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How smoking affects the way you look

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Introduction Tobacco smoking seriously affects internal organs, particularly the heart and lungs, but it also affects a person's appearance.

While these changes are generally not as life threatening as heart and lung disease, they can, nevertheless, increase the risk of more serious disorders and have a noticeable ageing effect on the body.

Smoking and skin The skin is affected by tobacco smoke in at least two ways. Firstly, tobacco smoke released into the environment has a drying effect on the skin's surface. Secondly, because smoking restricts blood vessels, it reduces the amount of blood flowing to the skin, thus depleting the skin of oxygen and essential nutrients.

Some research suggests that smoking may reduce the body's store of Vitamin A, which provides protection against some skin-damaging agents produced by smoking.¹ Another likely explanation is that squinting in response to the irritating nature of the smoke, and the puckering of the mouth when drawing on a cigarette causes wrinkling around the eyes and mouth.²

Skin damaged by smoke has a greyish, wasted appearance. Research has shown that the skin-ageing effects of smoking may be due to increased production of an enzyme that breaks down collagen in the skin.³ Collagen is the main structural protein of the skin which maintains elasticity. The more a person smokes, the greater the risk of premature wrinkling. Darkening of the skin around the eyes is also a possible effect of smoking.⁴

Smokers in their 40s often have as many facial wrinkles as non-smokers in their 60s. In addition to facial wrinkling, smokers may develop hollow cheeks through repeated sucking on cigarettes: this is particularly noticeable in under-weight smokers and can cause smokers to look gaunt.² A South Korean study of smokers, non-smokers and ex-smokers aged 20 to 69 found that the current smokers had a higher degree of facial wrinkling than non-smokers and ex-smokers. Past smokers who smoked heavily at a younger age revealed less facial wrinkling than current smokers.⁵

The Chief Medical Officer highlighted the link between smoking and wrinkled, damaged

1 Joffe, I. Cigarette smoking and facial wrinkling. (Letter) *Annals of Internal Medicine* 1991; 115: 659.

2 Cigarettes: What the warning label doesn't tell you. American Council on Smoking and Health. 1996.

3 Lahmann, C. et al. Matrix metalloproteinase-1 and skin ageing in smokers. *The Lancet* 2001; 357: 935-6

4 www.realself.com/question/does-smoking-cause-dark-circles-around-eyes

5 Kh, Jae Sook et al. Cigarette smoking associated with premature facial wrinkling. *International Journal of Dermatology* 2002; 41 (1): 21-27.

skin in his 2003 annual report. The report noted that a smoker's skin can be prematurely aged by between 10 and 20 years and, although the damaging effects of cigarette smoke on the skin are irreversible, further deterioration can be avoided by stopping smoking.⁶

Prolonged smoking causes discoloration of the fingers and fingernails on the hand used to hold cigarettes.

Smoking and Psoriasis

Compared with non-smokers, smokers have a two to threefold higher risk of developing psoriasis, a chronic skin condition which, while not life-threatening, can be extremely uncomfortable and disfiguring. Some studies have found a dose-response association of smoking and psoriasis, i.e. the risk of the disease increases the longer a person continues to smoke. Smoking also appears to be more strongly associated with psoriasis among women than among men.⁷ Smoking may cause as many as one quarter of all psoriasis cases and may also contribute to as many as half of the cases of palmoplantar pustulosis, a skin disease involving the hands and feet, that some experts view as a form of psoriasis.²

Smoking and weight

When people stop smoking, they usually put on weight. Although this is often a cause for concern, the average weight gain is around 2 to 3 kg and may be temporary. Although the reasons for weight gain are not fully understood, it has been partly explained by the fact that smoking increases the body's metabolic rate – i.e. the rate at which calories are burned up. In addition, nicotine may act as an appetite suppressant so that when smokers quit an increase in appetite leads to an increase in calorie intake. The effect of nicotine on metabolic rate may also explain why smokers tend to weigh less than non-smokers.

Experts believe that one way smoking raises metabolic rate is by stimulating the nervous system to produce catecholamines, (hormones which cause the heart to beat faster), thus making the body burn more calories. Nicotine also produces more thermogenesis, the process by which the body produces heat. This too, causes the body to use up more calories.²

However, a smoking-induced increase in metabolic rate only accounts for about half the difference in weight between the average smoker and average non-smoker. Another likely mechanism is that smoking alters the body-weight set point, i.e. the weight towards which a person tends to return despite attempts to gain or lose weight. Smoking appears to lower a person's normal weight and the weight gained on stopping reflects a return to the body's natural weight set point.²

Women and girls tend to be more concerned about their weight and body shape than men, and weight control may be influential in causing the higher incidence of smoking among teenage girls.⁸ However, post-cessation weight gain can be modified by eating a low-fat, calorie-reduced diet and by moderately increased exercise. One study found that stopping smoking resulted in a net excess weight gain of about 2.4 kg in middle-aged women but that among those women who increased physical activity after stopping smoking, weight gain was between 1.3 kg and 1.8kg.⁹

While weight gain is common immediately after stopping smoking, in the longer term, ex-smokers weight may return to the comparative weight of someone who has never smoked. A Japanese study examined the relationship between weight gain and the

6 Health check. On the state of the public health. Annual report of the Chief Medical Officer. Dept. of Health, London, 2004

7 Naldi, L. et al. Association of early-stage psoriasis with smoking and male alcohol consumption. Archives of Dermatology 1999; 135: 1479-1484

8 Charlton, A. Smoking and weight control in teenagers. Public Health 1984; 98: 277-281.

9 Kawachi, I. et al. Can physical activity minimize weight gain in women after smoking cessation? Am. J. Pub. Health 1996; 86: 999-1004.

length of time after stopping smoking. Researchers found that although heavy smokers experienced large weight gain and weighed more than never smokers in the few years after smoking cessation, thereafter they lost weight to the never smoker level. Among former light and moderate smokers, weight was gained up to the never-smoker level but without any further excess gain.¹⁰

The combination of excess weight and smoking has also been shown to accelerate the ageing process of the body. A study showed that being both overweight and a smoker can age a person by ten years or more.¹¹

Body shape Although smokers tend to be thinner than non-smokers, the effect of smoking on the endocrine system (glands which secrete hormones) causes smokers to store even normal amounts of body fat in an abnormal distribution. Smokers are more likely to store fat around the waist and upper torso, rather than around the hips. This means smokers are more likely to have a higher waist-to-hip ratio (WHR) than non-smokers.¹² A high WHR is associated with a much higher risk of developing diabetes, heart disease, high blood pressure, gallbladder problems and (in women) cancer of the womb and breast. In one study of nearly 12,000 pre- and postmenopausal women aged 40 to 73, the waist to hip ratio increased as the number of cigarettes smoked per day increased. A study of American men also found a dose-response relationship between the number of cigarettes smoked and waist-to-hip ratio.^{13 14}

However, changes to WHR induced by smoking need not be permanent. A Swedish study examined the effect of smoking and smoking cessation on the distribution of fat in a representative sample of women. The study found that women who stopped smoking experienced less upper-body fat deposition than would be expected by their accompanying weight gain. This suggests that while some weight gain after stopping smoking can be expected, it is less of a health risk because it is not deposited in the upper torso, where it is associated with increased risk of heart disease.¹⁵

Other effects Halitosis (bad breath) and stained teeth and gums are perhaps the best known and most obvious effects of smoking. Tobacco use increases the risk of periodontitis, which results in swollen gums, bad breath and may cause teeth to fall out. Smoking may indeed be responsible for more than half of periodontitis cases among adults.¹⁶

Smoke can also damage eye blood vessels creating a bloodshot appearance and causing irritation.¹⁷

10 Mizoue, T. et al. Body mass decrease after initial gain following smoking cessation. *Int. J. Epidemiology* 1998; 27: 984-988.

11 Valdes, AM. et al. Obesity, cigarette smoking, and telomere length in women. *The Lancet*, 2005; 366 (9486): 662-664.

12 Canoy, D. et al. Cigarette smoking and fat distribution in 21,828 British men and women: a population-based study. *Obesity Research* 2005; 13: 1466-1475.

13 Shimokata, H. et al. Studies in the distribution of body fat. *JAMA* 1989; 261: 1169-73.

14 Akbartabartoori, M. et al. Relationships between cigarette smoking, body size and body shape. *International Journal of Obesity* 2005; 29: 236-243.

15 Lissner, L. et al. Smoking initiation and cessation in relation to body fat distribution based on data from a study of Swedish women. *Am J Epidemiology* 1992; 82: 272-275.

16 Tomar, S. et al. Smoking-attributable periodontitis in the United States: Findings From NHANES III. *Journal of Periodontology* May 2000; 71(5): 743-751.

17 Satici, A. et al. The effects of chronic smoking on the ocular surface and tear characteristics: a clinical, histological and biochemical study. *Acta Ophthalmologica Scandinavica* 2003; 81 (6): 583 - 587.