# **Companion animal dentistry**



# Teerapol C.

# What do I need to know as a veterinarian?

# What do I need to know as a veterinarian?

- what is the normal bite
  dental formulae for:
  - adult dog/cat
  - 8 week old pup/kitten periodontal disease
    - definitions
    - aetiology
    - predisposing factors
- dental prophy
  - describe instruments
  - steps of the prophy

- basic instruments used for extraction
- indications for extraction
- technique for extraction of:
  - incisors
  - canines
  - multi-rooted teeth

#### incisors

- front of mouth
- used for:
  - "nipping" at prey
  - to remove skin off kill before eating
  - to "catch" fleas etc.



#### incisors

#### canines

- large killing teeth
- used to pick up food/toys



#### incisors

#### canines

#### premolars

- behind the canines
- have a deciduous precursor [baby tooth] except for PM1's
- cut food into pieces small enough to swallow



- incisors
- canines
- premolars

#### molars

- most caudal teeth
- used for chewing
- no deciduous precursor



#### carnassial teeth

- upper 4th premolar & lower 1st molar
- very large teeth
- used to crack through bones
- overlap each other



# **NORMAL OCCLUSION**

Occlusion = position of the teeth relative to each other



# **NORMAL OCCLUSION**Incisor scissor bite

• Upper incisors just rostral to lowers & make contact



# NORMAL OCCLUSION

 Upper incisors just rostral to lowers & make contact

#### Lower canine position

 Between upper I3 & C & no contact with either



# Incisor scissor bite

- - Upper incisors just rostral to lowers & make contact
- Lower canine position
  - Between upper I3 & C & no contact with either
- **Premolars** interdigitate
  - Lower P1 most rostral



# Incisor scissor bite NORMAL OCCLUSION

- Upper incisors just rostral to lowers & make contact
   Lower canine position
  - Between upper I3 & C & no contact with either
- Premolars interdigitate
  - Lower P1 most rostral
    Upper 4th premolars
  - lateral to lower 1st molars



# = teeth not in the correct position

#### i.e. incorrect "bite"









#### **Overshot bite**



### **Undershot bite**



#### **Base Narrow**



## Wry bite



8 month old bull terrier

## What is the consequence?



### **ANATOMY of the TOOTH**

- Enamel Outer layer of the crown
- Cementum Outer layer of the root
- Dentine Middle layer
- Pulp Inner core





### HOW MANY TEETH?

- Adult dog
- 8 week old dog
- Adult cat
- 8 week old kitten

#### **Upper carnassial is the**

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Upper carnassial is the 4<sup>th</sup> premolar

Upper carnassial is the 4<sup>th</sup> premolar Lower carnassial is the

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Upper carnassial is the 4<sup>th</sup> premolar Lower carnassial is the 1<sup>st</sup> molar

## $2 \times (I, C 1/1, P, M) =$

# $2 \times (I, C 1/1, P, M) = 42$

## $2 \times (I 3/3, C 1/1, P, M) = 42$

## $2 \times (I3/3, C1/1, P4/4, M) = 42$

## $2 \times (I3/3, C1/1, P4/4, M2/3) = 42$

### **DENTAL FORMULA - DECIDUOUS DOG**

## 2 x (i, c 1/1, p) =
### **DENTAL FORMULA - DECIDUOUS DOG**

### $2 \times (i 3/3, c 1/1, p 3/3) =$

### **DENTAL FORMULA - DECIDUOUS DOG**

### $2 \times (i 3/3, c 1/1, p 3/3) = 28$

### **DENTAL FORMULAE - CATS**

### **Deciduous:**

### 2 x (i 3/3, c 1/1, p) =

**Permanent:** 

 $2 \times (I 3/3, C 1/1, P, M) =$ 

### **DENTAL FORMULAE - CATS**

**Deciduous:** 

2 x (i 3/3, c 1/1, p 3/2) = 26

**Permanent:** 

 $2 \times (I 3/3, C 1/1, P 3/2, M 1/1) = 30$ 

### **The Periodontium**

### PERIODONTIUM

- Support of the teeth
- Periodontal ligament
- Gingivae
- Alveolar bone





### NORMAL HEALTHY GINGIVA



### **PERIODONTAL DISEASE**

Disease of the supporting structures of the teeth (gingiva, periodontal ligament & alveolar bone)

#### **Gingivitis:**

• reversible inflammation of the marginal gingiva

#### • Periodontitis:

 irreversible inflammation of the gingiva & supraalveolar tissue with loss of connective tissue attachment & bone (i.e. loss of periodontal support)

#### Gingivitis is a precursor to periodontitis!!!!

### **GINGIVITIS**

#### Gums swollen & oedematous



### PERIODONTITIS

#### Supporting bone loss

#### Severe inflammatory reaction





Tooth mobility, supporting bone loss > 50%, possible systemic disease

**Aetiology of periodontal disease:** 

# Plaque, Plaque, Plaque &

Plaque

### Important points about plaque

- Bacterial plaque adheres to all surfaces of the teeth
- Bacterial plaque cannot be rinsed off (needs mechanical removal)
- Bacterial plaque becomes mineralised to form calculus

# Equine dentistry

### Horse skull/dental formulary



Deciduous Permament 3/3) 2(Di 3/3, Dc 0/0, Dm 3/3) 2(I 3/3, C 1/1 or 0/0, PM 3/3 or 4/4 M

## **Dental Anatomy**

### The tooth

- The horse has what is know as *hypsodont dentition* (High crown teeth) with peripheral crown cementum. They have reserve crown, which wear off all the time.
- The horse has upper cheek teeth arcade 30% wider than lower this call "anisognathism"
- Also upper arcade is slightly curve caudally while lower arcade is straighter.



## **Dental Anatomy**

### Dental formulae

- Decidous  $2 \times (I 3/3, C 1/1, P 3/3) = 28$ but canine do not erupt through the gums.
- Permanent 2 × (I 3/3, C 1/1, P 3[or 4]/3, M 3/3) = 40 [or 42]

Note: Canine teeth often absent in mares; lower 1<sup>st</sup> premolar (wolf teeth) may be present in some.



# Ageing

- This technique are based on age-related change to the dentition.
- relatively accurate to 6 years of age, educated "guessing" after 7 years of age It is art of age determination not an direct science. There are many variable; such nature, diet and diseases.
- The characteristic used are those of the incisor;
  - The eruption time
  - Shape and appearance of lower incisors
  - Bite alignment
  - Present of hook and grooves on upper corner incisors

## **Dental Examination**

### Oral Exam

Equipment needed

- Adjustable halter
- Flushing syringe
- Full mouth Speculum
- Light source
- Head support
- Mirror
- Dental pick
- Bucket





# A good quality full-mouth speculum, a light source and restraint are essential

# Detailed history is taken

- clinical history
  - losing weight
  - spilling feed
  - colic etc.
- riding/bitting

   history (good
   guide to potential
   problems)
  - head tossing
  - chewing bit etc.

#### Oral exam



AUSTRALIAN EQUINE VETERINARY ASSOCIATION Special Interest Group with The Australian Veterinary Association Ltd. ABN 63 008 Equine Dental Record



Date:// Last d	ental:// Veteri	narian:
Owner/Trainer:		
Address:		
Phone:F	Place of examination:	
Horse:	Breed:	Sex:Age:
Brands/Reg'd No	Body condition:	Occlusion:
Flexion test:	Lateral excursion t	est: Last tetanus vacc.:
Clinical History:  Wt Loss	Spills feed	Riding history:  Bit resistance L. R.
Colic Slow eater	Quidding	Chews bit Bit used Head tossing
Undigested feed in faeces	UWashes feed in water	Other



Recommended revisit date:...../...../

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# external examination

- before sedation
  - indicates painful areas
- look for discharges, fistulae, swellings, asymmetry, reactions to palpation (especially of cheek teeth)







- food & material in the mouth will hide potential problems
- may want to examine before flushing



### inspect incisors commissures & lips



Photo courtesy PJ Allen

inspect incisors, commissures & lips palpate diastema (for unerupted teeth)



ancillary aids will be necessary



ancillary aids will be necessary • dental picks



- dental picks
- mirrors



#### ancillary aids will be necessary

- dental picks
- mirrors
- retractors



# **Dental Disease**

### Abnormal of development and eruption

- Malocclusions
- Supernumerary teeth
- Ectopic teeth
- Retained deciduous teeth
- Impacted teeth

### Abnormal of development and eruption

- Malocclusions
  - **Brachygnathia** (parrot mouth) In this condition lower jaw is shorter than the upper jaw leading to overjet or overbite.
  - **Prognathia** (sow mouth/monkey mouth)

This condition is less report than parrot mouth, the condition is reverse to parrot mouth. Lower jaw is longer than upper jaw.

Does both conditions considered to be inherited ?





# Abnormal of development and eruption

### Supernumerary teeth

- Most of this condition found as an extra incisors. (wolf teeth are not supernumerary teeth). If this present the teeth must be extract to prevent future problem
   Ectopic teeth
  - Teeth erupting in an abnormal position. This usually result in dental trauma.





### Abnormal of development and eruption

#### Retained deciduous teeth

- This will causing permanet teeth to displacing due to the retained cap. All caps should be remove if they are loose or are causing problem.
   Impacted teeth
  - The most common tooth to have this problem is the 8's (4<sup>th</sup> premolar), as it is the last to erupt. In some cases Wolf teeth can be unerupted, this can feel as bumb in front if the first cheek tooth.





# **Dental Disease**

Abnormal of wear and periodontal disease

- Molar malocclusion
- Periodontal disease
- Diastema
- Malocclusion
  - Incisor malocclusion
    - Smile
    - Frown
    - Dominant teeth
    - Hook
    - Slant



OFFSET OR DIAGONAL BITE



DORSAL CURVATURE (FROWN)

Images Courtesy of Thomas J. Johnson, DVM

### Malocclusion

- Molar malocclusion
  - Hooks and Ramp
  - Step mouth
  - Wave mouth
  - Exaggerated Transverse
    Ridges
  - Shear Mouth



### Periodontal disease

• This can be divided into gingivitis and periodontitis. Gingivitis is the reversible inflammation of the gingival but periodontitis is often irreversible and involves inflammation of all supporting structure, gingival, periodontal ligament and alveolar bone.

### "PREVENT IS BETTE THAN CURE"

### Periodontal disease





#### Diastema

• Diastema or interdontal spaces between cheek teeth.





### Treatment for dental diseases

### Treatment

- Dental Work area and restrain
- Corrective procedure
- Time table and routine dental examination

### Treatment for dental diseases

### Sharp enamel point

- This usually occur on the buccal (outside) surface of the upper cheek teeth and the lingual (inside) surface of the lower cheek teeth.
- The dental float (rasp, contour) is held at the aprox 45° angle to the occlusal surface and the sharp points removed. But do not rasp the occlusal surface or it can result in malfunction of mastication.

### Other abnormalities

Hooks, Overgrowth, Wavemouth

# Thank you for your attention

