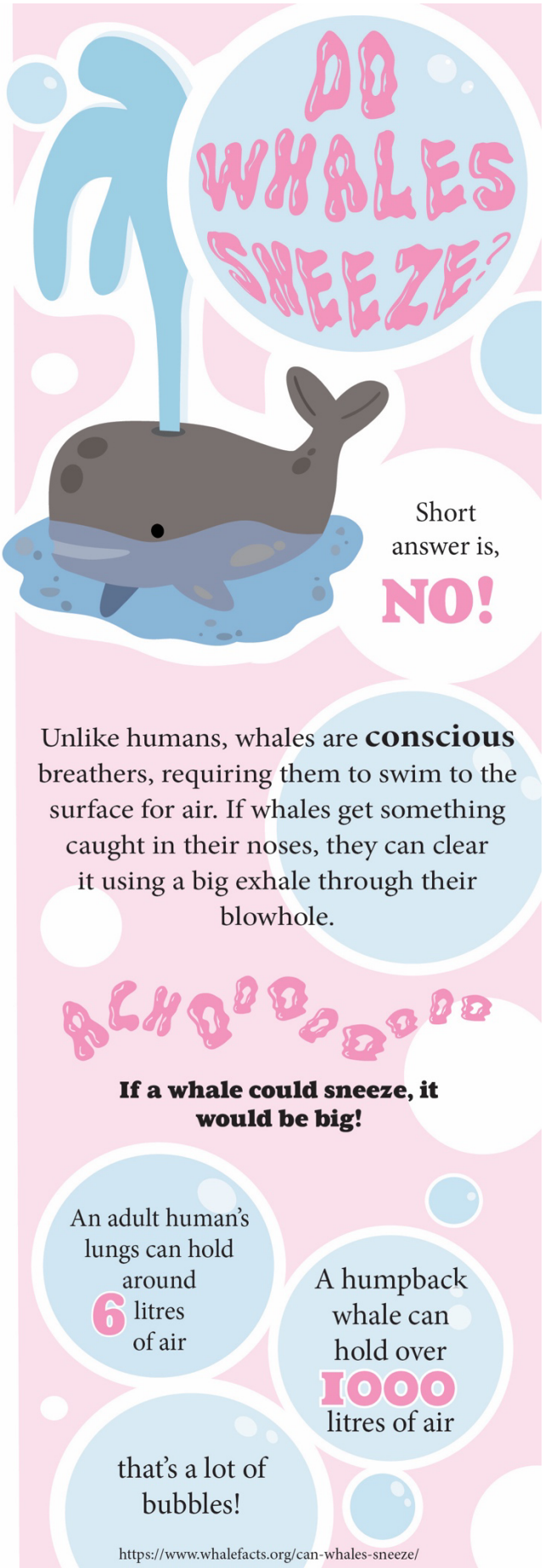
The Sun Sneeze

Imagine stepping out into the sunshine, ready to embrace the day, only to start involuntarily sneezing. I've always experienced this unusual reaction when exposed to bright sunlight. Every sunny day prompts a sneeze, which I initially thought was a normal response to the light. While this is my norm, conversations with others revealed that "sun sneezes" are not universal.

This phenomenon is called Autosomal Dominant Compelling Helio-Ophthalmic Outburst syndrome, or ACHOO syndrome. So why does sunlight trigger a sneeze in some people?

What is a sneeze?

A sneeze is like a built-in alarm system for the body. They are triggered when irritants invade the nasal cavity. A study published by the Journal of Neurology, Neurosurgery, and Psychiatry found that sensory nerves signal the sneezing center in the medulla when foreign



substances enter the nose. The medulla is a part of the brainstem responsible for regulating important functions like breathing, heart rate, and reflex actions.

From there, nerve fibres stimulate blood vessels and glands, resulting in nasal secretion and swelling. This leads to increased stimulation of the trigeminal nerve. The trigeminal nerve detects facial sensations, including irritants that can trigger a sneeze.

The medulla then signals to the body that it's time to sneeze. In response, the brain coordinates a sequence of actions. In most cases, the person forces their eyes shut, takes a deep breath, and expels air from their lungs. This powerful expulsion helps clear the irritant from the nose and mouth, providing relief within seconds.

What causes a sneeze?

A variety of factors can trigger a sneeze. When irritants like dust, pollen, pet dander, or chemicals enter the nose, the body responds by ejecting them. Potential threats like viruses and bacteria can also trigger a sneeze as it's the body's way of clearing the airways and preventing further infection. Environmental factors like strong odours, pollutants or allergens can tickle the nose and set off the reflexive alarm.

Why can sunlight trigger a sneeze?

Unlike a regular sneeze triggered by irritants or infections, ACHOO syndrome involves the brain's visual cortex. The trigeminal nerve is near the optic nerve, which carries visual information from the eye to the brain. According to a clinical vignette by Dr. Nancy L. Tsoi, bright light stimulating the optic nerve may inadvertently trigger the nearby trigeminal nerve. This stimulation can cause a miscommunication in the brain, triggering a sneeze reflex in response to the light stimulus. When the brain receives mixed signals from the optic and trigeminal nerves, it results in an unexpected sneeze.

Why doesn’t everyone sneeze in response to sunlight?

If the sun makes you sneeze, you likely inherited this trait from a parent. Dr. Tsoi explains that ACHOO syndrome follows an autosomal dominant inheritance pattern. If one parent carries the gene, they have a 50 per cent chance of giving it to their offspring. Due to its genetic predisposition, Dr. Tsoi says ACHOO syndrome affects one in four individuals.

On the bright side

The photic sneeze reflex is usually a mild annoyance. Some people may not even realize they have it or assume it is the typical reaction to bright light. In contrast to the protective nature of a regular sneeze, which shields the body from irritants, ACHOO syndrome lacks historical significance in bodily defence. What makes this phenomenon particularly intriguing is its association with the brain—the intricate interplay between the optic nerve and the trigeminal nerve reveals a fascinating aspect of our neurological responses. The uniqueness of sneezes, especially those induced by bright sunlight, adds a layer of complexity to our understanding of how the brain interprets and responds to various stimuli.