Why Is Smoking Addictive?

Nicotine is the drug in tobacco that causes addiction. It is absorbed and enters the bloodstream, through the lungs when smoke is inhaled, and through the lining of the mouth (buccal mucosa) when tobacco is chewed or used as oral snuff or for non-inhaled pipe and cigar smoking. It is also absorbed through the nose from nasal snuff, which was popular in the 18th century.

Nicotine is a psychoactive drug with stimulant effects on the electrical activity of the brain. It also has calming effects, especially at times of stress, as well as effects on hormonal and other systems throughout the body. Although its subjective effects are less dramatic and obvious than those of some other addictive drugs, smoking doses of nicotine causes activation of "pleasure centres" in the brain (for example, the mesolimbic dopamine system), which may explain the pleasure, and addictiveness of smoking.

Smokers develop tolerance to nicotine and can take higher doses without feeling sick than when they first started smoking. Many of the unpleasant effects of cigarette withdrawal are due to lack of nicotine and are reversed or alleviated by nicotine replacement (for example, nicotine chewing gum or the nicotine patch).

As with other addictions, it is difficult to give up smoking, and without help most smokers fail despite trying many times. Even after stopping successfully for a while, most relapse within 2 to 3 months. More alarming perhaps than the strength of the addiction is the ease with which it develops. Although teenagers often start smoking for psychosocial reasons, the effects of nicotine soon gain control.

Studies show that tobacco use usually begins in early adolescence and those who begin smoking at an early age are more likely to develop severe nicotine addiction than those who start later. Each day, more than 4,800 adolescents smoke their first cigarette, and 42 per cent of them go on to become regular smokers.

Is Smoking a Physical Addiction?

Smoking is a physical addiction that produces a "chain reaction" in the body:

- Nicotine acts on receptors normally used by one of the main neurotransmitters in the brain and nervous system (acetylcholine). Neurotransmitters are the "chemical messengers" released by nerve cells to communicate with other cells by altering their electrical activity.
- The body responds to nicotine at these receptors as if it was the natural transmitter (acetylcholine) and the activity and physiological functions of many brain systems are altered.
With repeated nicotine dosage the body adapts to what it regards as extra acetylcholine in an attempt to restore normal function. One way it does this is to grow more acetylcholine receptors.

Thus nicotine induces structural as well as functional changes in the brain of smokers. When nicotine is suddenly withdrawn, physiological functions in the brain and other parts of the body are disturbed. This is known as withdrawal syndrome. It takes time for the body to readjust to functioning normally without nicotine.

Social and Psychological Factors

In all drug addictions, psychosocial factors determine the initial exposures. Addiction may subsequently develop if the drug has pharmacological effects that people like or find rewarding.

It is essentially a learning process:

- Learning when, where, and how to take the drug to get the most rewarding effects. The taste, smell, visual stimuli, handling, and other movements that are closely associated with the rewarding pharmacological effects gradually become rewarding themselves. This is known as conditioning.

- The situations and activities associated with smoking, together with the smoker’s mood and psychological state at the time, also become linked with its rewards and with the relief of withdrawal. They come to serve as signals or triggers for the urge or craving for nicotine’s effects (for example, after meals, with coffee or alcohol, when meeting people, working, talking on the phone, and when anxious, angry, celebrating, or having a well-earned break, and so on).

- Triggers that bring on the urge to smoke are numerous because smoking can take place in so many situations.