# Veterinary Bioscience: Digestive System

## LECTURE 4: INGESTION AND SWALLOWING

### INTENDED LEARNING OUTCOMES

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

- Describe the structure and structural relationships of the oral cavity and pharynx in mammals.
- Describe the structure and actions of the lips, cheeks, tongue, palate, pharynx and temporomandibular joints, their associated muscles and their innervation, and relate these to their functions.
- Relate variations in oral and pharyngeal structure in different domestic species to functional requirements.

### KEYWORDS

Oral cavity; vestibule; tongue; root, body, apex, frenulum, papillae, taste buds; prehension; mastication; swallowing; deglutition; palate; pharynx

### LECTURE OVERVIEW

The roof of the oral cavity is formed by the hard and soft palate, the walls are formed by the cheeks and lips, and the floor is formed by soft tissue extending between the two sides of the mandible. The tongue rests on the floor of the oral cavity. All of these structures, as well as the dental arcades, function in concert to bring food into the oral cavity, to prepare it for swallowing and to participate in the first stages of swallowing.

The hard palate is constructed from bone covered by mucosa. The lips surround the opening of the oral cavity and are continuous with the cheeks caudally. Both of these structures are composed of three layers, the outer layer being skin, the middle layer containing skeletal muscle, tendon and glands, and the layer facing the oral cavity consisting of mucosa.

The tongue is composed primarily of skeletal muscle with glands and adipose tissue scattered among the muscle bundles. The dorsal surface is covered in papillae, which assist in directing food towards the pharynx, and some of which contain taste buds, the structures responsible for the sense of taste.

The pharynx is the passage caudal to the oral and nasal cavities that is common to both the digestive and respiratory tracts. The skeletal muscles in its walls act in a coordinated manner to propel food from the oral cavity into the oesophagus.

## FURTHER READING

Eurell, JA & Frappier BL *Dellmann's Textbook of Veterinary Histology*, 6th Ed. (2006)

Singh B, *Dyce Sack and Wensing's Textbook of Veterinary Anatomy,* 5th Ed. (2018)