Medicine for Managers

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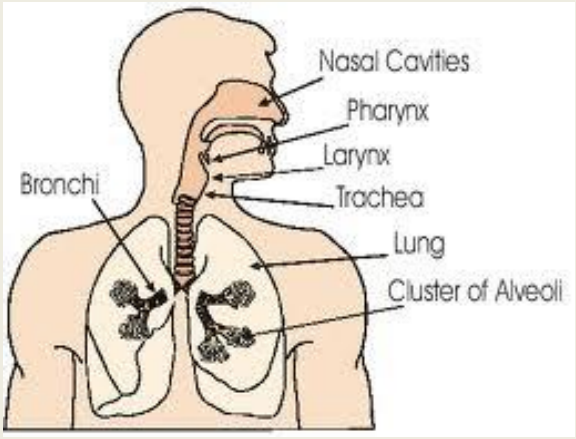
Only when I Cough

A cough is vital to the protection of the lungs and, without the ability to cough, the lungs would become infected and ultimately would result in death. Coughing is an automatic reflex and is a process whereby air is forced from the deepest parts of the lung out through the mouth. It is designed to remove mucus, debris and infected material to keep the lungs clear and functional.

Anatomy:

The respiratory system consists of two lungs which communicate with the outside through the mouth and nose, larynx, trachea, bronchi and bronchioles.

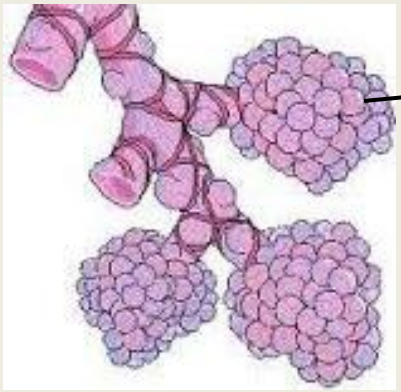


Air is drawn in or expelled through the nose and mouth. It passes through the pharynx and into the larynx (voice box), which houses the vocal cords.

Vocal cords

The cords open and close rather like a pair of curtains and their position and vibration controls our vocal activities.

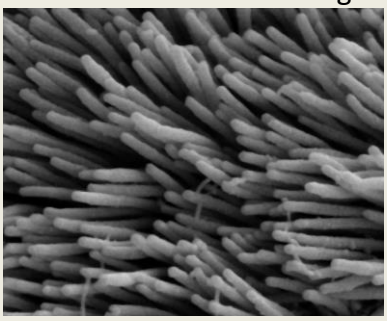
Below the larynx is the trachea (windpipe) which divides in the chest into two bronchi, one entering each lung. The bronchi divide again and again until there are very small bronchi called bronchioles. The smallest are called terminal bronchioles and each is associated with a cluster of delicate sacs called alveoli through which air exchange with the blood occurs.



Cluster of alveoli

Mucus and debris present in the alveoli and any other part of the lung is continuously wafted upwards into the bronchioles and

bronchi by delicate cilia (hair like structures) which cover the cells lining the alveoli.



Greatly Magnified Cilia

The cough clears the debris, dead bacteria, mucus, etc. from the respiratory passages.

The cough may be classified as acute or chronic, depending on whether it lasts less or more than three weeks. The acute cough clears the airways if there is infection involving any part of the respiratory tract, if food 'goes down the wrong way', or if the lung is irritated by smoke, chemical vapours or other agents. Chronic cough develops in long-term smokers as a result of lung damage, in patients with lung diseases such as COPD and cancer, in patients with chronic allergies and with other chronic infections such as tuberculosis. It may also occur with post-nasal drip and with acid reflux from the oesophagus falling into the trachea where stomach acid causes irritation (gastro-oesophageal reflux disease or GORD).

A cough may also be dry or 'chesty' (that is it is associated with the production of sputum or phlegm). The acute dry cough commonly occurs with viral illnesses but is usually productive (chesty) in conditions such as bronchitis.

If a cough persists beyond three weeks people are advised to see their GP for an examination and chest X-ray. This is particularly important if there are associated symptoms such as haemoptysis (coughing up blood), breathlessness, loss of weight or night sweats.

Commonly the cough will be caused by upper respiratory infections which are often viral and which will usually resolve within three weeks without specific treatment. Less commonly the infection may be in the lower respiratory tract and may be due to bronchitis (inflammation of the bronchi) or pneumonia (infection of the lungs). Chronic Obstructive Pulmonary Disease (COPD) is associated with worsening cough and breathlessness as the disease progresses and is almost invariably caused by smoking. Most smokers develop a chronic cough after a while.

Asthma is a common cause of cough and is becoming increasingly common. Other causes include lung cancer (40 times as common in a smoker than a non-smoker), tuberculosis, complications of medication (for example ACE inhibitors such as ramipril) and rarer lung causes such as long-term damage following whooping cough, cystic fibrosis and lung destruction such as occurs in emphysema and bronchiectasis. A cough can also develop in conditions such as heart failure where a less efficient heart causes fluid to accumulate in the lung.

The management of a cough is, where possible, to treat the cause. In the case of viral illness, there is really no way to eliminate the cough until the infection resolves. Honey and lemon may relieve the discomfort of coughing by soothing the

throat but cough mixtures purchased from the pharmacy are expensive and there is little evidence to suggest that they actually are effective. Views vary about cough medicines that suppress a cough. Some people suggest they can be used for 'dry' coughs whilst others say that they should really not be used because, if effective, they impede the lung from clearing debris and infection and could perpetuate or aggravate the problem.

Overall cough management depends on identifying the underlying cause of the cough and treating it appropriately. The cough of asthma will respond to inhaled medication and bacterial infections can be treated with antibiotics. Everyone knows that antibiotics *do not work* for colds and other viral illnesses and yet doctors' surgeries continue to receive appointment requests from patients asking for antibiotic for colds and coughs because they have *gone on for too long* or because *the cold is severe*. Many appointments would be saved if patients treated their own colds. Many years ago I knew a GP in New Cross, London whose surgery waiting room wall bore a sign saying. "**I can cure your cold in a week; do it yourself and it will take seven days**"

Patients with coughs can be further investigated with sputum culture for bacteria and a CT scan may be ordered. In those patients with findings of concern referral to a chest physician for further investigation is appropriate.

Treating a cough can sometimes be frustrating but, eventually, a successful treatment is usually identified. Occasionally, as in the cough of terminal lung cancer, no therapeutic treatment works and, in such cases, only a very powerful cough suppressant may be employed and justifiable.

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