Carbon Monoxide

Carbon monoxide is present in cigarette smoke and is absorbed rapidly into the bloodstream. The mechanisms by which it does this are as follows:

- Once it leaves the lungs, oxygen is transported in the blood by attaching to the haemoglobin within red blood cells. However, carbon monoxide binds to haemoglobin much more easily so joins to it instead of oxygen.

- Therefore, as the level of carbon monoxide in the blood increases, the level of oxygen decreases.

- Raised levels of carbon monoxide in the blood also reduce the release of oxygen from the blood into the cells. This has a significant effect on heart and other muscle cells where there is a high demand for oxygen.

Having a reduced level of oxygen in your blood means you cannot exercise as efficiently. As the heart has to work harder and get less oxygen, blood pressure can increase. This is called **Hypertension**. Increasing blood pressure increase the likelihood of heart disease and of having a stroke.

The carbon monoxide in a cigarette can almost instantly cause a shortness of breath and an increased heart rate. Over time a smoker's health risk can rise and prolonged periods of carbon monoxide can lead to heart disease. Carbon monoxide in tobacco also contributes to fat build-up on artery walls. This is potentially dangerous and can be the cause of heart failure.

Nicotine

Research examining nicotine has found that it affects the part of the brain which regulates feelings of pleasure and euphoria.

Nicotine acts as a chemical with intense addictive qualities. In many studies it has been shown to be more addictive than cocaine and heroin. Like other physically addictive drugs, nicotine withdrawal causes the chemistry in the brain to change which can affect moods and emotions

It has been suggested that nicotine may have some carcinogenic effects (causes cancer), but no conclusive evidence has been put forward.

As a pure drug, nicotine has few adverse effects on physical health, however it does raise blood pressure and accelerates the progression of heart and arterial disease. But it's the other chemicals taken in along with nicotine which do much of the damage. When tobacco burns as a cigarette is smoked, it releases hundreds of other constituents. Nicotine is generally recognised to be one of the most addictive of all drugs. Users can quickly become dependent on its effects (in the most vulnerable, it takes just a few cigarettes to get hooked on the habit).

If someone suddenly stops taking nicotine, they usually experience prolonged withdrawal symptoms such as anxiety and mood swings. This causes them to crave the drug in order to try to reverse these unpleasant feelings. As a result the habit is hard to break.

Tar

Tar is the common name for the mix of chemicals produced by the burning of tobacco and other plant material in the act of smoking. Tar is one of the most destructive components in tobacco smoking, building up in the smoker's lungs over time and damaging them.

Tar also damages the mouth by rotting and blackening teeth, damaging gums and taste buds and the eye's vision.

Tar includes the majority of mutagenic (can causes cells to mutate) and carcinogenic (can cause cancer) agents in tobacco smoke. Smoking cigarettes is the single biggest risk factor for lung cancer. It is responsible for about 90% of all cases.

If you smoke more than 25 cigarettes a day, you are 25 times more likely to get lung cancer than a non-smoker.

There is a common misconception that the tar in cigarettes is equivalent to the tar used on roads. As a result of this, cigarette companies usually use "tar", in quotation marks, to indicate that it is not the road surface component.

Tar when in the lungs coats the cilia causing them to stop working and eventually die, causing such conditions as lung cancer as the toxic particles in tobacco smoke are no longer trapped by the cilia but enter the alveoli directly.

Smoking is the main cause of Emphysema. At least four out of five people who develop the disease are or have been smokers. The lining of the airways becomes inflamed and permanently damaged by smoking. This damage cannot be reversed. Tar causes Emphysema by damaging alveoli. This reduces the surface area of the lungs. As a result less Oxygen can be taken into the blood and less carbon dioxide removed.