

The dorsum of the tongue is studded with papillae, of which there are four types:

- **Filiform:** most numerous, small cones arranged in “V”-shaped rows paralleling the sulcus terminalis on the anterior two-thirds of the tongue. They are characterized by the **absence of taste buds** and **increased keratinization**. They serve to grip food.
- **Fungiform:** knob-like or mushroom-shaped projections, they are found on the **tip and sides** of the tongue. These papillae are innervated by the facial nerve (VII).
- **Circumvallate** (vallate): largest but **fewest** in number (7-12), they are arranged in an inverted “V”-shaped row on the back of the tongue. Associated with the **ducts of Von Ebner’s glands**. These papilla are innervated by the glossopharyngeal nerve (IX).
- **Foliate:** found on lateral margins as 3 to 4 vertical folds. These taste buds are innervated by both the facial nerve (VII - anterior papillae) and the glossopharyngeal nerve (IX - posterior papillae).

The receptors for the sense of taste (gustation) are located in taste buds on the surface of the tongue. The taste buds are associated with peg-like projections on the tongue mucosa called lingual papillae. A single taste bud contains 50–100 taste cells representing all **five** taste sensations. Each taste cell is innervated by a sensory neuron and has receptors on its apical surface. **Note:** All tastes are detected on all parts of the tongue, but it is the sensitivity to each that varies by region. The sensitivities vary as follows:

- **sweet:** on the tip
- **bitter:** on the back
- **umami:** on the back and sides
- **sour:** along the sides
- **salty:** on the tip and sides

The tongue and the roof of the mouth contain most of the receptors for the taste nerve fibers in branches of the facial, glossopharyngeal, and vagus nerves.

The underside of the tongue is soft and kept very moist by salivary gland secretions. Beneath the tongue lie the openings of the ducts from the sublingual and submandibular glands. The frenulum forms the midline ridge on the lower surface of the tongue. The paired deep arteries and veins of the tongue lie on each side of this ridge.

Plummer–Vinson syndrome: presents as a triad of dysphagia (due to esophageal webs), glossitis, and iron deficiency anemia. It most usually occurs in postmenopausal women.