

The Health Effects of Smoking

What's in a cigarette?

There are more than 4000 chemicals contained in tobacco smoke, many of which are harmful when inhaled by smokers and those around them.

These include:

Arsenic (*white ant poison*)

Butane (*lighter fuel*)

Benzene

Formaldehyde (*used in embalming*)

Acetone (*paint stripper*)

Hydrogen cyanide (*used in gas chambers*)

Methanol (*rocket fuel*)

Naphthalene (*moth balls*)

Other main components are:

Nicotine

This is the drug that causes addiction. It is very powerful and fast acting, hitting the brain seven seconds after each drag. Nicotine causes higher than usual neurotransmitter activity. When the activity starts to drop back to 'normal' level, smokers find themselves craving the next cigarette.

Nicotine appears to have minimal long-term effects on health. In the short-term, it causes stimulation of the nervous system and an increase in blood pressure and heartbeat rate. These return to normal after about 20 minutes.

Tar

Tar is a thick, sticky, brown mixture of chemicals, at least 50 of which cause cancer (carcinogens). When cigarette smoke is inhaled, much of it condenses, depositing around 70% of the tar in the lungs of the smoker. This tar irritates the delicate lung tissue and paralyses its natural cleaning mechanism. This can lead to chronic chest problems including lung cancers, emphysema and chronic obstructive pulmonary disease. Small amounts of tar are also absorbed into the blood stream and carried around the body. This can result in cancers far from the lungs e.g. in the pancreas or cervix.

Carbon Monoxide

Carbon monoxide is a colourless, odourless gas found in high concentrations in cigarette smoke. It is also produced by car exhausts and faulty gas fires and boilers.

When inhaled, carbon monoxide combines readily with haemoglobin in red blood cells to form carboxyhaemoglobin. This decreases the blood's oxygen-carrying capacity, depriving the organs and muscles of oxygen. The smoker may experience fatigue, shortness of breath and low energy levels.

To try and get more oxygen in, the heart beats faster and more red blood cells are produced. The heart has to work harder which increases the risk of heart attack or heart failure. Smoking just three cigarettes a day doubles the risk of having a heart attack.

The extra red blood cells produced cause the blood to become thicker and more sticky. Carbon monoxide also interacts in the blood vessels to increase fatty deposits on the arterial walls. The effect of these fatty deposits and blood becoming stickier is to increase the chance of blood clots and strokes (clot in the brain) and heart attacks (clot in the arteries of the heart).

Carbon monoxide is particularly harmful during pregnancy. In addition to the damage to the woman, the oxygen supply to the uterus and fetus is reduced. One cigarette can reduce fetal blood flow by 60%, restricting growth, repair and exchange of essential nutrients in the evolving cells.

Major smoking related diseases in the UK

Attributal percentage

	Men %	Women %	All %
Coronary heart disease	24	11	18
Cerebrovascular disease	19	7	12
Aortic aneurism & atherosclerotic peripheral vascular disease	44	15	29
Chronic obstructive pulmonary disease	80	69	76
Cancer of the lung	86	69	81
Cancer of the vocal cavity, oesophagus, larynx	84	48	71
Cancer of the bladder	45	29	40
Cancer of the kidney	49	7	32
Cancer of the pancreas	22	30	26
Cancer of the cervix		29	29
Ulcer of the stomach	24	20	22

From: Health Education Authority (1991)

Smoking is the UK's biggest preventable cause of death. It results in the deaths of half of all regular smokers, half of those while still in middle age (35-69 years).