

What one cigarette does

Diseases such as lung cancer and heart disease tend to occur in people who have smoked for a number of years. However, there are immediate and obvious effects from smoking just one cigarette.

If a person has not smoked for twelve hours and then has a cigarette, the following things happen:

1. Carbon monoxide levels in the lungs increase.¹

This gas is quickly absorbed into the blood, reducing its capacity to carry oxygen.² Carbon monoxide inhaled via secondhand smoke has a similar effect.³

The changes brought about by carbon monoxide mean that more effort must be made to achieve the same physical results as a non-smoker. In particular, the heart must work harder for the same effect, especially when doing vigorous exercise.¹

Studies have shown that the levels of carbon monoxide in the blood of a 20-cigarette-a-day smoker can impair vision, perception of time and coordination.¹

2. Nicotine from tobacco smoke reaches the brain and muscle tissue soon after being inhaled.⁴

When nicotine is present a number of changes occur:

- The heart rate increases. This can be measured as an increase in pulse rate.
- Nicotine also causes an increase in blood pressure and a slowing in circulation in the smaller blood vessels.⁴ This slowing in circulation, together with constriction of blood vessels, has the effect of lowering the skin temperature.
- Nicotine can act both as a relaxant, relaxing skeletal muscles, and as a stimulant, increasing tension in other muscles. This can be illustrated by measuring hand tremors before and after a cigarette.^{4,6} Nicotine also increases stomach secretions and changes brain activity.⁴

3. Tobacco smoke also increases resistance in the airways leading to the lungs and reduces lung capacity.⁵

References

- 1 Hill D, Larcombe I, Refshauge J. Smoking and Impairment of Performance. *Med J Aust* 1978;**2**:60–63.
- 2 US Department of Health and Human Services. *The Health Consequences of Smoking: Cardiovascular Disease. A report of the Surgeon General*. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, Office on Smoking and Health, 1983.
- 3 Glantz SA, Parmley WW. Passive smoking and heart disease epidemiology, physiology and biochemistry. *Circulation* 1991;**83**:1–12.

- 4 US Department of Health and Human Services. *The Health Consequences of Smoking: Nicotine Addiction. A report of the Surgeon General*. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, Office on Smoking and Health, 1988.
- 5 US Department of Health and Human Services. *The Health Consequences of Smoking: Chronic Obstructive Lung Disease. A report of the Surgeon General*. Rockville, Maryland: US Department of Health and Human Services, Public Health Service, Office on Smoking and Health, 1985.
- 6 Gilbert, R.M. and Pope, M.A., Early effects of quitting smoking. *Psychopharmacology (Berl)*, 1982. 78(2): p. 121-7.

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