

**Smoking is just the right trigger to ruin your nose and the surrounding sinus tissues. Do you really want that for your loved ones and yourself?**

# Developing a nose for cancer?

Dr Lim Ing Ruen

## WHAT ARE THE SINUSES?

The nose is a complex structure responsible for warming, humidifying, filtering and smelling the air that we breath in. The sinuses are air-filled bony outpouchings from the internal wall of the nose.

There are four pairs of sinuses. The frontal sinuses are in the forehead; the maxillary sinuses are in the cheeks; the ethmoids between the eyes and the sphenoids in the centre of the skull. Each sinus communicates with the nose via a small

opening called the ostium. The nose and the sinuses are lined by pseudo-stratified columnar epithelium consisting of mucus-secreting goblet cells and ciliated cells.

The sinuses have uncertain physiological functions ranging from lightening the skull to improving vocal resonance to conditioning of the inhaled air. Most physicians believe that the real function is in the production of mucus.

This special mucus is a solvent with antimicrobial function. An average adult produces almost 2 litres (8 cups) of mucus a day which is swept by tiny hairs called cilia from the sinuses into the throat.

## WHAT ARE THE COMMON PROBLEMS IN THE UPPER AIRWAY?

The upper airway is at the mercy of environmental insults. Understandably, allergies and infections are common. Much rarer are tumours of the sinuses. The American Academy of Allergy, Asthma, and Immunology estimates that 31 million Americans develop sinusitis (sinus infections) every year.

## MAINSTREAM, SIDESTREAM and 2nd HAND SMOKE

Tobacco smoke is a toxic mix of more than 4,000 chemicals, many of which are carcinogenic.

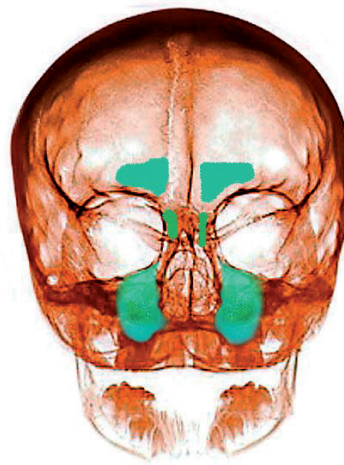
Mainstream smoke is smoke that the smoker inhales and exhales. Sidestream smoke is that which wafts off the end of a cigarette, cigar or pipe. It accounts for 85 percent of the environmental smoke in a smoky room. Second-hand smoke (SHS) is a combination of mainstream and sidestream smoke that the innocent nonsmoker is exposed to.

The Environmental Protection Agency classifies SHS as a Group A carcinogen.

That means there is no safe level of exposure. Even so, for every non-smoker who dies as a result of secondhand smoke, eight smokers die as a result of smoking.

## HOW DOES SMOKING AFFECT THE SINUSES?

Cigarette smoke is toxic to normal cilia function. Mucus becomes stagnant and collects in the sinuses. The sinus ostia become obstructed by the dried mucus, impairing proper drainage of mucus. Impaired mucociliary action results in frequent and prolonged upper respiratory infections in smokers, and, middle-ear disease in children of smokers.



Cigarette smoke is a trigger for airway allergies. Exposure to SHS has been linked to nasal blockage, runny nose, and even aggravate asthma. Passive smoking in early childhood increases the risk of allergy and asthma.


Excessive exposure above critical levels for a critical duration causes metaplasia of the lining of the upper airway. This is the beginning of carcinogenesis. Squamous cell carcinoma of the nose, sinuses, nasopharynx, oral cavity and larynx are all related to exposure to both mainstream and SHS smoke.

## HOW ARE THESE TREATED?

Rhinosinusitis is infection of the nose and the sinuses. It usually starts as a viral infection which clears within three to five days in normal people.

Smokers or second-hand smokers tend not to recover and may even develop bacterial sinusitis. So, if a viral flu takes longer than five days to resolve, you may need to see a doctor for antibiotics. Saline douches of the nose help to humidify and mechanically cleanse the nose of clogged mucus. If you have underlying nasal allergies, controlling environmental exposure to allergens and using a steroid spray helps.

Allergy tests help identify the offending allergen which could range from dust to pollen or pets.

Cancer of the nose is more ominous. Early symptoms include bloody discharges or nasal blockages. Flexible nasoendoscopy is recommended in people with chronic symptoms. It differentiates between benign conditions such as chronic sinusitis or nasal polyposis, and, malignant nasal cancers. This simple clinic procedure allows biopsies and cultures to guide effective treatment. A CT scan is needed prior to surgery or radiotherapy. 



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