

BACKGROUND BRIEF

Further Information

Addiction

Based on the guidelines set down by the World Health Organisation, the US Surgeon General in 1988 has concluded that nicotine in tobacco is addictive.¹ The main findings are:

- Cigarettes and other forms of tobacco are addictive
- Nicotine is the drug in tobacco that causes addiction
- The pharmacologic and behavioural processes that determine tobacco addiction are similar to those that determine addiction to drugs such as heroin or cocaine.

Recently the American Food and Drug Agency has had an advisory panel examine whether nicotine is addictive. They decided unanimously that the amount of nicotine delivered by currently marketed cigarettes is likely to lead to addiction in the typical smoker.²

Characteristics of nicotine addiction

Nicotine is a *psychoactive* drug, that is, one which causes chemical or biological changes in the brain, producing a “mood altering” effect.¹

It is *reinforcing*, meaning that smokers will keep using the drug. Even after long periods of abstinence, most smokers who want to have an occasional cigarette quickly return to the previous levels of smoking.³

It is *used despite harmful effects*. For example, only half of smokers who suffered a heart attack managed to quit, despite advice from their doctor. One in two of all regular smokers will die as a result of their habit.⁴

Smokers develop a *tolerance* to nicotine. The body gets used to the drug and its effect is reduced. One result of this is that regular smokers are able to take in far greater amounts of tobacco smoke and associated poisons than if they had not become tolerant.³

Smokers are *physically dependent* on nicotine. Most smokers suffer from withdrawal, and although it is not as severe as with some other drugs, it affects behaviour and is a strong reason for taking up smoking again.³

The process of addiction

Nicotine occurs naturally in the tobacco plant. In large amounts nicotine is extremely poisonous and first time smokers often feel sick and dizzy as a result. Of the adolescents who experiment with smoking, about half go on to smoke regularly, rather than stopping smoking.^{5,6} After a while the body gets used to nicotine, reducing its effect, so the smoker may increase the amount smoked.¹

New smokers find that nicotine seems to help them to get through the day, particularly through difficult times. They find that “good” and “bad” times are associated with smoking, for example, at a party, or when they are depressed or angry. In stressful situations, it can have a calming effect, while in relaxed situations it can be a stimulant.⁷ Before too long smokers find that their day is organised around smoking and they feel anxious in situations where they can't smoke when they feel like it. Nicotine reinforces and strengthens the desire to smoke and causes users to keep on smoking.¹

Nicotine

Tobacco smoke from cigarettes is acidic and the nicotine is absorbed through the lungs, however in pipe and cigar tobacco the smoke is alkaline and the nicotine is absorbed through the mouth.⁸ The lungs absorb nicotine very rapidly and from there the drug quickly enters the bloodstream and the brain.¹ It takes 10 seconds for nicotine to reach the brain.¹ When this happens a number of physical reactions take place. Changes occur in heart rate, skin temperature drops, blood pressure rises and blood circulation in the hands and feet slows. Brain waves are altered and muscles relax.¹

Smokers sometimes put on a small amount of weight when they quit, around 2 kilograms. This is thought to be related to the body adjusting to being without nicotine.⁹

Withdrawal symptoms

For smokers who are dependent on cigarettes, compared to occasional smokers, the first few days without cigarettes result in a number of changes. Typical symptoms include craving for nicotine, decreased heart rate and blood pressure, headaches, irritability, anxiety, sleep disturbances, hunger and difficulty concentrating.¹ Most of these changes peak in the first day or two and then lessen. However, the craving for a cigarette, particularly when under stress may persist for months, or even years after quitting.⁵

Other consequences of quitting

Smokers may experience a number of other effects such as tiredness and coughing. These are signs that the body is cleaning itself out and starting to repair the damage caused by smoking.

Dependence

Unlike other legal drugs, such as alcohol, most users of tobacco are addicted to nicotine. Around 94% of smokers are regular smokers - that is, they smoke daily or at least weekly.¹⁰ A highly dependent smoker is one who smokes within half an hour of waking up, ranks the first cigarette as the most important of the day and smokes more than 25 a day.¹¹

References

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