

# Upper Respiratory Tract Infection



The upper respiratory tract includes the sinuses, nasal passages, pharynx, and larynx. These structures direct the air we breathe from the outside to the trachea and eventually to the lungs for respiration to take place.

An upper respiratory tract infection, or upper respiratory infection, is an infectious process of any of the components of the upper airway.

Infection of the specific areas of the upper respiratory tract can be named specifically. Examples of these may include rhinitis (inflammation of the nasal cavity), sinus infection (sinusitis or rhinosinusitis) - inflammation of the sinuses located around the nose, common cold (nasopharyngitis) - inflammation of the nares, pharynx, hypopharynx, uvula, and tonsils, pharyngitis (inflammation of the pharynx, uvula, and tonsils), epiglottitis (inflammation of the upper portion of the larynx or the epiglottis), laryngitis (inflammation of the larynx), laryngotracheitis (inflammation of the larynx and the trachea), and tracheitis (inflammation of the trachea).

Upper respiratory infections are one of the most frequent causes of doctor visits with varying symptoms ranging from runny nose, sore throat, cold to breathing difficulty, and lethargy. In the United States, upper respiratory infections are the most common illness leading to missing school or work. Although upper respiratory infections can happen at any time, they are most common in the fall and winter months, from September until March. This may be explained because these are the usual school months when children and adolescents spend a lot of time in groups and inside closed doors. Furthermore, many viruses of upper respiratory infection thrive in the low humidity of the winter.

## **Causes of Upper Respiratory Tract Infection**

1. Upper respiratory infection is generally caused by the direct invasion of the inner lining (mucosa or mucous membrane) of the upper airway by the culprit virus or bacteria. In order for the pathogens (viruses and bacteria) to invade the mucus membrane of the upper airways, they have to fight through several physical and immunologic barriers.

2. The hair in the lining of the nose acts as a physical barrier and can potentially trap the invading organisms. Additionally, the wet mucus inside the nasal cavity can engulf the viruses and bacteria that enter the upper airways. There are also small hair-like structures (cilia) that line the trachea which constantly move any foreign invaders up towards the pharynx to be eventually swallowed into the digestive tract and into the stomach.

3. In addition to these intense physical barriers in the upper respiratory tract, the immune system also does its part to fight the invasion of the pathogens or microbes entering the upper airway. Adenoids and tonsils located in the upper respiratory tract are a part of the immune system that help fight infections. Through the actions of the specialized cells, antibodies, and chemicals within these lymph nodes, invading microbes are engulfed within them and are eventually destroyed.

4. Despite these defense processes, invading viruses and bacteria adapt various mechanisms to resist destruction. They can sometimes produce toxins to impair the body's defense system or change their shape or outer structural proteins to disguise from being recognized by the immune systems (change of antigenicity). Some bacteria may produce adhesion factors that allow them to stick to the mucus membrane and hinder their destruction.

5. It is also important to note that different pathogens have varying ability to overcome the body's defense system and cause infections. Some viruses may infect by much fewer numbers than others. Furthermore, different organisms require varying time of onset from when they enter the body to when symptoms occur (incubation time).

### **Symptoms of Upper Respiratory Tract Infection**

Common symptoms of upper respiratory infection generally include:

- Runny nose (rhinorrhea), nasal congestion
- nasal discharge (may change from clear to white to green)
- Nasal breathing
- Sneezing
- Sore or scratchy throat,
- Painful swallowing (odynophagia)
- Cough (from laryngeal swelling and post nasal drip)
- Malaise, and fever (more common in children).

## **Treatment of Upper Respiratory Tract Infection**

Rest is an important step in treating upper respiratory infections. Usual activities, such as, working and light exercising may be continued as much as tolerated.

Increased intake of oral fluids is also generally advised to keep up with the fluid loss from runny nose, fevers, and poor appetite associated with upper respiratory infections. Treatment of the symptoms of upper respiratory infection is usually continued until the infection has resolved.

### **Antibiotics**

Judicious use of antibiotics can decrease adverse effects of antibiotics as well as decrease costs. Decreased antibiotic usage will also prevent drug resistant bacteria, which is a growing problem in the world. Health authorities have been strongly encouraging physicians to decrease the prescribing of antibiotics to treat common upper respiratory tract infections because antibiotic usage does not significantly reduce recovery time for these viral illnesses. Some have advocated a delayed antibiotic approach to treating URIs which seeks to reduce the consumption of antibiotics while attempting to maintain patient satisfaction. Most studies show no difference in improvement of symptoms between those treated with antibiotics right away and those with delayed prescriptions. Most studies also show no difference in patient satisfaction, patient complications, symptoms between delayed and no antibiotics. A strategy of "no antibiotics" results in even less antibiotic use than a strategy of "delayed antibiotics".

### **Decongestants**

According to a Cochrane review, single oral dose of nasal decongestant in the common cold is modestly effective for the short term relief of congestion in adults; however, "there is insufficient data on the use of decongestants in children." Therefore decongestants are not recommended for use in children under 12 years of age with the common cold.

### **Alternative medicine**

The use of vitamin C in the inhibition and treatment of upper respiratory infections has been suggested since the initial isolation of vitamin C in the 1930s. Some evidence exists to indicate that it could be justified in persons exposed to brief periods of severe physical exercise and/or cold environments.

## References

[http://www.medicinenet.com/upper\\_respiratory\\_infection/article.htm#what\\_is\\_an\\_upper\\_respiratory\\_infection](http://www.medicinenet.com/upper_respiratory_infection/article.htm#what_is_an_upper_respiratory_infection)

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