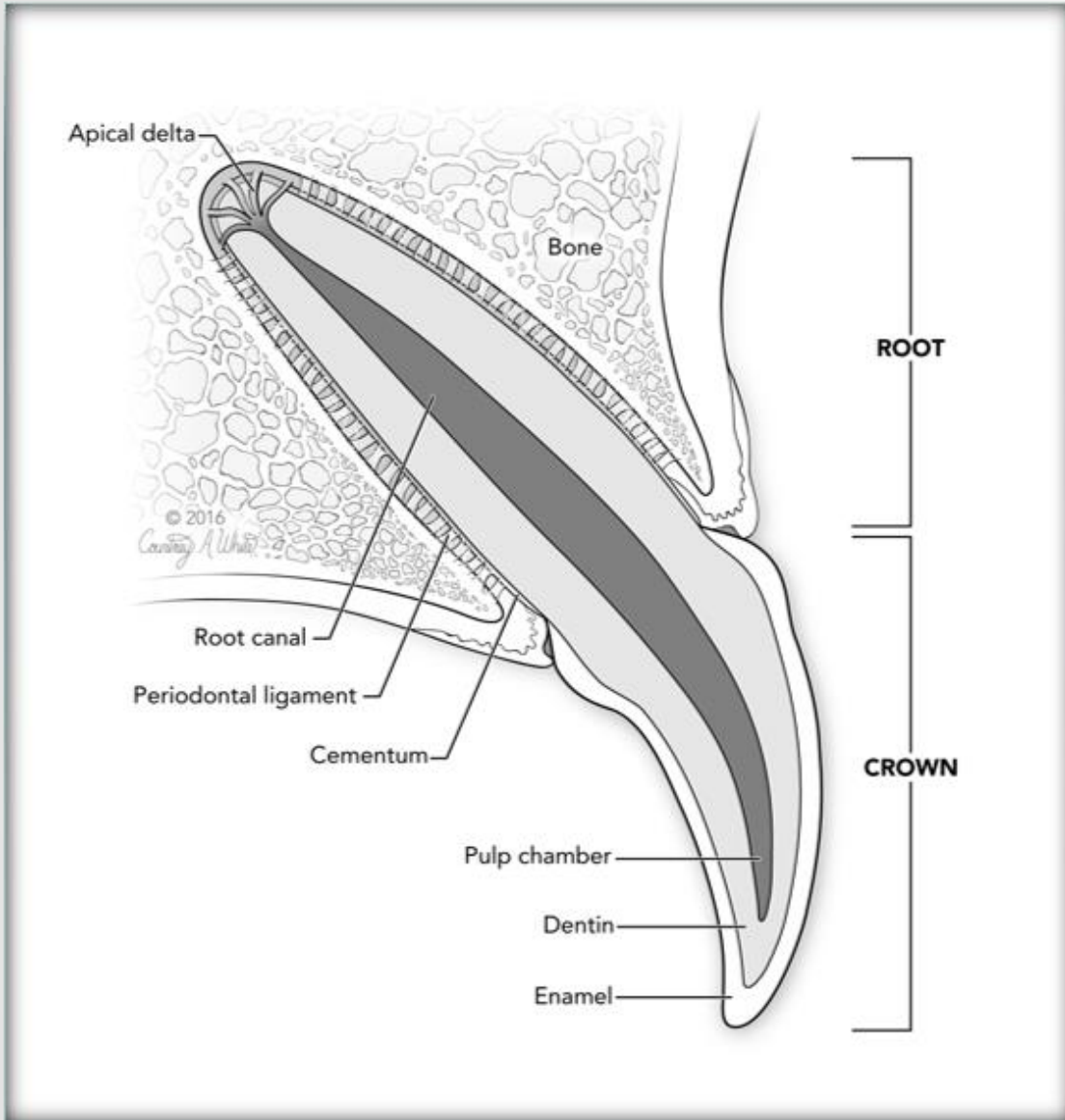


# Oral anatomy and Common Pathology

Presented by Lauren Beck, LVT, VTS (Dentistry)



# Tooth Anatomy

All teeth in the mouth have the same anatomy, no matter what the function of the tooth is or the shape of the tooth.

# Skull Types



**Dolichocephalic**



**Mesocephalic**



**Brachycephalic**



## ☐ Three skull types

### ➤ Mesocephalic

- ✓ Means medium, most common head type
- ✓ Example- Golden retriever, Lab, DSH

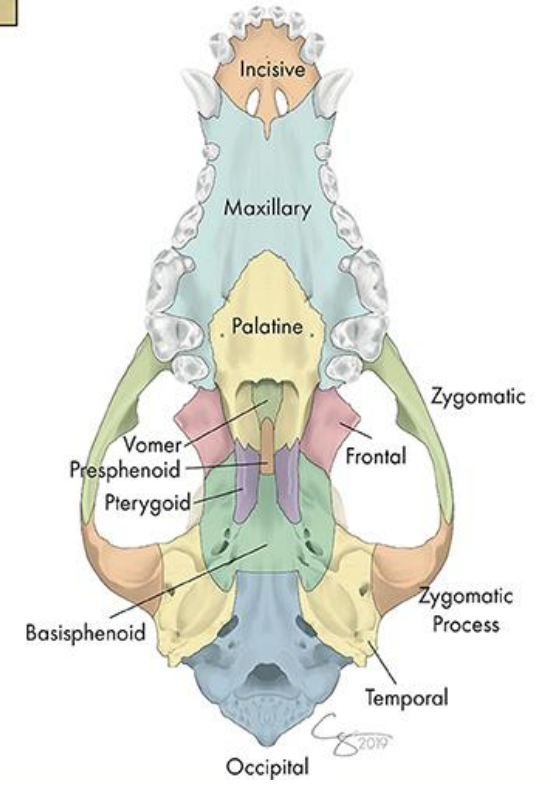
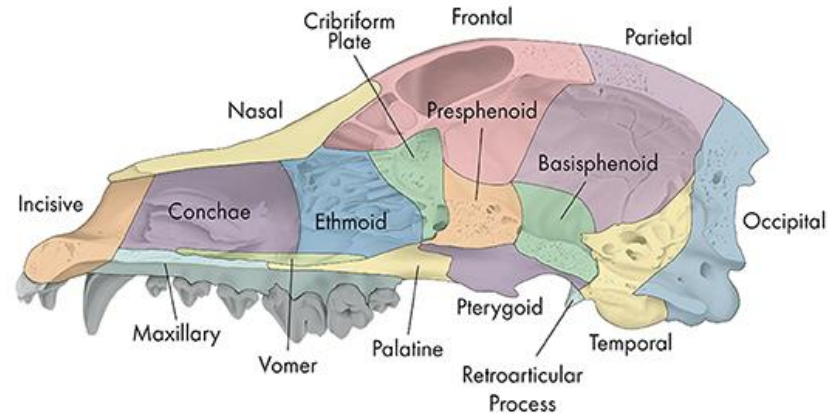
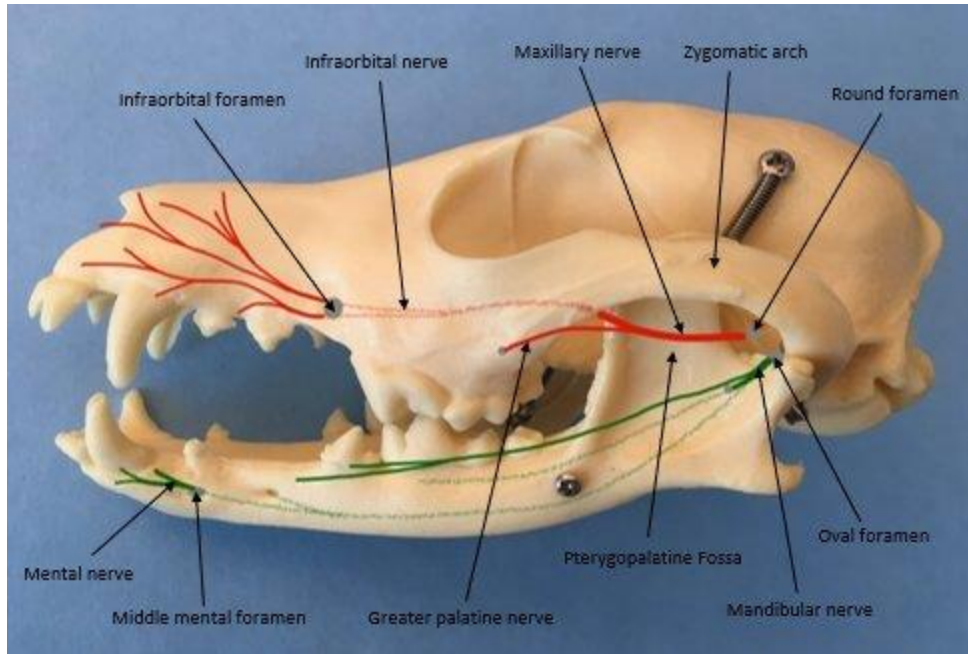
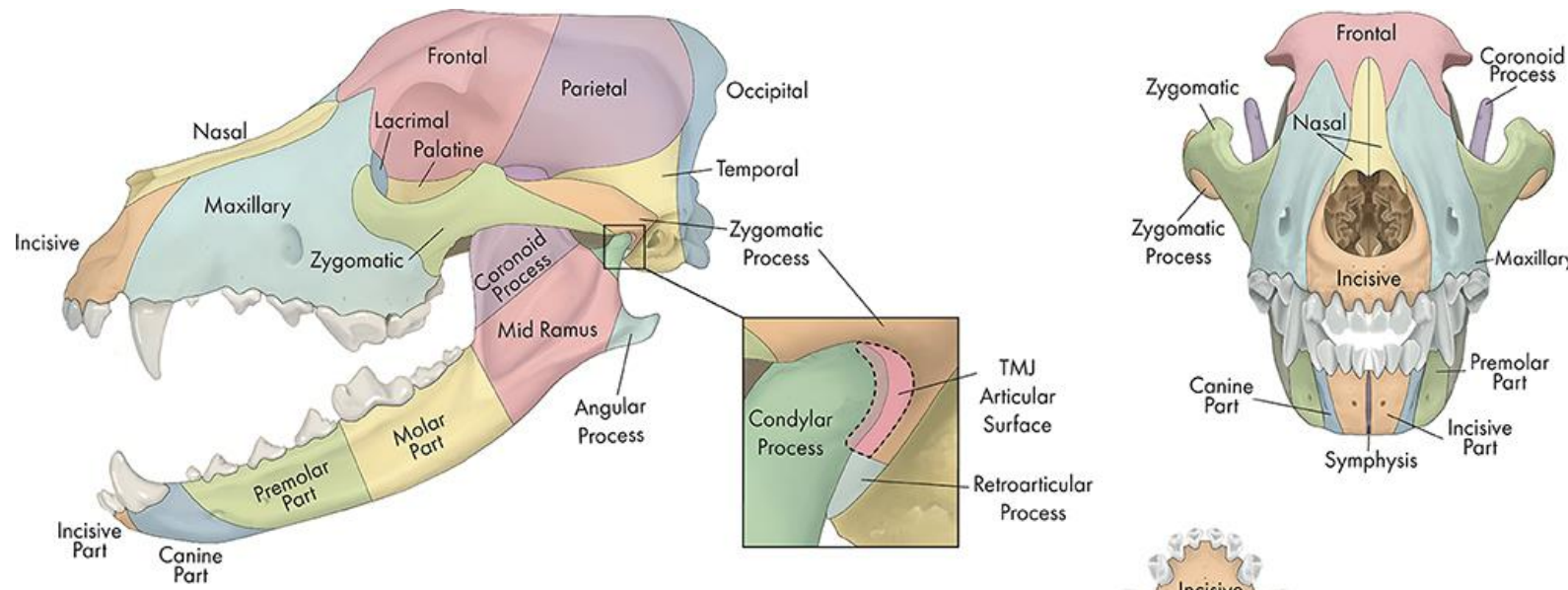
### ➤ Brachycephalic

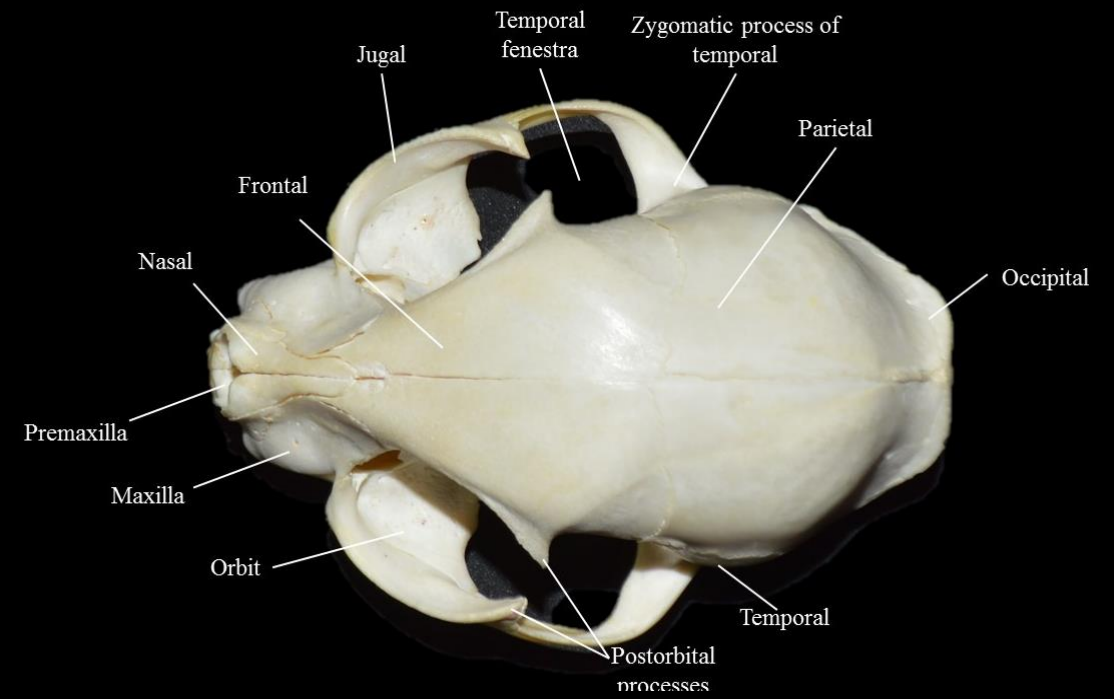
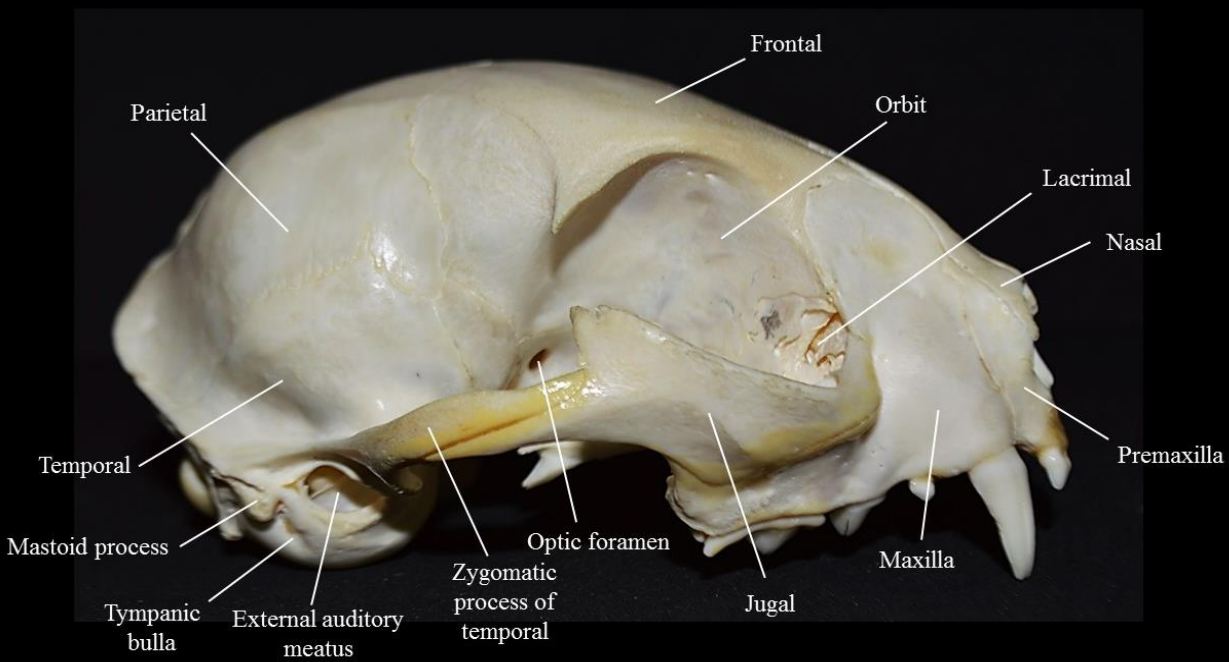
- ✓ Means short, short wide heads
- ✓ Commonly see things like rotated/crowded teeth. Could lead to periodontal disease
- ✓ Example- Boxers, pugs, bulldogs, and Persian cats

### ➤ Dolichocephalic

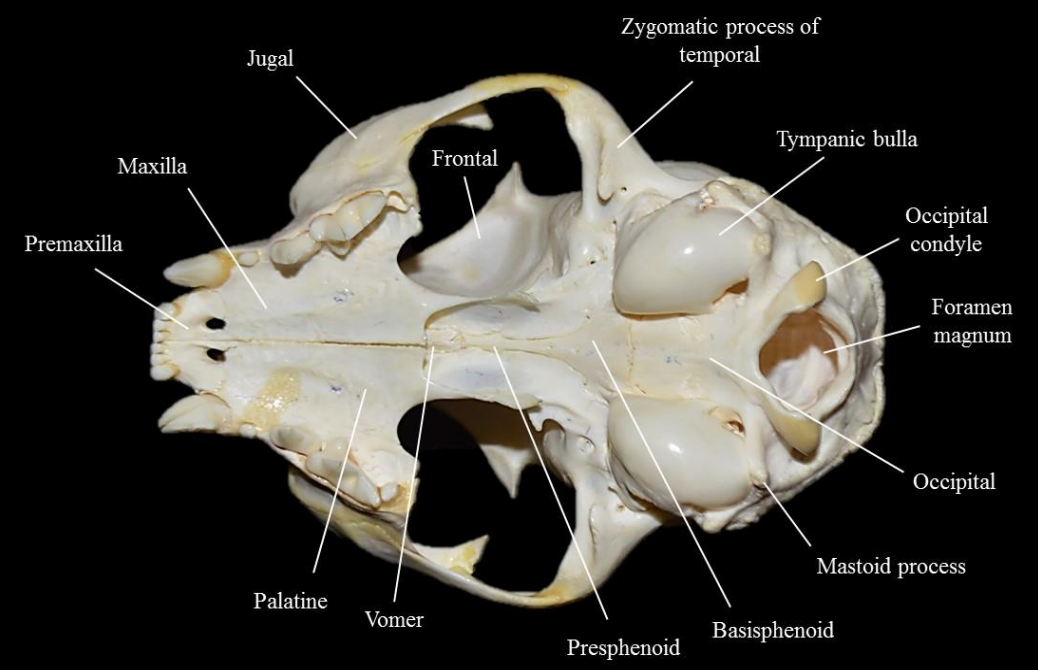
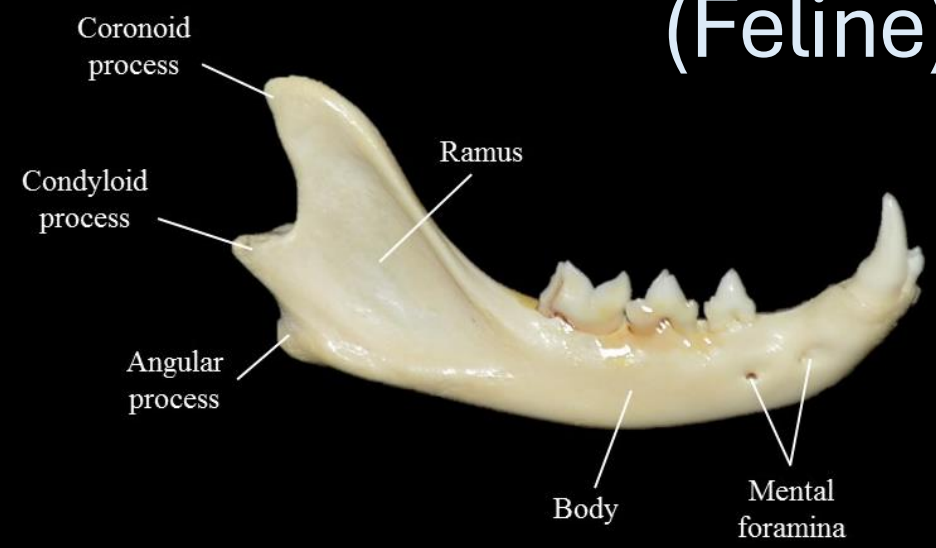
- ✓ Means long, long narrow heads
- ✓ Example- Collies, greyhounds, borzois ad Siamese cats

# Skull Anatomy (Canine)

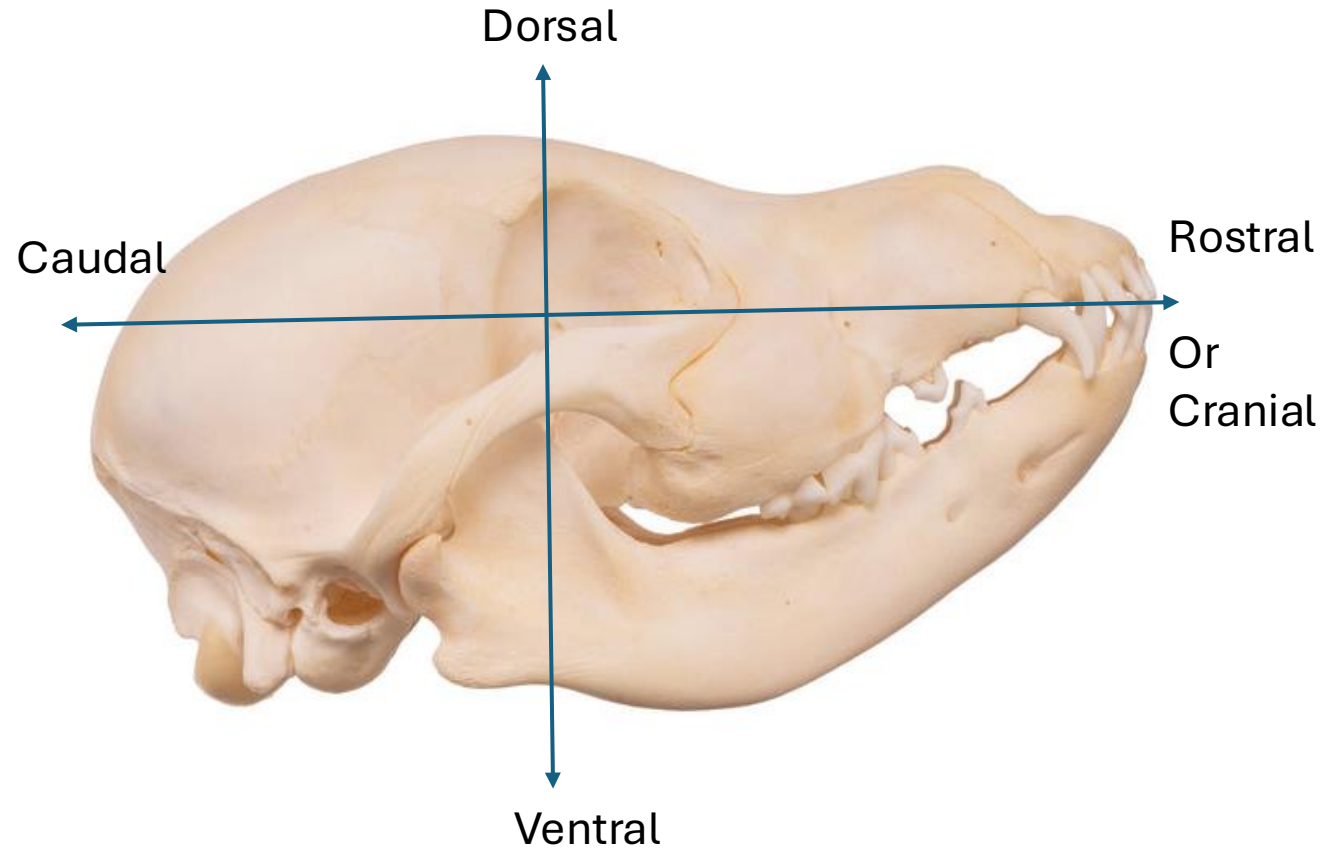
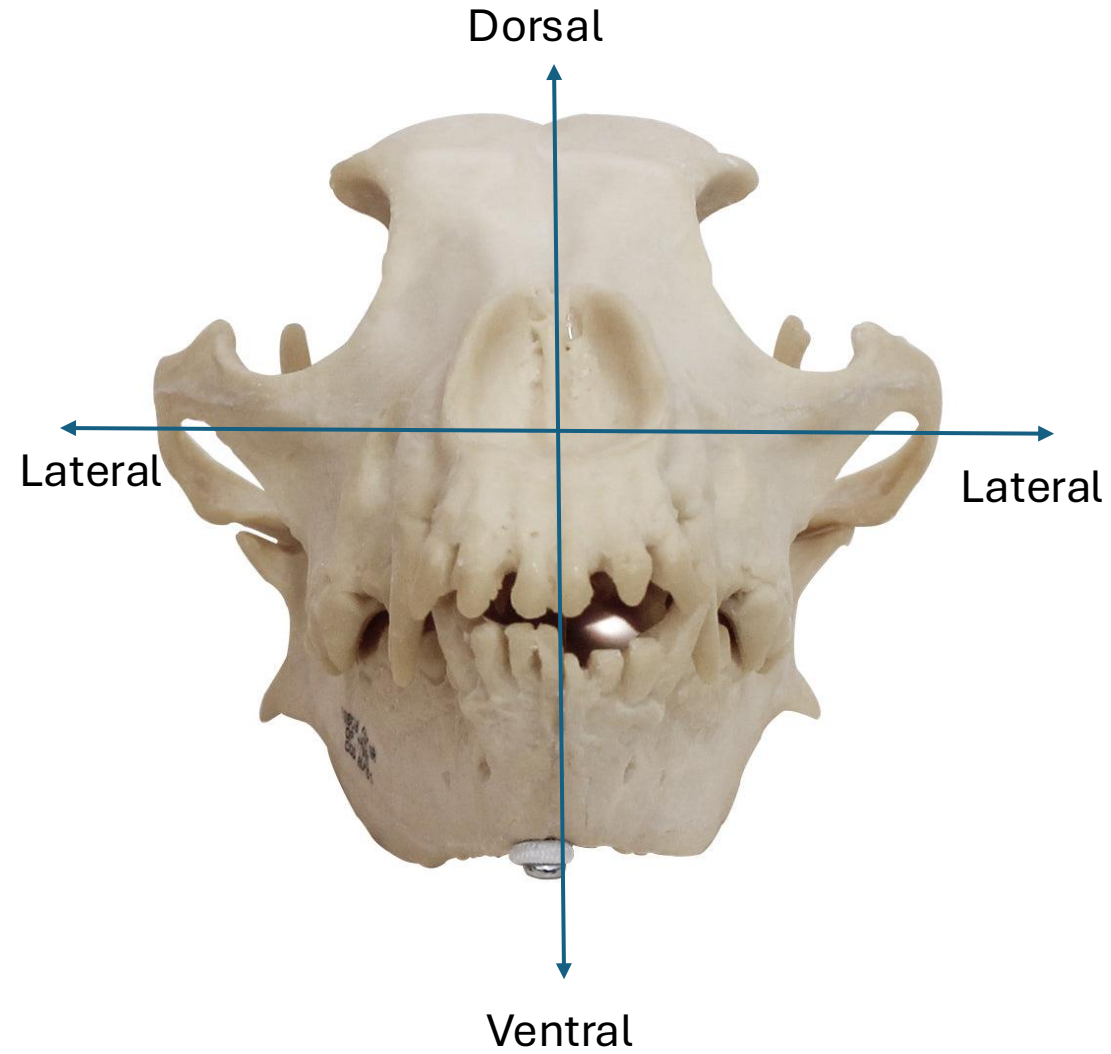


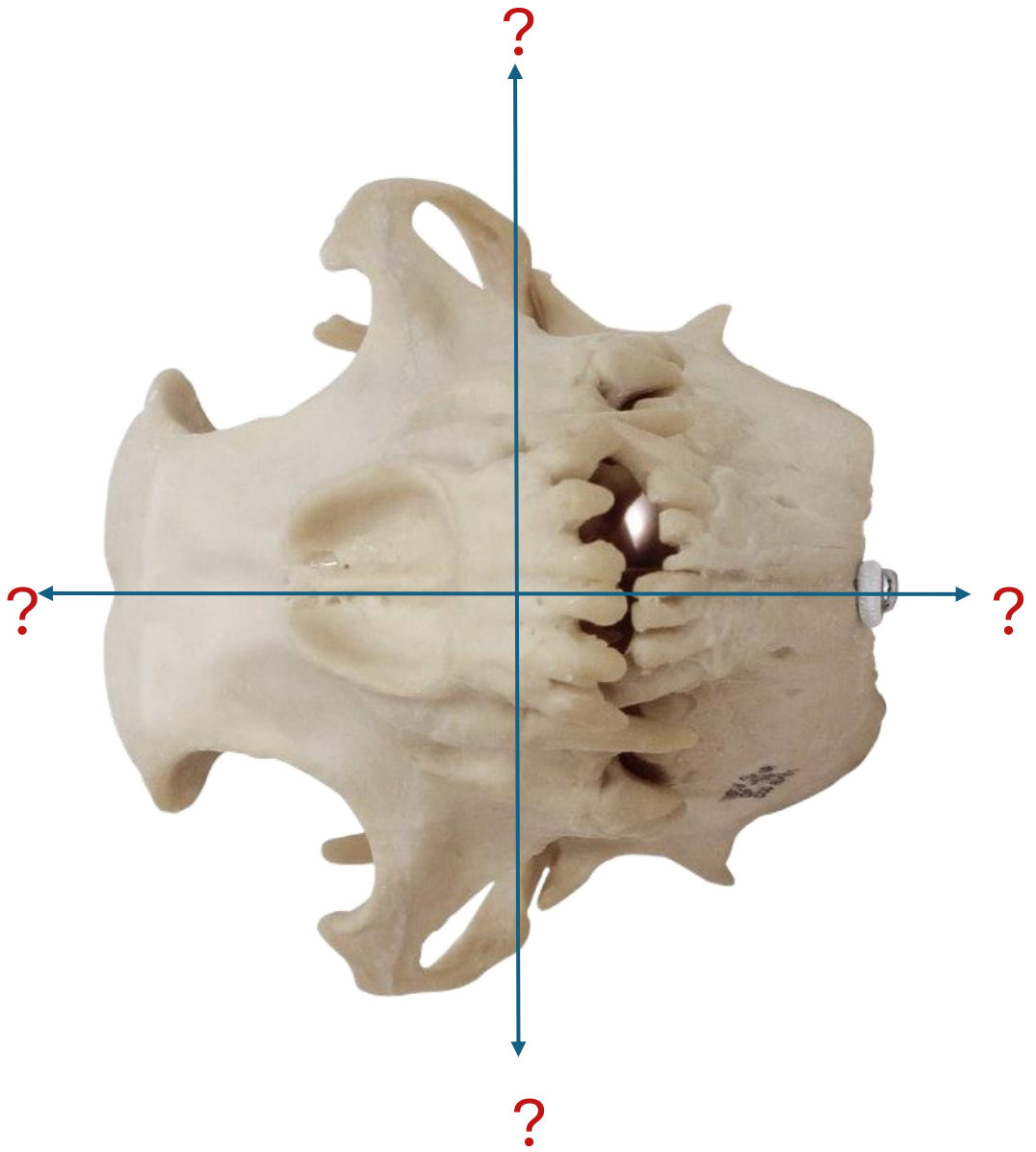
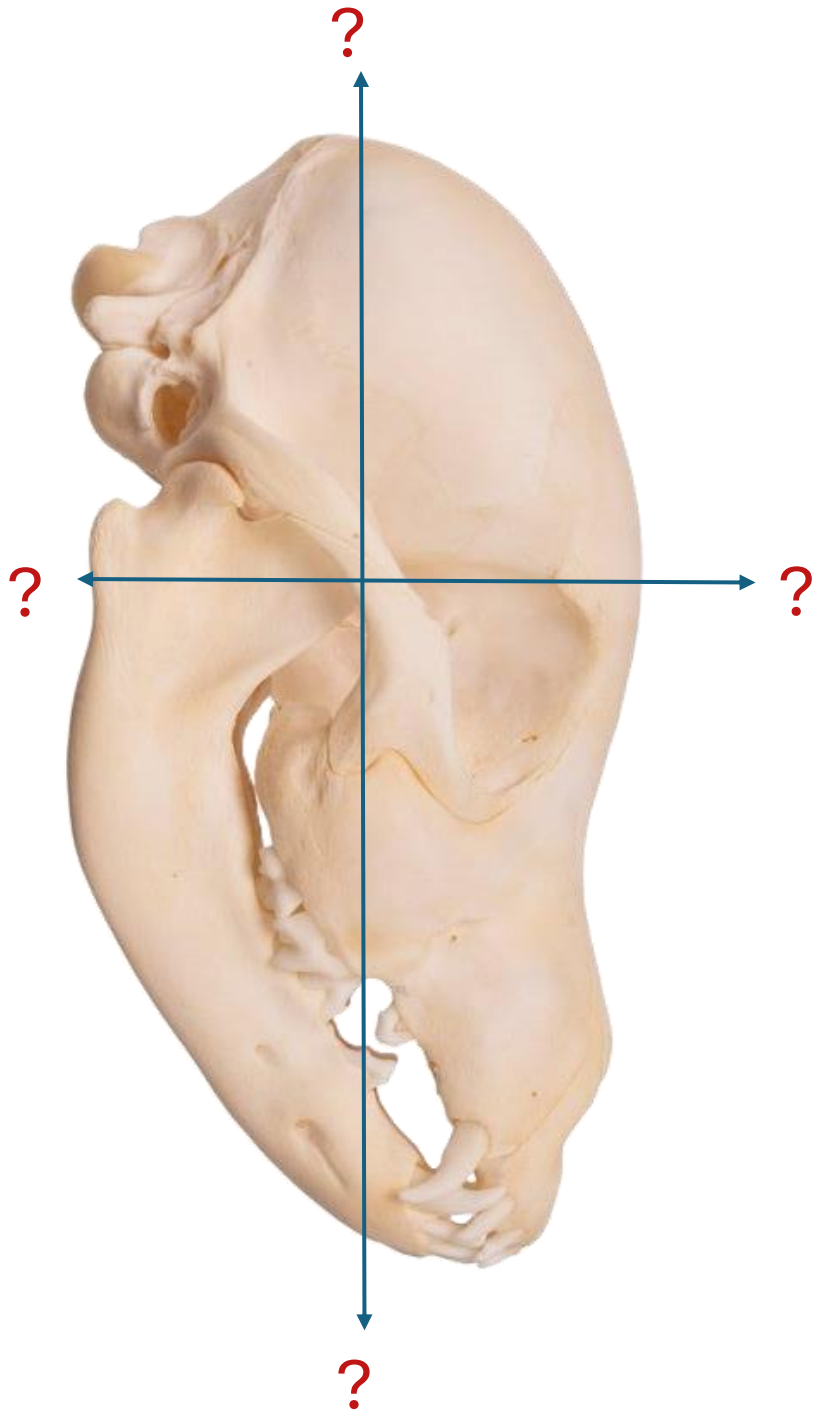


# Skull Anatomy (Feline)



# Directional Terminology





# DIRECTIONAL TERMINOLOGY FOR DENTAL CHARTING

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**Mesial:** Toward the midline of the face.

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**Distal:** Away from the midline of the face.

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**Labial:** Toward the lip, used for the incisors and canines.

---

**Buccal:** Toward the cheeks, used for premolars and molars.

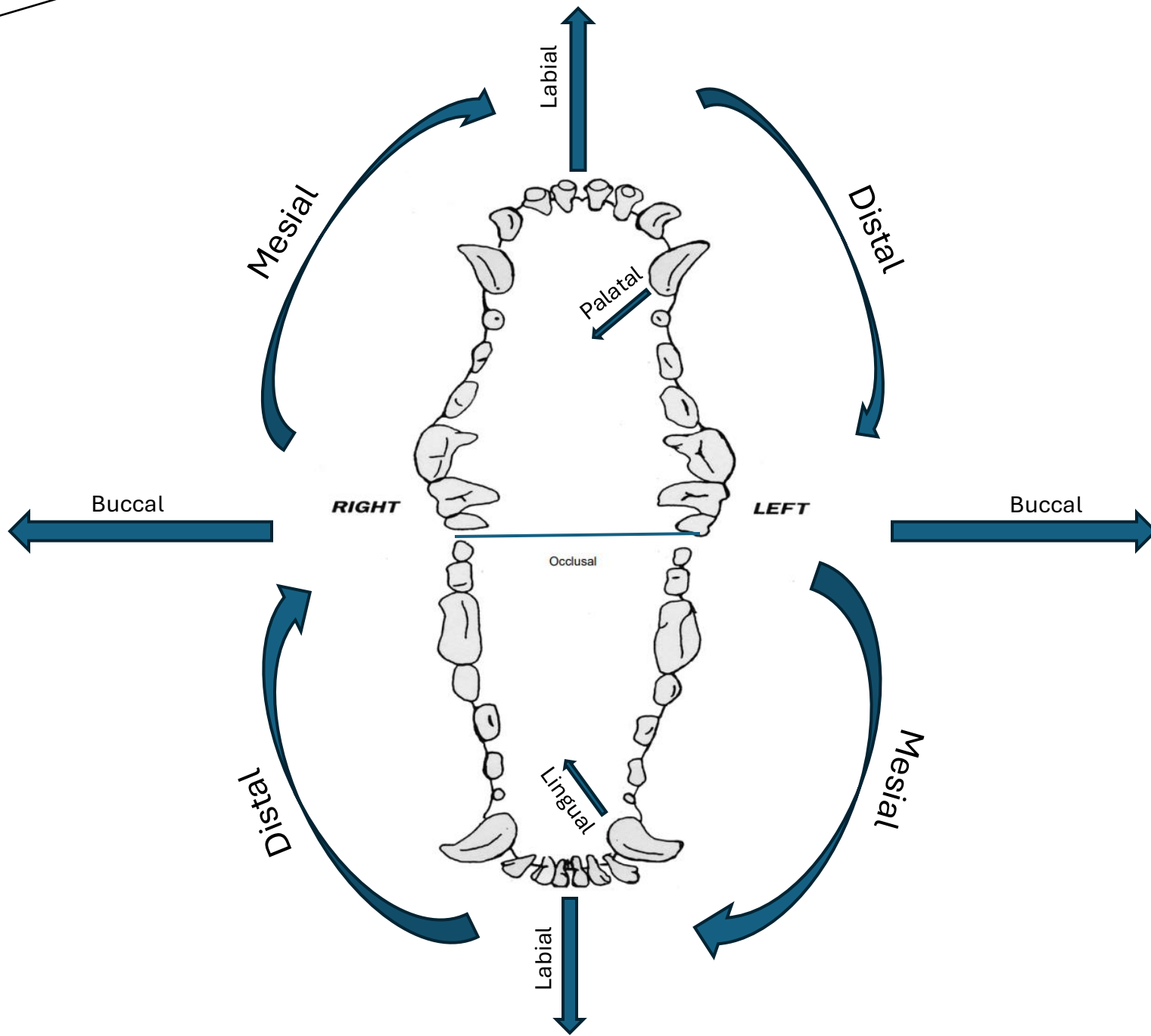
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**Lingual:** Toward the tongue, used in the mandible.

---

**Palatal:** Toward the palate, used in the maxilla.





# DIRECTIONAL TERMINOLOGY FOR DENTAL CHARTING

---

**Coronal:** Toward the crown of the tooth.

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**Apical:** Toward the root of the tooth.

---

**Occlusal:** Chewing surface of tooth.

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**Interproximal:** Between two teeth.

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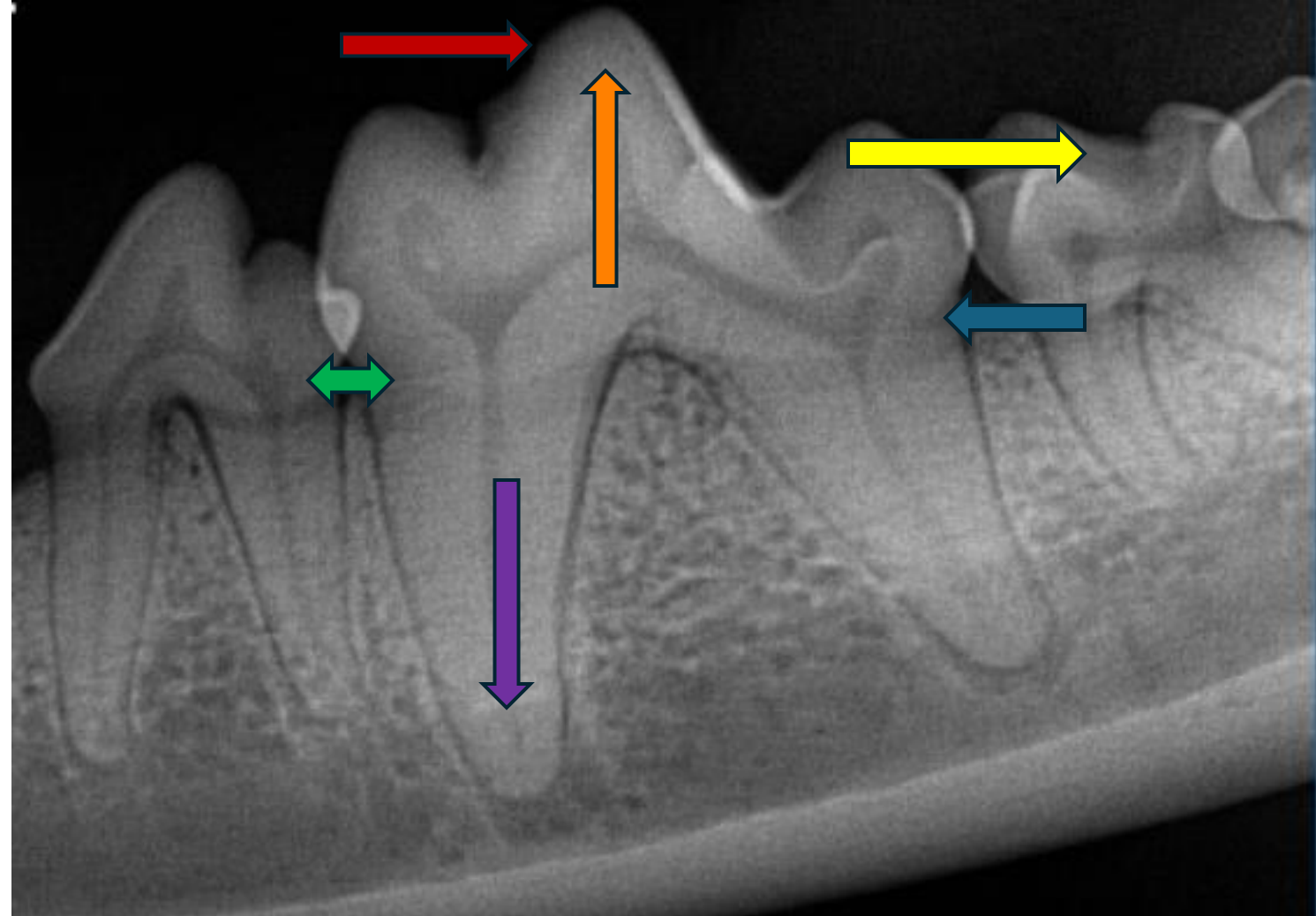
**Cusp:** Point of the tooth.

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**Cervical or neck:** Area of tooth where crown and root meet.

# DIRECTIONAL TERMINOLOGY FOR DENTAL CHARTING

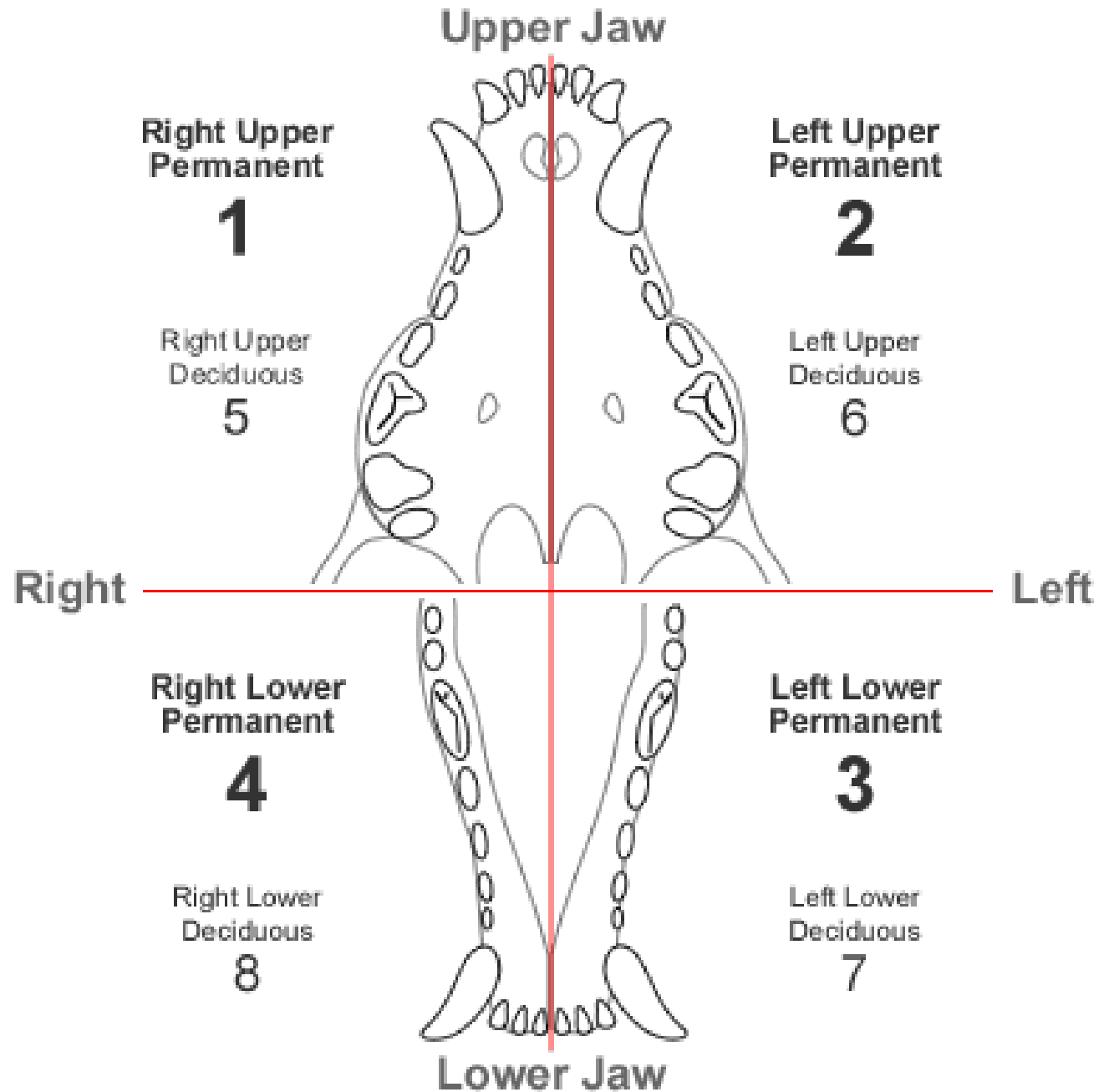
- ↔ Interproximal
- Cusp
- Coronal
- Apical
- Occlusal
- Cervical, Neck



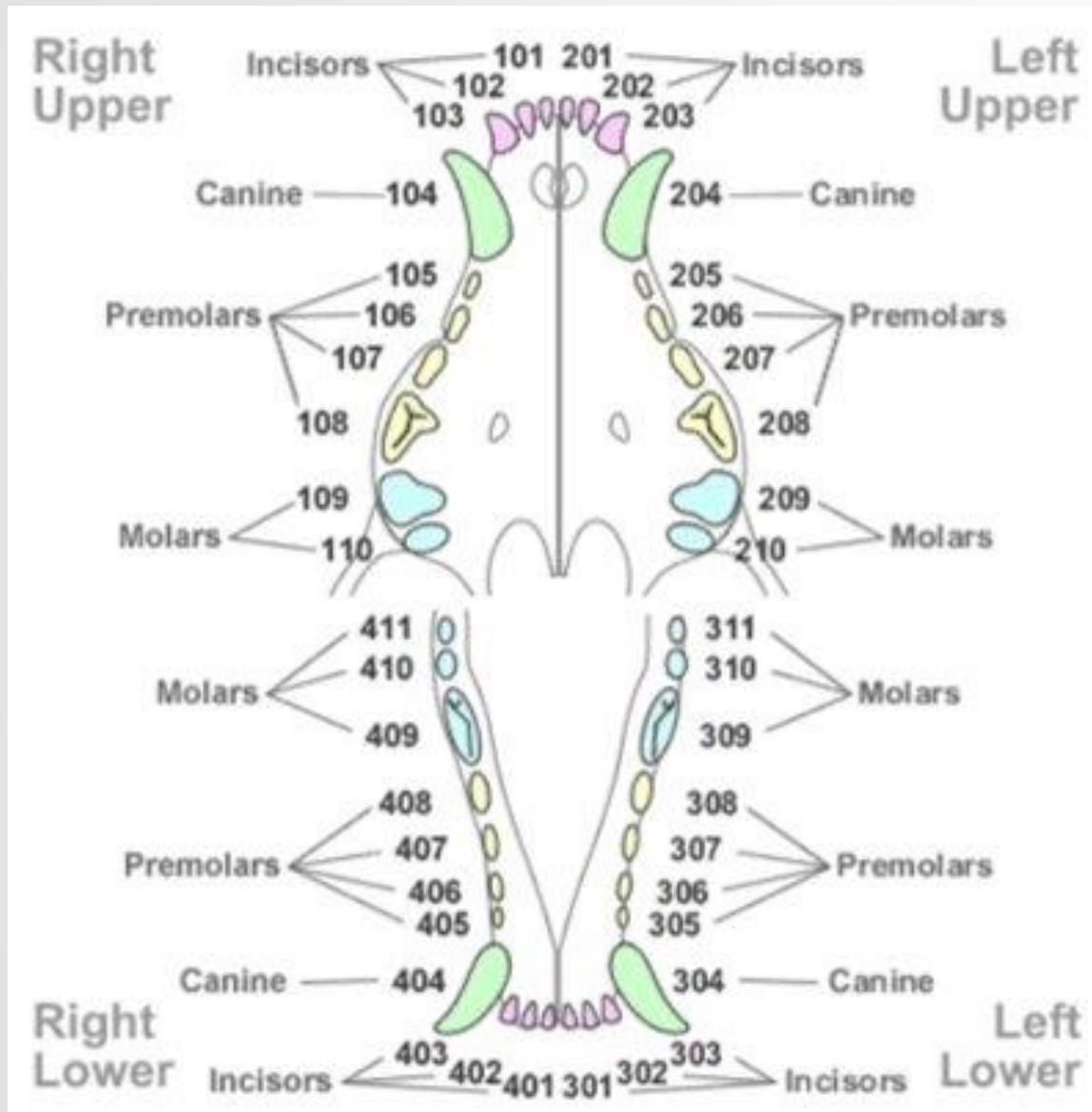
# POP QUIZ!

- |  |    |
|--|----|
| How many teeth does a normal puppy have?     | 28 |
| How many teeth does a normal adult dog have? | 42 |
| How many teeth does a normal kitten have?    | 26 |
| How many teeth does a normal adult cat have? | 30 |

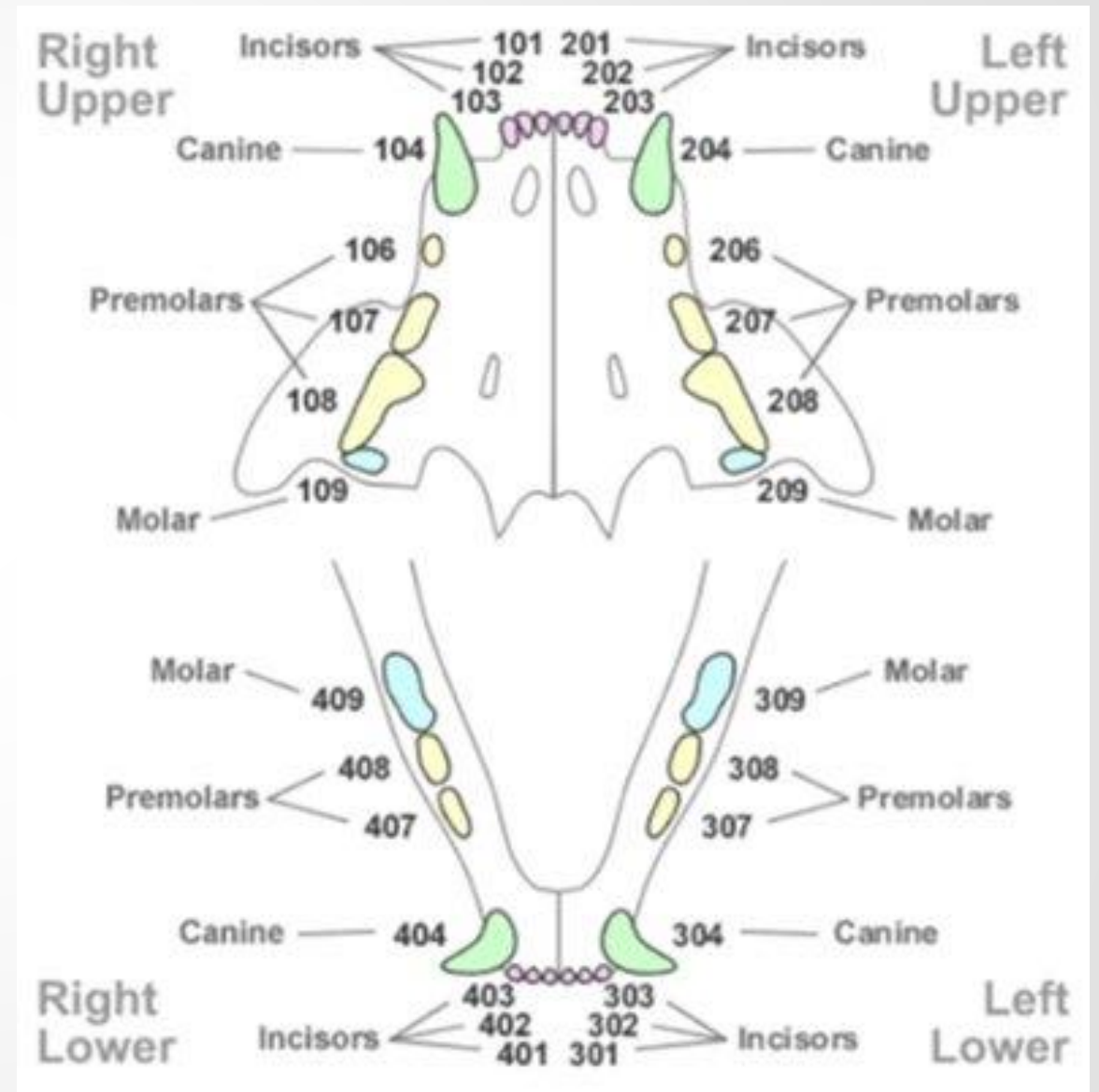
# Triadan System



# Canine



# Feline



# Periodontal Exam



- ✓ Calculus index (CI 0-3)
  - CI0=No visible calculus
  - CI1=Calculus cover less than 1/3 of the tooth surface
  - CI2=Calculus covers between 1/3 and 2/3 of the tooth surface with minimal subgingival involvement
  - CI3=Calculus covers more than 2/3 of the tooth surface with significant subgingival involvement



- ✓ Gingivitis index (GI 0-3)
  - GI0=No gingival inflammation
  - GI1=Some inflammation but no bleeding during probing
  - GI2=Moderate Inflammation and bleeding during probing
  - GI3=Severe inflammation and spontaneous bleeding

# Pop Quiz!



Calculus Index?





Gingivitis  
index?



# Periodontal disease

Loss of the supporting structures of the teeth

Classification	Stage	Abbreviation	Gum Health	Radiographic Changes
Normal	Stage 0	PD0	No gingivitis	Alveolar height and architecture have no change
Gingivitis	Stage I	PD1	Mild Gingivitis	Alveolar height and architecture have no change
Early Periodontitis	Stage II	PD2	Gingivitis, bleeding gums on probing, 25% attachment loss or F1 involvement	<25% loss of periodontal attachment
Moderate Periodontitis	Stage III	PD3	Gingivitis, bleeding gums on probing, 25%-50% attachment loss or F2 involvement, M1 possible	10%-30% bone loss
Advanced Periodontitis	Stage IV	PD4	Gingivitis, bleeding gums on probing, >50% attachment loss or F3 involvement, M2-M3 mobility	>30% bone loss

# Feline Dental Disease

## Canine

❑ **Stage 1, Gingivitis** The gum (or gingiva) at the top of teeth is inflamed and swollen, and plaque covers the teeth. Treatment can reverse this condition.



❑ **Stage 2, Early Periodontitis** The entire attached gum is inflamed and swollen. The pet's mouth is painful, and bad breath is noticeable. Professional treatment and home dental care can prevent this from becoming irreversible.



❑ **Stage 3, Moderate Periodontitis** Infection and calculus are destroying the gum, now bright red and bleeding. The pet's mouth is sore, which can affect eating and behavior. Bad breath is consistent. Periodontitis has started and may be irreversible.



❑ **Stage 4, Advanced Periodontitis** Chronic bacterial infection is destroying the gum, teeth and bone. Bacteria may be spreading in the bloodstream throughout the body, which can damage the kidneys, liver and heart.



<p>❑ <b>Grade 1</b></p> <p>Attached gum is swollen and inflamed. Plaque covering the teeth. Condition can be treated with home care—talk to your veterinarian about home care options for your cat.</p>		<p>Inflamed and Swollen Gums</p> <p>Plaque buildup</p>
<p>❑ <b>Grade 2</b></p> <p>Entire attached gum is inflamed and swollen. Mouth is painful and <b>odor begins to be noticeable</b>. Dental treatment to remove tartar is needed along with a home care plan.</p>		<p>Sub-gingival Calculus</p> <p>Inflamed Gums</p> <p>Crestal bone loss</p>
<p>❑ <b>Grade 3</b></p> <p>Bleeding attached gum is being destroyed by <b>infection and calculus</b> (tartar). Sore mouth affects eating and behavior. <b>Bad breath is present</b>. Dental treatment needed <b>immediately</b>.</p>		<p>Buildup of calculus and infection</p> <p>Gingival Recession</p> <p>Increased bone loss</p>
<p>❑ <b>Grade 4</b></p> <p>Chronic bacterial <i>infection</i> is <b>destroying the gum, tooth and bone</b>. Bacteria may be spreading throughout the entire body via the bloodstream and may <b>damage the kidneys, liver and heart</b>. Damage is <b>irreversible</b>.</p>		<p>Severe gum loss and tooth root exposure (dashed line indicates initial gum-line)</p> <p>Advanced breakdown of supportive tissues.</p>

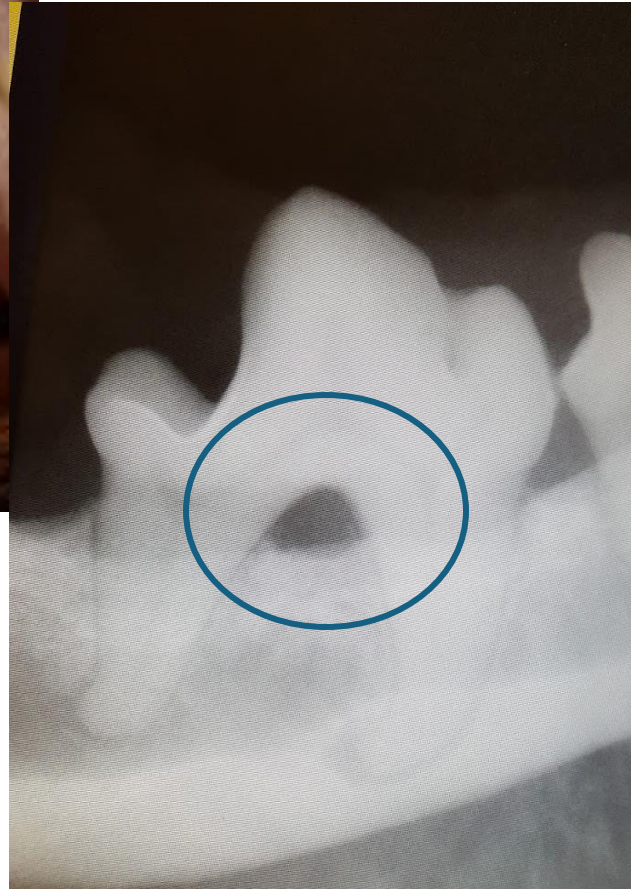
# Periodontal Pocket

## ☐ Check for periodontal pockets on every tooth

- Each tooth should be checked in 4-6 spots by gently walking the probe around the tooth
- Normal sulcus depth
  - ✓ Dog 0-3mm
  - ✓ Cat 0-1mm



# Furcation Exposure



- ❑ Furcation exposure is a result of periodontal disease that causes gingival recession and bone loss around the affected tooth.
  - Furcation exposure 1= F1
    - ✓ Periodontal probe extends less than ½ way under the crown between the roots on a multirooted tooth
  - Furcation exposure 2= F2
    - ✓ Periodontal probe extends more than ½ way under the crown between the roots, but not all the way through on a multirooted tooth
  - Furcation exposure 3= F3
    - ✓ Periodontal probe extends all the way between the two roots on a multirooted tooth.

# Tooth Mobility

**M0** = Normal physiological movement up to 0.2mm

**M1** = Increased movement in any direction (other than axial) of 0.2mm up to 0.5mm

**M2** = Increased movement of 0.5mm and up to 1mm (other than axial)

**M3** = Increased movement any direction of more than 1mm





## Normal Occlusion

Perfect alignment or interdigitation between the upper and lower teeth when the mouth is closed



## ❑ Class I Malocclusion (MAL/1)

- Mal/1 is described as a normal relationship between the maxilla and mandible but with one or more teeth out of alignment.
  - ✓ Base-narrow canines (linguoversion of the lower canines)
  - ✓ Lance teeth
  - ✓ Rostral or caudal crossbite



Base-narrow canines



Lance canine



Rostral crossbite

# ❑ Class II Malocclusion (MAL/2)

- Mandible shorter than average
  - ✓ Overbite/overjet
  - ✓ Brachygnathism



## ❑ Class III Malocclusion (MAL/3)

- The mandible is longer than normal
  - ✓ Reverse scissor bite
  - ✓ Prognathism
  - ✓ Underbite



# Class 4 malocclusion (Mal/4)

## Asymmetrical skeletal malocclusion

- A referring vet might call this a "wry bite"
  - There are many different treatments that may be needed



# Possible treatments for malocclusions

- Extracting retained primary teeth
  - Relieve pain from trauma and eliminate adverse dental interlock
- Composite tip extensions
  - Appliance that mechanically guides lower canines into the correct position
- Acrylic appliance
  - Appliance that mechanically guides lower canines into the correct position
- Gingival ramps
  - Contouring the gingiva to mechanically guide lower canines into the correct position
- Pulp Caps
  - Removing a portion of the crown of the tooth causing trauma to eliminate the trauma.



# Primary (baby) tooth extraction

- Removal of the primary teeth is done because of a traumatic occlusion, fractured tooth or non-vital tooth.
  - Always radiograph before and after extraction!
  - This is a very delicate procedure, and the adult tooth can easily be damaged during this procedure.
  - Does the entire tooth need to be extracted?



If you can see the root on the dental radiograph, it should be extracted!



# Composite tip extensions

- Composite built up on the crown of the lower canines to guide them into the correct or a non-traumatic occlusion.



# Acrylic appliance

Acrylic appliance to help guide the lower canines into the correct, or non-traumatic occlusion



# Gingival ramps



- Gingival ramps are used for base narrow dogs while their adult teeth are still erupting
- Usually around 5-6 months of age
  - A Radiosurgical unit is used to contour the gingiva, so the lower canines are no longer causing trauma to the soft tissue of the palate.

# Pulp caps (Crown reduction and vital pulp therapy)



- This is used for an adult tooth that is causing trauma to the palate by reducing the height of the crown and treating it to maintain the life of the tooth.
  - Base narrow lower canine/canines
  - Usually done between 6-10 months of age (age is dependent on Dr. preference)

# Abrasion vs Attrition

❑ Both are wear occurring on the tooth

➤ Abrasion=AB

✓ Resulting from an external source

❑ Ball, Frisbee, chewing on skin, chewing kennel bars

➤ Attrition=AT

✓ Resulting from tooth-on-tooth wear



AB



AT



# Fractured Teeth

- These will all start with T/FX (tooth fracture)
  - Enamel fracture (EF): a fracture confined only to the enamel
  - Uncomplicated crown fracture (UCF): a fracture into the dentin that does not expose the pulp
  - Uncomplicated crown-root fracture (UCRF): a fracture of both the crown and root with no pulp exposure

T/FX/UCF



T/FX/UCRF



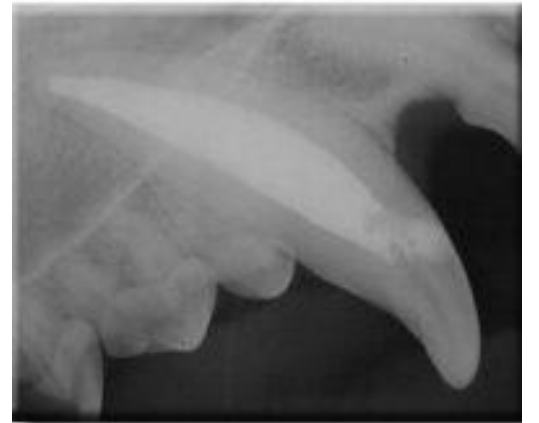
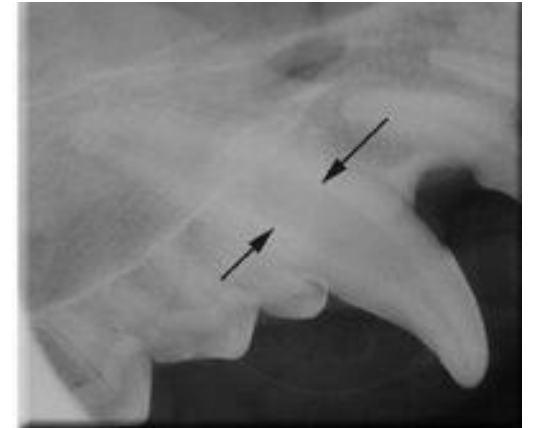
T/FX/CCF

# Fractured Teeth Continued

- Complicated crown fracture (CCF): a crown fracture that exposes the pulp
  - ❑ Two most common treatments are root canal or extraction
- Complicated crown-root fracture (CCRF): A fracture of both the crown and the root that has pulp exposure
- Root fracture (RF): a fracture of the root

# Root canal Therapy

- **Pros to root canal therapy over extraction**
  - Maintain jaw integrity
  - Maintain use of this tooth
  - If it is a chewing tooth keeping it will mechanically help clean the occluding tooth
  - Less painful recovery
  - Less invasive
  - The recovery is much faster (like 0 days instead of up to 30)
  - No soft food





+



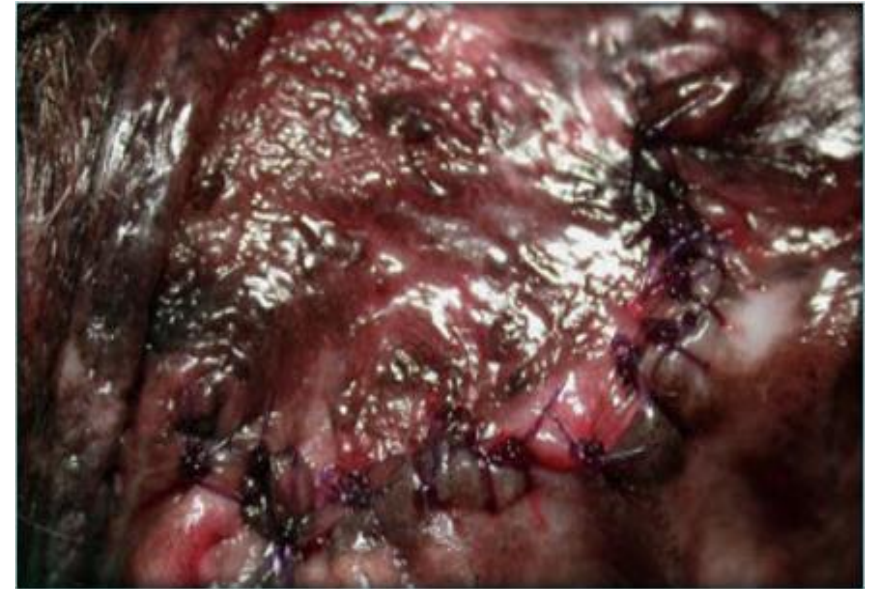
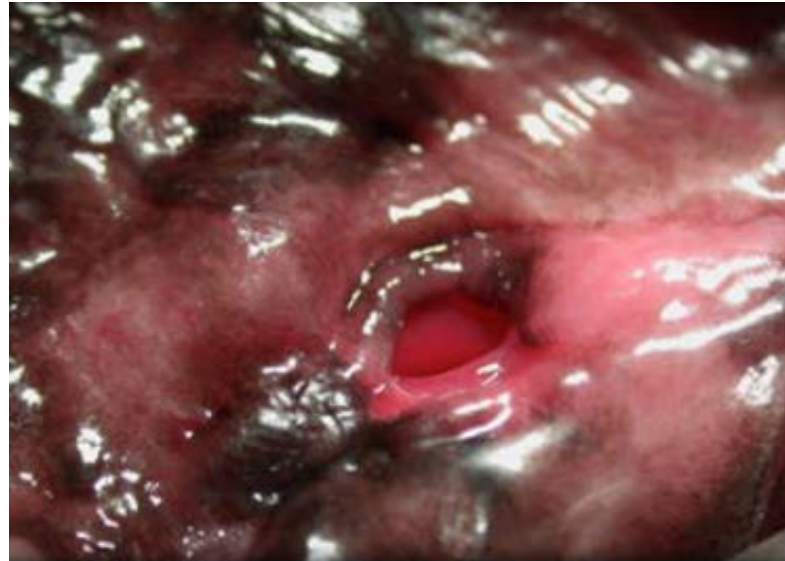
# Crowns

- An additional treatment option to help strengthen a tooth using a lab fabricated metal or ceramic material. We generally use metal for its strength.



# Oral Nasal Fistula

- ❑ Oral nasal fistula (ONF): a defect on the palatal side of the maxillary canine tooth usually caused by advanced periodontal disease breaking down the plate of bone between the canine and nasal cavity.







- ❑ Oral mass (OM): OM is used to describe an oral mass before it has been sent out for histopathology
- See abbreviation list for after a diagnosis is made

S/X (partial maxillectomy)



S/M (partial mandibulectomy)

# Mandibulectomy or Maxillectomy

- Partial or complete removal of a mandible (mandibulectomy)
- Removal of a portion of the maxilla (maxillectomy)



- ❑ Gingival Enlargement (GE):  
Gingival enlargement is used when there is not a histologic diagnosis.
- ❑ After Histologic diagnosis this was determined to be Gingival Hyperplasia (GH)
  - What breeds do we often see this in?
  - Why can this be a problem?



# Gingival hyperplasia (GH)

- Overgrowth or enlargement of the gingival tissue
  - This can cause "pseudo pockets" which trap debris and calculus causing periodontal disease
  - Contour the gingiva back to the appropriate shape and size.
  - This is called gingivectomy or gingivoplasty (GV)



❑ Retained tooth root (RTR): a retained root can be present because of trauma or a tooth that fractured during extraction

➤ **Always take post operative radiographs!**

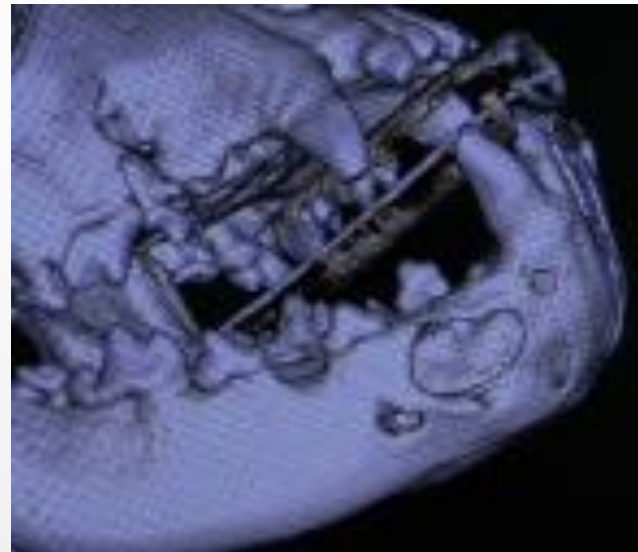
**Always take radiographs of missing teeth!**

# Dentigerous Cyst

❑ Fluid-filled lesion associated with an unerupted tooth.

❑ Treatment

✓ Removing the tooth causing the cyst and the entire cyst lining



# Caries

## ☐ Cavities in dogs

### ➤ Class I caries

- ✓ Pits and fissures on occlusal surfaces of teeth

### ➤ Class V caries

- ✓ Occur on the buccal and labial surface on teeth



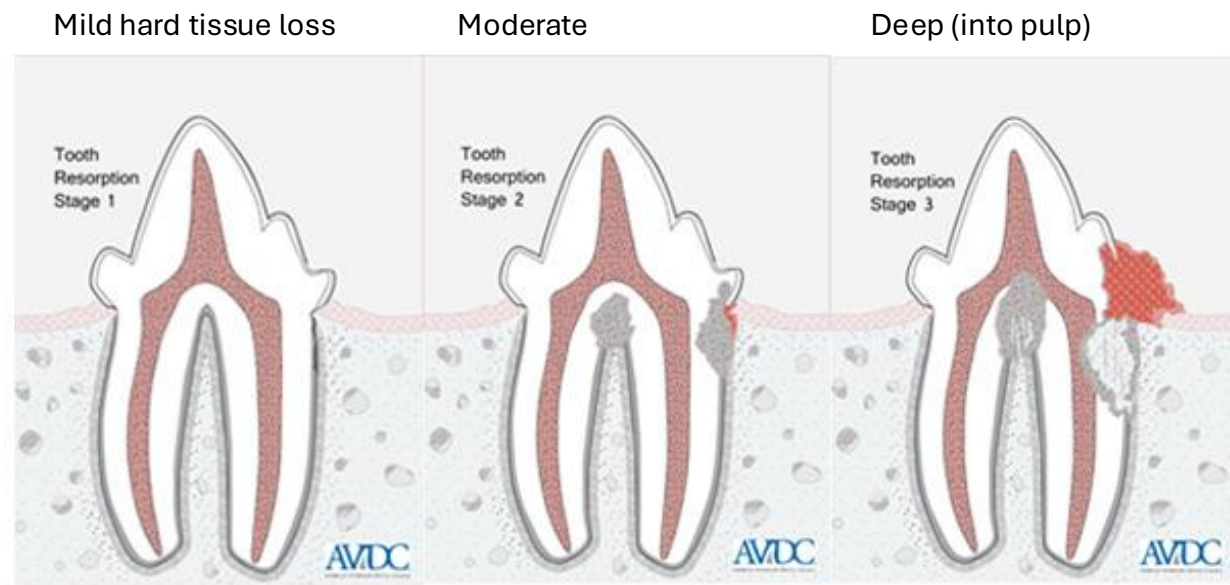


# Feline stomatitis

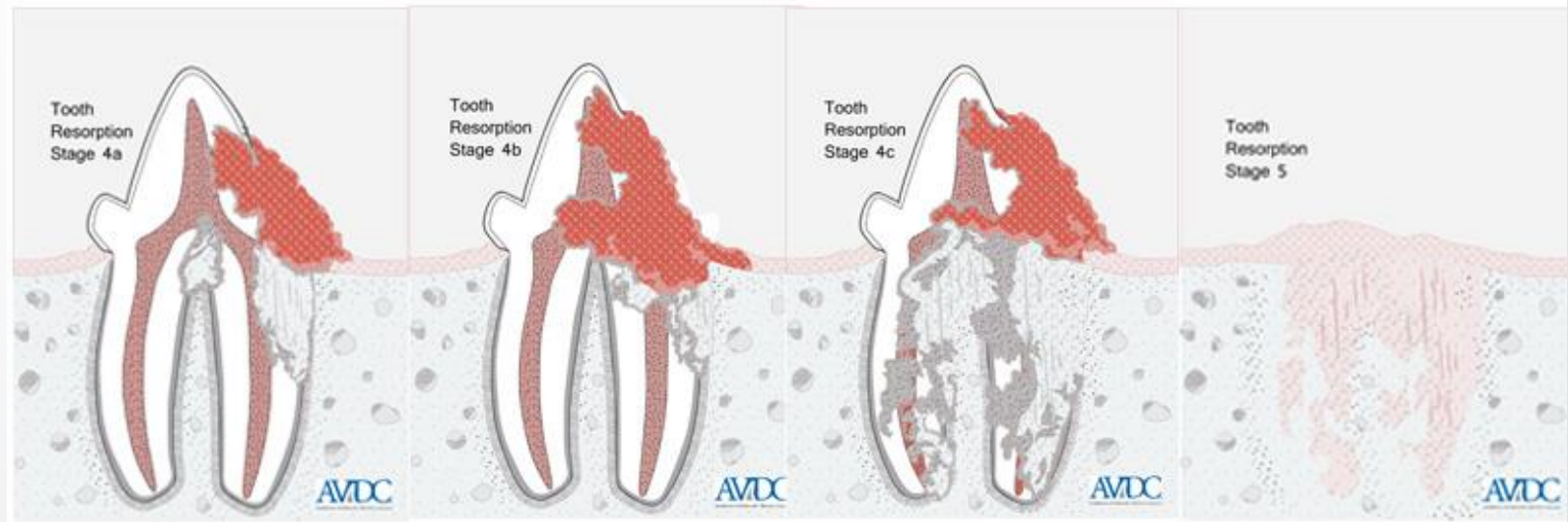
- Inflammation of the gingiva and the oral mucosa
  - Very painful oral disease
  - Extract teeth in the areas that have inflammation
  - Often need ongoing medical management
  - Unknown cause



# Tooth Resorption Stages



Tooth Resorption - AVDC Classification of Clinical Stages

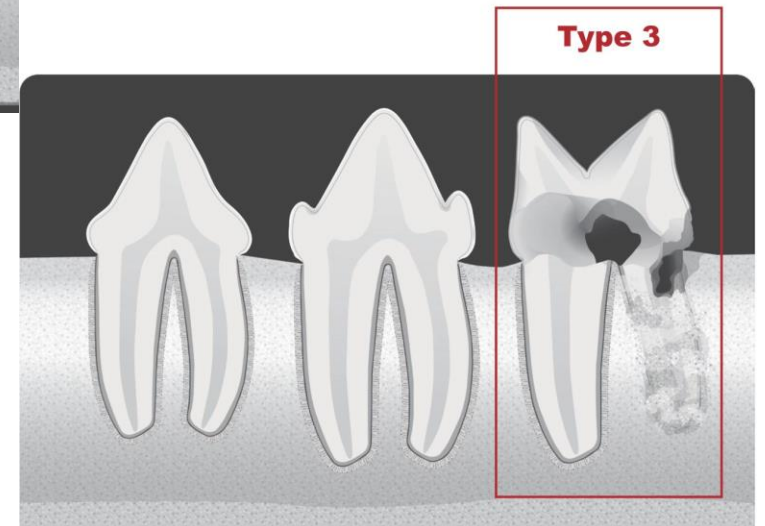
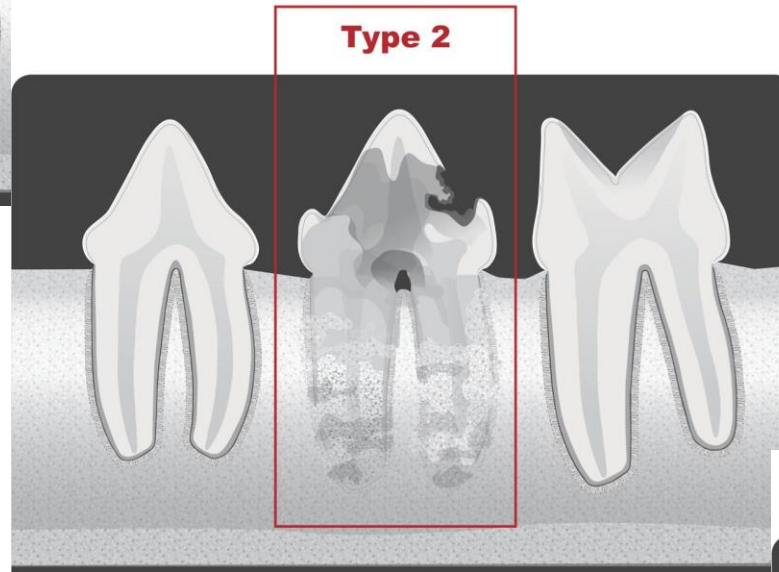
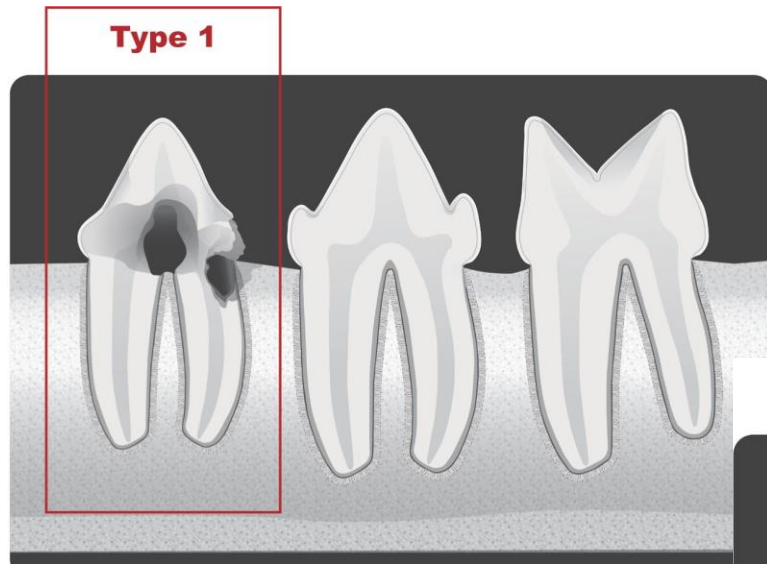


Most of the tooth has lost integrity (equal crown and root)

More crown

More root

# Types



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