

MAKE SMOKING HISTORY[®]

Tobacco and Cancer: Know the Risks

Tobacco smoke: a chemical cocktail

Tobacco smoke contains more than 4,000 chemicals, including over 60 carcinogens or chemicals known to cause cancer.^{1,2} When you inhale cigarette smoke, these chemicals enter your lungs and spread through your body.¹ Many of the chemicals in tobacco smoke are toxic and can cause damage to our cells leading to the development of diseases like cancer.¹

How does smoking tobacco cause cancer?

Carcinogens in tobacco smoke cause mutations in a gene called p53.³ The p53 gene is a tumour-suppressor helping prevent the formation and growth of cancers.³ Damage to the p53 gene leads to uncontrolled cell division: a precursor to cancer.³ Mutations in this gene are found in over 50% of all human tumours, including 60% of lung cancers.⁴

Smoking causes cancer in many organs

Lung cancer was the first major disease to be causally linked to cigarette smoking with a number of landmark studies carried out in the 1950s and 1960s concluding that smoking is a cause of lung cancer.¹ Since that time, the list of diseases linked to smoking has grown to include cancers in organs throughout the body.³

Tobacco smoking is the most prevalent cause of cancer in humans, accounting for approximately 20%-30% of the total burden of cancer in Australia.⁵ In 2005, there were an estimated 11,308 new cases of cancer and 8,155 deaths from cancer that could be attributed to smoking, representing over 11% of cases and nearly 21% of cancer deaths.⁶

Cancers associated with smoking

Cancer of the lung

Smoking cigarettes is by far the greatest cause of lung cancer.¹ Lung cancer is one of the most common cancers in Australian men and women and the leading cause of cancer death in both sexes.⁶ In Australia, it is estimated that 88% of all lung cancer deaths in men and 75% in women (aged over 35) are due to active smoking.¹

Cancers of the head and neck

In Australia, 57% of oral cancers in men and 51% in women are caused by smoking.⁶ Oral cancers include cancers of the tongue, mouth and pharynx (throat). Tobacco smoking also causes 73% of laryngeal cancers in men and 66% in women.⁶ The use of alcohol in combination with tobacco increases the risk of head and neck cancers even further.⁷

Cancers of the oesophagus

It is estimated that smoking causes 54% of all oesophageal cancers in men and 46% in women.⁶

Cancers of the bladder and kidney

Smoking causes cancer of the renal (kidney) cell, the renal pelvis, the ureter and the bladder.¹ It is estimated that 43% of bladder cancers in men and 36% in women are caused by smoking.⁶ Approximately 28% of cancers of the kidney (except renal pelvis) in men and 21% in women are caused by smoking, while 55% of cancers of the renal pelvis in men and 48% in women are caused by smoking.⁶

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Cancer of the pancreas

Pancreatic cancer has a very poor prognosis with only about 5% of patients surviving the first five years after diagnosis.⁸ Approximately 24% of pancreatic cancers in men and 19% in women can be attributed to smoking.⁶

Cancer of the stomach

It is estimated that 14% of stomach cancers in men and 11% in women are attributable to smoking.⁶

Cancer of the cervix and vulva

Women who smoke are at greater risk of developing cervical cancer with evidence to show certain cancers of the cervix such as squamous cell cervical carcinoma are linked to smoking.^{3,7} In Australia, 17% of deaths from cervical cancer in women aged 35 years and over could be attributable to smoking.¹ It is also estimated that 40% of vulval cancers are caused by smoking.⁶

Cancer of the colon and rectum (colorectal cancer)

Evidence suggests there may be a causal relationship between smoking and colorectal adenomatous polyps and colorectal cancer.³ Long-time smokers are more likely than non-smokers to have and die from colorectal cancer.⁹

Cancer of the penis

Men who smoke are at greater risk of developing penile cancer with 30% of cases in Australia attributable to tobacco smoking.⁶

Cancer of the anus

There are increased risks associated with smoking and cancers of the anus^{10,11} with 48% of cases in men and 41% in women caused by smoking.⁶

Acute myeloid leukaemia

Smoking is a cause of acute myeloid leukaemia. The risk increases with the number of cigarettes smoked and with the duration of smoking.³

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¹ Scollo MM, Winstanley MH. Tobacco in Australia: Facts and Issues 2008, 3rd ed. Melbourne: Cancer Council Victoria; 2008.

² US Department of Health and Human Services. Risks Associated with Smoking Cigarettes with Low-Measured Yields of Tar and Nicotine, Smoking and Tobacco Control Monograph 13. Bethesda, Maryland: US Department of Health and Human Services, Public Health Service, National Institutes of Health; 2001.

³ U.S. Department of Health and Human Services. The Health Consequences of Smoking: A Report of the Surgeon General. Atlanta: U.S. Department of Health and Human Services, Centres for Disease Control and Prevention, National Centre for Chronic Disease Prevention and Health Promotion, Office on Smoking and Health; 2004.

⁴ Bitton A, Neuman MD, Barnoya J, Glantz SA. The p53 gene and the tobacco industry: research, debate, and conflict of interest. The Lancet. 2005;365(9458).

⁵ Australian Institute of Health & Welfare (AIHW) & Australasian Association of Cancer Registries (AACR). Cancer in Australia: an overview, 2010. AIHW Cancer Series No. 60. Cat No. CAN 56. Canberra: AIHW; 2010.

⁶ Australian Institute of Health & Welfare (AIHW) & Australasian Association of Cancer Registries (AACR). Cancer in Australia: an overview, 2008. AIHW Cancer Series No. 46. Cat No. CAN 42. Canberra: AIHW; 2008.

⁷ International Agency for Research on Cancer (IARC). Tobacco Smoke and Involuntary Smoking, IARC Monographs on the Evaluation of Carcinogenic Risks to Humans, Vol. 83. Lyon, France: IARC; 2004.

⁸ Australian Institute of Health and Welfare (AIHW) and Australasian Association of Cancer Registries (AACR) 2001. Cancer survival in Australia, 2001. Part 1: National summary statistics. AIHW cat. no. CAN 13. Canberra: Australian Institute of Health and Welfare (Cancer Series No. 18).

⁹ American Cancer Society. Overview: Colon and Rectum Cancer [homepage on the Internet]. c2010 [updated 2009 July 5; cited 2010 February 1]. Available from: http://www.cancer.org/docroot/CRI/content/CRI_2_2_2X_What_causes_colorectal_cancer.asp?sitearea.

¹⁰ Uronis H, Bendell J. Anal Cancer: An Overview. The Oncologist. 2007;12:524-534.

¹¹ Cancer Research UK. Risks and causes of anal cancer [homepage on the internet]. c2009 [updated 2009 January 6; cited 2009 January 15]. Available from <http://www.cancerhelp.org.uk/type/anal-cancer/about/risks-and-causes-of-anal-cancer>.