

### **Depending on nicotine?**

The US Food and Drug Administration has led a move to have nicotine classified as a drug under the FDA statutory definition and therefore to have tobacco products regulated by the FDA. The FDA's contention is that smokers smoke primarily for nicotine and that tobacco manufacturers, recognising this, manipulate levels of nicotine in order to keep smokers addicted.

The evidence relating to these issues is complex - in particular, the allegation that nicotine is addictive. This has been widely challenged by some scientists working in the field. Those working with drug addicts in the USA, for example, complained that the US Surgeon General's claim back in 1988 that smoking was as addictive as heroin and cocaine trivialised the whole problem of drug addiction.

It is easy to see why. Tobacco is not intoxicating, unlike other substances that have been claimed to be addictive - from heroin and cocaine through to alcohol. Smoking doesn't impair judgement, or interfere with people's ability to think clearly or perform tasks. Smokers are perfectly capable of continuing a normal family life and holding down a job - whereas there is little evidence of this with regular users of drugs of dependence.

Nicotine does not induce physical dependence (usually measured by the presence of a distinct and consistent pattern of 'withdrawal symptoms' when attempting to quit) or tolerance (the need to increase the dose of a substance continually over time in order to maintain the initial effect of the substance). Also, as even the US Surgeon General has acknowledged, millions of smokers around the world have given up smoking without any professional help. In Australia, it is claimed that there are more ex-smokers than smokers. Clearly, this contradicts the implications of the FDA and others that the addictive nature of nicotine deprives smokers of the choice to quit.

Is this the picture of a drug addict? Are a third or more of many adult populations around the world who smoke tobacco really no different from heroin addicts? - No more than the much higher percentage of the population who drink tea and coffee (which contain substances like caffeine - similar to nicotine in many ways) can be said to be drug addicts.

Part of the problem centres around the definition of what constitutes an addictive drug - in everyday usage, the term 'addiction' is applied to many activities that people enjoy

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and therefore find difficult to give up. For example, people claim to be addicted to certain foods, such as chocolate, or to work - hence the term 'workaholic' - or even to shopping. Addiction is commonly applied to any regular behaviour that people feel is important or enjoyable to them, and which they are reluctant for these reasons to stop.

Equally, there are many different scientific definitions of addiction, but nicotine typically has not fitted well into those definitions that rely on traditional criteria such as those discussed above of intoxication, physical dependence and tolerance. The US Surgeon General in his 1988 report redefined 'addiction' to incorporate nicotine, adopting a set of criteria that were so broad that virtually any often-repeated behaviour, as well as a huge number of psychiatric drugs, could fall within the definition.

He adopted two concepts that were quite new to definitions of addiction as his primary criteria, relegating the traditionally important concepts such as tolerance and physical dependence to the bottom of his list. Those two new concepts were 'psychoactive effects' and 'drug-reinforced behaviour.' The former refers to the ability of a substance to alter mood (in any direction - either pleasurable or not) by an effect on the brain. This can, however, be said of a wide range of substances in everyday use with an equally wide range of effects, most of which are not regarded as being addictive. Theophylline in tea, theobromine in cacao products and caffeine in coffee and soft drinks are all 'psychoactive' and are consumed every day by millions of people. This would arguably apply even to a bedtime glass of milk, which alters levels of the chemicals in the brain that are believed to affect mood.

The second new criterion, 'drug-reinforced behaviour', describes a situation in which the activity of the substance is so rewarding that animals will work hard to obtain it. Laboratory animals can be trained to press levers in specially-designed boxes in order to obtain a particular substance. Rats will indeed press levers hundreds, or even thousands, of times to obtain a dose of heroin. Some studies report that rats will also press levers to obtain nicotine, but only under certain conditions, where they do not have to work so hard and with nothing like the same degree of determination, and where the delivery of nicotine is predictable.

Equally, rats will press levers in order to obtain novel food, drink, chocolate and access to a female rat. These may be rewarding and pleasurable experiences, but are they really evidence of addiction? Scientists agree that reward and addiction are two different things.

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It can be seen that these two new criteria can be applied to most enjoyable daily habits, becoming so broad in scope as to be meaningless.

In short, the attempt of anti-smoking groups and individuals to label cigarette smoking as addictive behaviour runs contrary not just to most of the scientific data, but to common sense. It is ludicrous to put substances such as caffeine and nicotine, enjoyed by large numbers of the population, into the same category as drugs of dependence such as heroin and cocaine.

It has also to be remembered that tobacco is not the only substance containing nicotine. Many common vegetables such as tomatoes, potato skins and aubergines contain nicotine. If one follows the logic of many activists in the US and elsewhere, arguing that smoking must be addictive because it contains nicotine, perhaps it is time to consider vegetable eaters as drug users - physically dependent on their ratatouille, perhaps, in the same way that heroin addicts are dependent on their heroin?

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