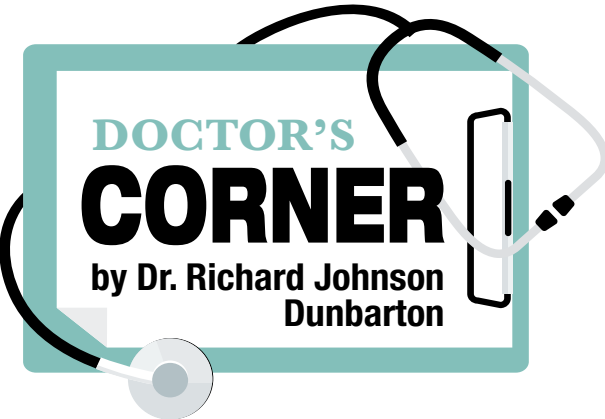




THE SNEEZE

Sneezing and coughing are defense mechanisms designed to expel irritants, allergens, and pathogens from our nose and lower airways respectively. The sneeze and cough are triggered by discrete sensory receptors that have different nerve innervations (1). I want to focus on the sneeze reflex which is triggered by stimulation of receptors in the mucous membranes of the nasal cavity. These receptors are stimulated by pollen, smoke, odorants, and other particulate matter. Bacteria and fungal spores present in dust may also act as triggers for sneezing. Viral and bacterial infections as well as inflammatory responses can trigger the sneeze reflex. Sudden changes in light and temperature have been known to trigger a sneeze. The information from the receptors in the nose is carried by the trigeminal nerve to the brain. The trigeminal nerve (CN 5) is the largest of our 12 cranial nerves. It has three main branches that carry both motor and sensor nerves to our entire face. These three branches leave the skull through three different openings or foramen. You guessed it, its name comes from the Latin trigeminus (threefold or triplets) referring to its three distinct branches.

Once the message gets to the brain, respiratory muscles groups are activated. The inhalation phase begins with the diaphragm and intercostal muscles drawing in a large volume of air. During the compression phase, the soft palate contracts and seals the nasopharyngeal passage, and pressure in the windpipe can reach 1 psi. Then the glottis opens and the explosive exhalation phase occurs. Most people have (or develop) their own sneeze style. A sneeze is repeated if the irritant in the nasal mucosa is not removed. Although one can mute a sneeze it is probably not the best maneuver as the pressure that is built up in the airways is quite considerable (5-20 times a normal sneeze) and if not released could rupture small blood vessels, move mucus up into the middle ear, or even rupture the ear drum.

A given sneeze can release up to 40,000 virus-laden droplets which can travel over 20 feet and remain suspended in the air for up to 10 minutes. Airflow generated during a sneeze can reach up to 60-100 mph. (2) Therefore, it is good hygiene to cover your sneeze with your sleeve, or if you have advanced notice, with a tissue that can be discarded.

AI Trivia FYI:

Walt Disney hired Billy Gilbert to voice Sneezy in Snow White and the Seven Dwarfs.

The longest lasting “sneezing fit” (976 days) is credited to Donna Griffiths of the UK in 1981.

1. Hoowu Jiang et al. Cell, Volume 187, 17 Oct 2024

2. Han et al. Build Environ. 205:108293. 10.1016/j.buildenv.2021

Tang et al. J. Hosp. Infect. 64 100–114. 10.1016/j.jhin.2006.05.022



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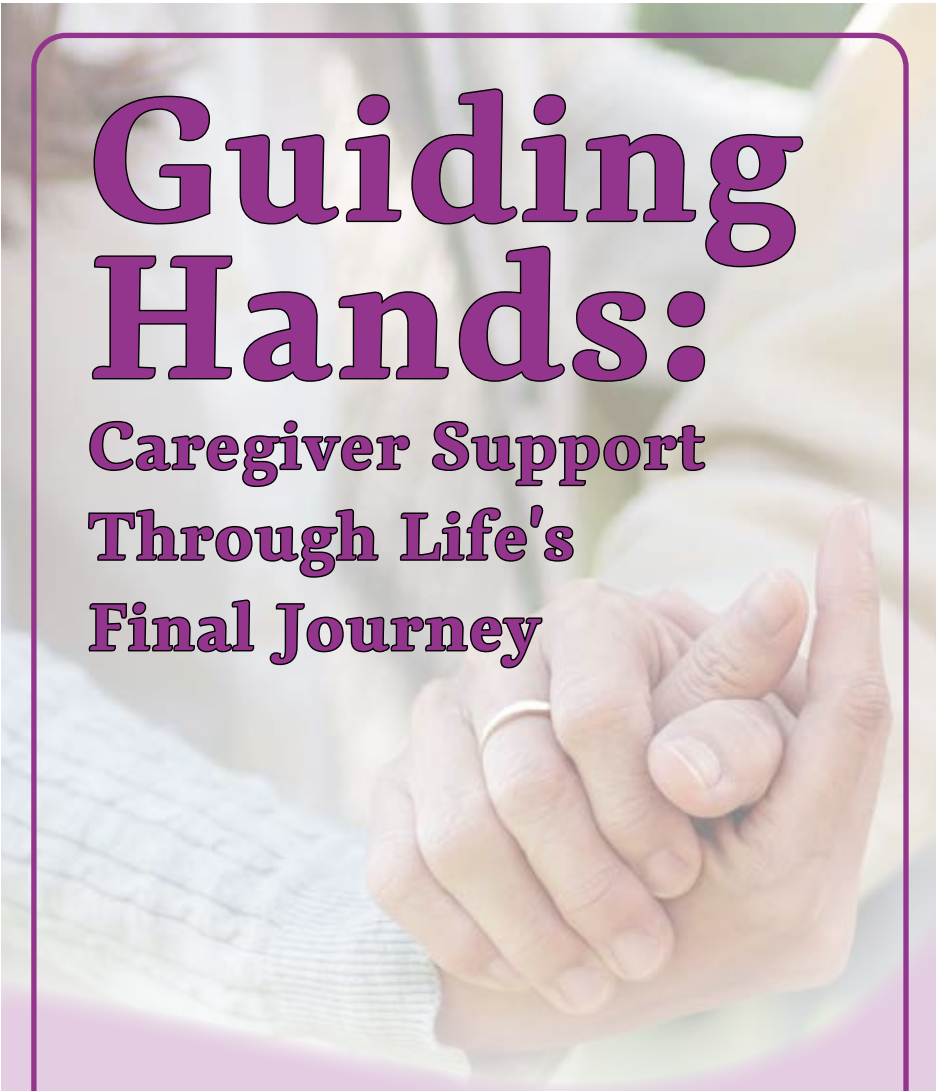
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