

Taste Pathway: What Do We Teach?

M GANESH KAMATH¹, JAY PRAKASH², APARNA TRIPATHY³, PREETHI CONCESSAO⁴**Keywords:** Gustation, Gustatory perception, Teaching

Taste pathway is taught in medical schools for students to learn about the taste sensation and its perception. It is important for students to know about the taste modalities, the receptors involved, the pathway, applied aspects and differential diagnosis. Though taste disorders do not directly affect one's life, it has an impact specifically on the quality of life. Taste disturbances can be present in those with: Bell's palsy, lesions of tegmentum in midbrain and/or pons, thalamic lesion, radiation treatment of head and neck, trauma or lesion to the taste pathway and some uncommon cause such as Sjogren's syndrome [1]. As teachers, we have encountered questions from undergraduate students regarding the varied viewpoints in the taste pathway as given in neuroanatomy and neurophysiology text books. Recent studies about the taste pathway also support these contradicting viewpoints.

The taste buds present on the anterior 2/3rd of the tongue are innervated by the facial nerve, posterior 1/3rd by the glossopharyngeal and epiglottis by vagus. These afferent fibers relay in the nucleus of tractus solitarius (NTS). Fibers from the NTS synapse in the thalamus, which pass to the somatosensory cortex [2]. The various viewpoints put forth by fMRI studies, clinical examinations of the cranial nerves and lesions of the taste pathway shows that, the variation lies between the NTS and thalamus, which are: (a) The second order neurons from NTS synapse at thalamus and the fibers project to the ipsilateral cerebral cortex; (b) The second order neurons arising from NTS, cross to opposite side and synapse at the thalamus, which

project to the contralateral cerebral cortex; (c) 'Few' fibers from NTS decussate and terminate at the contralateral somatosensory cortex, whereas majority of the fibres continuing on ipsilateral side, project to the ipsilateral cerebral cortex (i.e., a bilateral representation) [2-5].

In view of the various viewpoints of the taste pathway mentioned above (a, b & c), we wish to emphasize that the students need to be taught about the bilateral representation of the taste pathway. This would help the students to obtain an integrated approach of the information about the pathway given in anatomy and physiology textbooks. However, the students should also be sensitized about current concepts and research where there is a lack of evidence in regard to the taste pathway.

We wish to point out that further clinical studies are required to reaffirm this bilateral representation.

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PARTICULARS OF CONTRIBUTORS:

1. Senior Grade Lecturer, Department of Physiology, Melaka Manipal Medical College (Manipal Campus), Manipal University, Manipal, India.
2. Lecturer, Department of Physiology, Melaka Manipal Medical College (Manipal Campus), Manipal University, Manipal, India.
3. Lecturer, Department of Physiology, Melaka Manipal Medical College (Manipal Campus), Manipal University, Manipal, India.
4. Lecturer, Department of Physiology, Melaka Manipal Medical College (Manipal Campus), Manipal University, Manipal, India.

NAME, ADDRESS, E-MAIL ID OF THE CORRESPONDING AUTHOR:

Mr. M. Ganesh Kamath,
Senior Grade Lecturer, Department of Physiology, Melaka Manipal Medical College (Manipal campus),
Manipal University, Manipal-576 104, India.
E-mail: ganesh.kamath@manipal.edu ; kamath18@gmail.com

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