

1. COVID-19 and Anosmia

Prelims Syllabus: Science & Technology

Mains Syllabus: GS-III Science and Technology - developments and their applications and effects in everyday life Achievements of Indians in science & technology; indigenization of technology and developing New Technology.

Context:

- Multiple reports have surfaced, primarily from Europe and the United States, from physicians and ear, nose and throat specialists, of COVID-19 patients complaining of an inability to smell – or anosmia. However, it is not clear whether neurons in the brain that are responsible for recognising various odours are damaged, or whether other cells may be involved.

COVID-19: Not Directly:

- A research suggests that it is not neurons but a class of cells in the upper regions of the nasal cavity that may be involved. These are called sustentacular cells and horizontal basal cells.
- The sustentacular cells and horizontal basal cells:
- Crucially, both are not directly involved in helping us smell, but nourish and support the cells that help us do.
- So the virus may be inflicting an indirect attack on the olfactory sensory cells.
- Another research points out the presence of a key enzyme – called ACE 2 (Angiotensin Converting Enzyme) – in these olfactory cells.
- The coronavirus has spike proteins that bind to ACE 2 receptors on human cells and the enzyme's presence is a proxy to reveal the signature of the virus in the body's cells.

Anosmia:

- Anosmia is the partial or complete loss of the sense of smell. This loss may be temporary or permanent.
- It is caused by a swelling or blockage in the nose that prevents odors from getting to the top of the nose.
- Respiratory viral infection is a common cause of loss of smell. The sense of smell usually returns when the infection is over.

Other Main Causes of Anosmia:

- Irritation to the mucous membranes lining the nose.

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- Blockage of the nasal passages.
 - Brain or nerve damage.
 - **Complications:** People with anosmia may not be able to fully taste foods and may lose interest in eating.
 - This can lead to weight loss or malnutrition.

Ageusia:

- Ageusia is a condition that is characterized by a complete loss of taste function of the tongue.
- People who have a reduced ability to taste are said to have Hypogeusia.

Common Causes:

- Aging
- Nasal airway problems.
- Upper airway infection, such as sinus infection, tonsillitis, or sore throat.

