

# Veterinary Bioscience:

## Digestive System



### LECTURE 3: COMPARATIVE DENTITION

#### INTENDED LEARNING OUTCOMES

At the end of this lecture, students should be able to:

- Describe the differences in dentition between domestic species
- Relate tooth structure and arrangement to dietary and other functions
- Explain how developmental and structural features of teeth are used for the ageing of animals and outline the factors that affect the accuracy of the different parameters used

#### KEYWORDS

Teeth; carnivore; herbivore; omnivore; incisors; canines; premolars; molars; cheek teeth; dental pad; dental formula; diastema; brachydont; hypsodont; occlusion; infundibulum; dentition; ageing

#### LECTURE OVERVIEW

Arrangement of teeth:

The shape of teeth varies with the position in the oral cavity, and teeth are named according to their position in the oral cavity. In general, the most rostrally located teeth (incisors and canines) are used for cutting and tearing food, while the more caudally located teeth (premolars and molars) are used for grinding or crushing food.

Species differences:

Different species have varying numbers of the different types of teeth. The teeth in carnivores are brachydont teeth, whereas the teeth in herbivores such as horses and ruminants are mainly hypsodont (high-crowned) teeth. Hypsodont teeth erupt continuously, and therefore the enamel extends below the gingival margin, and is surrounded by cementum, which wears off slowly after eruption. The enamel wears off the occlusal surface of the tooth soon after eruption, thus exposed dentine is visible on this surface.

Use of dentition for age estimation:

The time of eruption and a variety of structural features of the different teeth in both the temporary and permanent sets of teeth can be used to estimate the age of animals, with levels of accuracy varying between species. The accuracy of age estimation also depends on the breed of animal, its individual genetics, whether there is malocclusion, and dietary, behavioural and environmental factors.

## FURTHER READING

Easley J, Dixon, PM, Schumacher, J (eds): *Equine Dentistry*, 3<sup>rd</sup> ed, Edinburgh, Saunders, 2011

Singh B, *Dyce Sack and Wensing's Textbook of Veterinary Anatomy*, 5<sup>th</sup> edition (2018)