



BACKGROUND BRIEF

Further Information

Smoking and the mouth

A smoker exposes their mouth to all 4000 chemicals in tobacco smoke.¹ This results in a number of different health effects on the mouth. These range from those affecting appearance and social acceptability, such as stained teeth and bad breath, to painful diseases that disable, disfigure or even kill, such as cancer. Stopping smoking can reduce the risk of oral diseases associated with smoking, including cancer, and improve the health of the mouth, gums and teeth.^{2,3,4,5}

Mouth and throat cancers

Smoking is a major cause of cancer affecting the mouth (oral cavity) and the throat (pharynx).² Cancers of the mouth include tumours of the cheek, gum, tongue, lip, and the floor and lining of the mouth. Cancers of the throat include tumours in the area behind the nose and mouth that connects to the oesophagus e.g. the base (back third) of the tongue, tonsil, soft palate, the walls of the throat.⁶ The mouth and throat are used for breathing, talking, eating, chewing and swallowing.

Advanced cancers of the mouth and throat can cause chronic pain, loss of function and disfigurement. Treatment for advanced cancer can involve surgery removing flesh and bone, radiation treatment, putting a hole in the neck (tracheotomy) to aid breathing or putting a feeding tube into the stomach.⁶

The use of tobacco in any form causes mouth and throat cancers. The risk of developing cancer increases with the length of time a person has smoked and the amount they have smoked. The risk of dying from mouth and throat cancer is around ten times higher among male smokers and five times higher among female smokers compared with someone who has never smoked.²

However, provided the cancer is not already present, stopping smoking halves the risk of mouth and throat cancers within five years and the risk continues to decline over time.^{2,7} After ten years the risk of mouth cancer is similar to someone who has never smoked.^{2,7,8} If a person has been successfully treated for mouth or throat cancer, stopping smoking greatly reduces the risk of developing a second cancer.⁶

In 2001, 951 new cases of cancer in the mouth and throat were recorded in Australia and in the same year there were 402 deaths.⁹ It is estimated 52% of these cancers in men and 42% in women are caused by smoking.⁹

In 2003, 270 South Australians were diagnosed with mouth cancer, and 187 men and 83 women, and 41 died from the disease.¹⁰ Mouth cancer is more common in men than women, as male smoking rates were higher over previous decades. The 5-year survival from lip cancer approximates 96%. The 5-year survival from intra-oral cancer approximates 54%.¹⁰

One symptom that can occur before the development of cancer is a condition called leukoplakia. Leukoplakia is a white patch or plaque on the lining of the mouth (oral mucosa). In some cases it develops into cancer.⁶ Smokers are many times more likely to develop leukoplakia than non-smokers.^{3,11} The risk increases with higher numbers of cigarettes per day and years of smoking.¹¹ Stopping smoking reduces the risk of leukoplakia, and after one to five years around half of leukoplakia disappears.¹¹

Heavy alcohol use is also a major risk factor for mouth and throat cancers.^{6,12} Together, tobacco and alcohol account for most cases of these cancers.^{8,12} People who both smoke and are heavy drinkers are at very high risk of mouth and throat cancer.^{2,12} The risk is much higher than simply adding the risks of only smoking and only heavy drinking. This effect is called synergy.¹ For example, in one large study, the risk for mouth and throat cancer in men was seven fold for heavy smoking only (40 or more cigarettes per day) and six fold for heavy drinking only (30 or more alcoholic drinks per week) compared to non-smokers who had less than one drink per week. However, men who both smoked and drank heavily for over 20 years were 38 times more likely to get mouth or throat cancer compared to men who did neither.²

One of the reasons why tobacco and alcohol together are so damaging may be their possible effect on DNA. Research suggests that chemicals in tobacco damage the DNA of cells, interfering with the cells' instructions for repair and growth.² These damaged cells may go on to develop into a tumour. It is not clear if alcohol causes direct damage to DNA, but alcohol may increase penetration of many DNA damaging chemicals into cells.^{2,13}

Effects on the teeth and supporting structures

Smoking is a cause of periodontitis.² This is a common dental disease affecting the gum and bone that support the teeth. It results from toxins produced by bacteria in plaque seeping down between the teeth and gums causing them to become inflamed.^{2,5,14} Problems can occur such as swollen and infected gums, loss of jawbone that holds teeth in place, and deep spaces forming around the teeth that collect bacteria if plaque is not cleaned away (periodontal pockets).^{2,5}

Smoking is thought to contribute to periodontal disease by affecting the immune system, making smokers more likely to develop bacterial infection. Also, smoking impairs healing of gum and bone.^{2,5,14} It is estimated that smoking causes about half of periodontitis cases in the United States.² The risk increases with higher numbers of cigarettes per day and years of smoking.² Smokers are around three times more likely to have severe periodontitis than non-smokers. They also show only about half as much improvement following treatment as non-smokers.¹⁴

Stopping smoking reduces the risk of developing periodontitis and slows down the progress of existing disease.^{2,14} Stopping smoking improves wound healing within one to eight weeks, and response to treatment for ex-smokers can become similar to people who have never smoked.^{3,14,15}

Smokers are more likely to have tooth decay and tooth loss than non-smokers.^{2,14} This is probably because the root surfaces at the base of the teeth are more likely to become exposed due to periodontal disease caused by smoking.²

Other tobacco related conditions of the mouth

- Tobacco stains teeth, dentures and dental restorations. These ugly brown to blackish stains are particularly noticeable around the base of the teeth.^{3,4}
- Bad breath (halitosis) and impaired taste are more common among people who smoke.³
- Smoker's melanosis is characterised by brown spots on the gums. It occurs in up to a third of smokers.^{3,4} Although it is not associated with a risk of mouth disease, it can be unsightly. After stopping smoking, gum colour gradually returns to normal over several months to years.⁴
- Black hairy tongue occurs when the tongue cannot clean itself properly and bacteria, yeast and debris collect on the tiny bumps on the tongue (called papillae). These bumps can become black hair-like forms several millimetres long. It is mainly seen in people who are heavy smokers.⁴

- Smoker's palate is where the roof of the mouth (hard palate) becomes thickened and pale or white, often with many red dots (inflamed salivary gland openings). This condition is most often seen in pipe smokers and people who practise reverse smoking, meaning they place the lit end of the cigarette in their mouth. It appears to be related to irritation and heat of concentrated tobacco smoke. It can disappear within several weeks of stopping smoking.^{3,4}
- Dental implants are more likely to fail in people who smoke. Stopping smoking improves the success rate of dental implants.⁵
- Chemicals in tobacco smoke reduce some enzyme activity in saliva.^{16,17}

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