

ASSESSING CRANIAL NERVES WITH A STICK OF GUM

Authors: Jeff Strickler, MA, RN, CEN, CFRN, EMT-P, and Alberto Bonifacio, BSN, BS, Chapel Hill, NC

Section Editors: Reneé S. Holleran, APRN, PhD, CEN, CCRN, CTRN, CFRN, FAEN, FNP-BC and Andrew Harding, RN, MS, CEN, NEA-BC, FAHA

Most nurses recall the class in anatomy and physiology when we learned the great common memory aid, “On Old Olympus Towering Tops A Finn And German Viewed Some Hops” in an effort to learn the names of the 12 cranial nerves. For many of us, that moment was one of the last times we gave cranial nerves any thought. However, with diagnoses such as head injury and stroke continuing to rank highly on the morbidity and mortality charts, the ability of an emergency nurse to identify and monitor symptoms of neurologic dysfunction has become ever more critical. Trying to remember what functions are to be assessed with each nerve is enough to cause many registered nurses in the emergency department to break out in a cold sweat. The good news is that a full assessment can be performed quickly with a single stick of gum.

An example of how to complete this assessment is as follows. You are experiencing a busy day in your emergency department. You introduce yourself and begin to assess your patient, a young man who reportedly was knocked out while playing football. The patient’s loss of consciousness was witnessed and is reported to have lasted only a couple of minutes. After your primary and standard physical assessment, you are ready to complete a more focused neurologic examination. You begin your assessment of cranial nerves by pulling out a stick of gum from your pocket.

With the patient’s eyes closed, remove the gum from the wrapper beside each of his ears and ask if he can hear the sound of the gum being unwrapped. Next, hold the opened

piece of gum to his nose and ask him to identify the scent associated with the gum (eg, cinnamon). Then ask the patient to open his eyes and read the words on the gum’s outer wrapper. Next, ask him to follow the stick of gum as you move through his visual fields; in addition, move the stick closer to his face to note accommodation. Ask him to open his mouth widely and say “ah” to assess for voice quality, deviation from midline of the uvula, and symmetrical elevation of the soft palate. Have him stick out his tongue and assess for any deviation, then carefully place the gum on his tongue to assess taste. Lastly, ask him to mimic a chewing and swallowing motion. You have just successfully assessed cranial nerve function.

To review what we learned many years ago, the first cranial nerve is the olfactory nerve, which is responsible for our sense of smell. The second nerve is the optic nerve, which is responsible for our sense of vision. The oculomotor nerve is responsible for eye movements and pupil regulation. The trochlear nerve also assists with eye movements, while the trigeminal nerve allows for chewing movements. The abducens provides for abduction of the eye. The facial nerve allows facial expressions as well as our sense of taste. The auditory nerve also is known as the vestibulocochlear nerve, which provides our sense of hearing. The glossopharyngeal nerve enables us to swallow. The vagus nerve provides for symmetrical soft palate elevation and voice production. The spinal accessory nerve enables us to turn our head. The last cranial nerve is the hypoglossal, which enables tongue movement (Table).¹

To document a normal examination, one may simply note on the chart that “Cranial nerves I-XII are grossly intact by physical examination.” Detailed notes of specific nerve assessments should be included whenever you are assessing for a specific deficit, upon encountering an abnormal finding, or noting a change from the last examination. In these cases, it is essential that the clinical finding be accurately and descriptively documented. For example, in charting an abnormal finding, you may write, “Nystagmus now noted with left lateral gaze.” Bear in mind that identification of the specific cranial nerve in question is not essential but that timely identification of the deficit is vital, along with the immediate communication of this finding to the practitioner.

Jeff Strickler, *Member, Heart of Carolina Chapter*, is Director, Emergency Services, University of North Carolina Hospitals, Chapel Hill, NC.

Alberto Bonifacio, *Member, Heart of Carolina Chapter*, is Clinical Nurse III, Emergency Services, University of North Carolina Hospitals, Chapel Hill, NC.

For correspondence, write: Jeff Strickler, MA, RN, CEN, CFRN, EMT-P, Emergency Services, University of North Carolina Hospitals, 101 Manning Dr, Chapel Hill, NC 27514; E-mail: jestrick@unch.unc.edu.

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TABLE
Cranial nerve assessment

No.	Name	Function	Physical examination
1	Olfactory	Smell	With the patient's eyes closed, bring the gum to the patient's nose and ask him or her to identify the gum's smell
2	Optic	Vision	Read small print on the gum packaging
3	Oculomotor	Extraocular	Follow gum through 6 positions of gaze and bring to the patient's nose to assess pupillary accommodation
4	Trochlear	Extraocular downward and lateral movement	Follow gum through 6 positions of gaze
5	Trigeminal	Swallowing	Simulate chewing
6	Abducens	Extraocular lateral movement	Follow gum through 6 positions of gaze
7	Facial	Facial motor and taste	Place gum on both sides of tongue to assess taste
8	Auditory	Hearing	With the patient's eyes closed, open package beside each ear to assess hearing
9	Glossopharyngeal	Swallowing	Swallow saliva
10	Vagus	Innervation of soft palate and pharynx	Open mouth wide and say "ah" to assess for voice, symmetrical palate rise, and midline uvula
11	Spinal	Shoulders and swallow	Shrug shoulders against resistance
12	Hypoglossal	Tongue movement and swallow	Stick out tongue to assess for deviation

As you can see, it does not take a long time to assess cranial nerve function, and there is no need to be intimidated by this task. In our hasty world of ED overcrowding, protracted patient stays, and ever increasing demand for higher quality of care, the ability of ED nurses to address traditionally inpatient issues and perform specialized assessments is becoming essential. This simple tool, applicable to any patient with the potential for neurologic compromise, will broaden our assessment abilities, remove some of the stigma or apprehension of the complex neurologic world, and bring us a step closer to becoming even more skilled, confident clinicians.

REFERENCE

- Patton KT, Thibodeau GA. *Mosby's Handbook of Anatomy & Physiology*. St Louis, MO: Mosby; 2000.

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or

Andrew Harding, RN, MS, CEN, NEA-BC, FAHA

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