

41 - Vagus nerve CN X

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© SPMM Course hearing should continue to hear the sound. In conductive hearing loss, the patient does not continue to hear the sound since bone conduction, in that case, is better than air conduction. In sensorineural hearing loss, both air conduction and bone conduction are decreased to a similar extent. □ The vestibular portion transmits information about linear and angular accelerations of the head from the utricle, saccule, and semicircular canals of the membranous labyrinth to the vestibular nucleus. □ The Romberg test is performed to evaluate vestibular control of balance and movement. When standing with feet placed together, and eyes closed, the patient tends to fall toward the side of vestibular hypofunction. Results of the Romberg test may also be positive in patients with polyneuropathies, and diseases of the dorsal columns, but these individuals do not fall consistently to one side as do patients with vestibular dysfunction. □ Provocative tests include caloric testing. Normally on cold water testing, nystagmus is noted to the opposite side; warm water elicits nystagmus towards the same side. (Remember the mnemonic COWS) Glossopharyngeal nerve - CN IX □ The nucleus of the CN IX is anatomically indistinguishable from the CN X, therefore, known as nucleus ambiguus. Its main function is the sensory innervation of the posterior third of the tongue and the pharynx. It also innervates the pharyngeal musculature, particularly the stylopharyngeus, in concert with the vagus nerve. □ Vascular stretch afferents from the aortic arch and carotid sinus travel via glossopharyngeal nerve to the nucleus solitarius - important for neural control of blood pressure. □ Lesions affecting the glossopharyngeal nerve result in loss of taste in the posterior third of the tongue and loss of pain and touch sensations in the same area, soft palate and pharyngeal walls. □ CN IX and CN X travel together, and their clinical testing is not entirely separable. Vagus nerve - CN X □ Starting in the nucleus ambiguus, the vagus nerve has the longest peripheral course of all cranial nerves - it stretches up to splenic flexure of the colon. □ Provides motor supply to the pharyngeal muscles (except the stylopharyngeus and the tensor veli palati), palatoglossus, and larynx. □ It innervates the smooth muscles of the tracheobronchial tree, esophagus, and GI tract up to the junction between the middle and distal third of the transverse colon. □ The somatic sensation is carried on the back of the ear, the external auditory canal, and parts of the tympanic membrane, pharynx, larynx, and the dura of the posterior fossa. □ The pharyngeal gag reflex (ie, tongue retraction and elevation and constriction of the pharyngeal musculature in response to touching the posterior wall of the pharynx, tonsillar area, or base of the tongue) and the palatal reflex (ie, elevation of the soft palate and ipsilateral deviation of the uvula on stimulation of the soft palate) are decreased in paralysis of CN IX and CN X. □ In unilateral CN IX and CN X paralysis, touching these areas results in deviation of the uvula to the normal side.

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