

Artificial tanning and cancer

Skin cancer prevalence and cost

Melanoma and non-melanoma are the most common types of cancer, accounting for over one-third of all new cancer cases diagnosed in Alberta.¹ In 2006, 6,334 new cases of skin cancer and 104 deaths were recorded by the Alberta Cancer Registry.¹ These incidence rates are on the rise, with rates more than doubling from 1986 to 2006.¹ Additionally, the risk of getting other types of cancer increases significantly if you have had skin cancer in the past.²

Skin cancer presently costs Albertans an estimated \$343.6 million dollars a year in direct and indirect costs, and by 2015 could increase to over half a billion dollars.³

Ultraviolet radiation

Natural sun exposure can both cause and offer protection against cancer. Solar ultraviolet radiation (UVR) is the chief natural source of vitamin D for most Albertans. Recent studies indicate that there are strong links between cancer prevention and vitamin

D.⁴ However, sunlight can also cause cancer. In the short term, overexposure to UVR can lead to sun burn, and in the long term can increase the risk of skin cancer, cause premature aging of the skin, eye damage and a weakened immune system.⁵ Exposure to artificial UVR has been shown to be an unnecessary carcinogenic risk and should be avoided.⁶

A carcinogen is defined as any substance or agent that causes cancer.

A World Health Organization agency has recently upgraded artificial UVR emitted through tanning devices to a Group 1 carcinogen which also includes arsenic, mustard gas, and tobacco.⁷ The International Agency for Research on Cancer (IARC) conducted a meta-analysis review of human carcinogens. The study noted that the risk of cutaneous melanoma is increased by 75% for people who have used tanning beds before 35 years of age compared to those who have never used them.⁸

At least a quarter of an individual's lifetime UVR exposure occurs before 18 years of age. Limiting ultraviolet radiation exposure during childhood and adolescence is therefore a significant factor in reducing skin cancer risk.⁹

Classification of carcinogens

<i>Classification</i>	<i>Effect of the agent (mixture) on humans</i>	<i>Exposure circumstance entails exposures that are</i>
Group 1	carcinogenic	carcinogenic to humans
Group 2A	probably carcinogenic	probably carcinogenic to humans
Group 2B	possibly carcinogenic	possibly carcinogenic to humans
Group 3	not classifiable	not classifiable
Group 4	probably not carcinogenic	

Artificial tanning










In addition to increasing cancer risk, exposure to UVR from artificial tanning also can cause premature aging, suppress the immune system, cause cataracts and eye damage, and other skin conditions.¹⁰ Ultraviolet radiation exposure through indoor tanning equipment has been linked to all forms of skin cancer, with the risk increasing by more than 50% for those who utilize indoor tanning more than 10 times per year.^{11,12} There are also many risks associated specifically with the use of artificial tanning equipment, including the intensity of the machines and the amount of skin area exposed.¹³ Some tanning equipment can emit ultraviolet radiation up to 10 to 15 times higher than the sun at noon.¹⁴ Furthermore, redness or burning is reported by 18% to 55% of artificial tanning users in Europe and North America.¹⁵

A survey of Albertans found that 83% believed that others look good with a tan.¹⁶ These statistics highlight the strong social norm within our culture that having tanned skin is acceptable, safe and healthy. Artificial tanning is often promoted as a way to obtain adequate amounts of vitamin D during Alberta's long winter months when the ability to metabolize vitamin D via the sun is minimal.¹⁷ However, the majority of the population can safely obtain adequate levels of vitamin D throughout the year through a healthy diet and occasional sun exposure accompanied by protective measures, thereby avoiding carcinogenic risks associated with artificial tanning.¹⁸

The social desirability of a tan is also reflected in the use of artificial tanning equipment; it is estimated that 21% of Albertans between 16-24 years of age used tanning equipment in 2006, the highest provincial rate in the country.¹⁹ Since 2006, artificial tanning for cosmetic purposes has continued to gain popularity, especially with young adults and women.⁸

Studies have shown that artificial tanning salons actively market their product to minors.²⁰ A 2004 study from the United States reported that 24% of youth 13-19 have used indoor tanning equipment, while in a survey from the UK, 48% of children aged 8-11 reported a desire to use a sunbed.¹⁵ By reducing the social desirability and acceptability of a

Percentage of Albertans who used artificial tanning equipment over the past year, by sex and age^{16,21}

Total		12%
Sex:		
Male		8%
Female		16%
Age:		
16 to 24 years		21%
25 to 34 years		12%
35 to 44 years		11%
45 to 54 years		13%
55 to 64 years		8%
65 years +		2%

tan, as well as restricting access to artificial tanning equipment, fewer people will be exposed to artificial UVR and, as a result their risk of skin cancer will be reduced.

Artificial tanning legislation

Scotland, Germany, France, 21 states in the United States, and five Australian states have banned youth from using sun beds.²² In Canada, Saskatchewan has adopted regulations that address the use of artificial tanning equipment. Ontario is currently developing a policy which would ban minors from tanning.

Compliance with artificial tanning regulation is greater if compliance is monitored.²³ Currently Health Canada has voluntary "Guidelines for Tanning Salon Owners, Operators and Users." These guidelines specifically note that operators must obtain parental consent to allow youth under the age of 16 to use their equipment and then undertake a thorough assessment of their underage clients' skin types. However, a sun safety study conducted by the Canadian Cancer Society (CCS) found that 60% of tanning facilities in Toronto did not ask the age of tanners or assess their type of skin for the possibility of it burning, and 99% did not advise those who would have a high probability of



burning not to tan.²⁴ As radiation emitting devices, ultraviolet tanning lamps are regulated by the federal government.

Tanning salons and salon workers in Canada²⁵

Province	Salons	Workers
Alberta	390	1,666
British Columbia	379	1,732
Manitoba	111	468
New Brunswick	90	331
Newfoundland	71	242
NW Territories	5	35
Nova Scotia	136	572
Nunavit	1	3
Ontario	872	3,603
PEI	20	97
Quebec	789	2,642
Saskatchewan	104	578
Yukon	3	12
Total	2,971	11,981

Strategies to address cancer caused by artificial tanning

- Join a growing body of researchers, organizations and advocates to call for stronger regulations.^{26,27,28}
- Discourage all Albertans from using this equipment for cosmetic purposes.
- Prohibit the use of artificial tanning equipment to children under the age of 18.
- Avoid exposure to artificial ultraviolet radiation.

Find out more

- Canadian Cancer Society
www.cancer.ca/
- Canadian Partnership Against Cancer
www.partnershipagainstcancer.ca/
- International Agency for Research on Cancer
www.iarc.fr/
- World Health Organization
www.who.int/en/

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