ALCOHOL & CANCER

An Information Sheet for Health Professionals

BC CANCER
Provincial Health Services Authority

The proof has never been stronger. Drinking alcohol of any kind is a risk factor for at least seven types of cancer. Less consumption means less risk of cancer.

KEY MESSAGES

- Alcohol contains known carcinogens that can increase the risk of several types of cancer. The link between alcohol and cancer has been studied extensively and is widely recognized by the medical and scientific community.
- Alcohol consumption contributes to roughly 7,000 cancer cases each year in Canada. Most of those cases are breast or colon cancer, followed by cancers of the rectum, mouth and throat, liver, esophagus and larynx.
- Canada's Guidance on Alcohol and Health advises that the more alcohol a person consumes, the higher their risk of developing cancer. Even one drink per day increases cancer risk.
- It is recommended that adults consider reducing their consumption to 2 standard drinks or less per week.
- Health professionals should be aware of the link between alcohol and cancer and be prepared to discuss this with their clients or patients, particularly those who drink regularly or heavily.

Summary

In January 2021, two-thirds (66%) of Canadians aged 15 or older reported consuming alcohol at least once in the previous 30 days, making it the most used psychoactive substance in Canada.[1] One of the most serious long-term consequences of alcohol consumption is cancer.

According to the International Agency for Research on Cancer (IARC), alcohol is classified as a Group 1 carcinogen, meaning it is a known cause of cancer in humans. In fact, in 2020 alone, alcohol consumption was responsible for more than 741,000, or 4.1 per cent, of all new cancer cases worldwide, with 7,000 cases in Canada.[2]

Although heavy drinking patterns represented the largest cancer burden, researchers estimated that even light to moderate drinking—less than 20 g, or roughly one to two drinks, per day—contributed to more than 100,000 cases worldwide in 2020, or one in seven.[2]

> Many Canadians don't know that alcohol causes cancer.
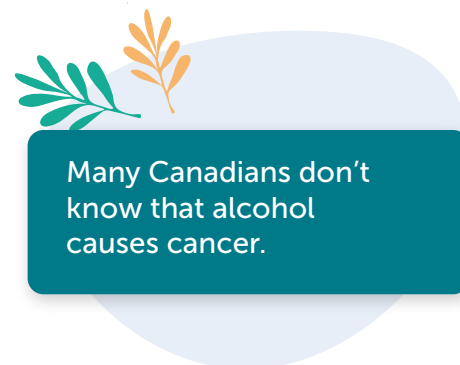
Despite the evidence, many Canadians don't know that alcohol causes cancer and many still believe there are health benefits to alcohol. Here in B.C., survey data in 2022 show that 70 per cent of adults 19 and older believed small amounts of alcohol can be beneficial, 61 per cent reported that alcohol in moderation doesn't do any harm, and only 56 per cent believed that any level of alcohol can have a negative impact.[3]

Alcohol and Health

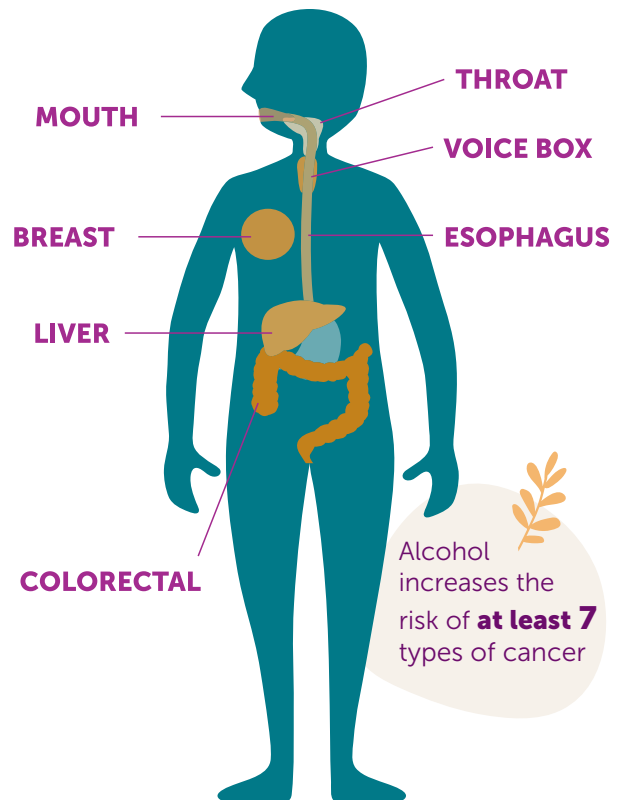## What types of cancer are linked to alcohol consumption?

1. Breast
2. Colon
3. Rectum
4. Mouth and throat (pharynx)
5. Liver
6. Esophagus
7. Larynx

There is limited but suggestive evidence that alcohol may also be linked to an increased risk of other cancers, such as lung, pancreatic and skin cancer.[4] However, more research is still needed in this area.

How does alcohol cause cancer?

Several mechanisms may account for alcohol's role in cancer development:[4, 5, 6, 7]

- **Production of acetaldehyde**: When alcohol (ethanol) is ingested, it is metabolized in the liver into a compound called acetaldehyde. Acetaldehyde has been shown to cause mutations in DNA and to interfere with DNA repair mechanisms.

- **Oxidative stress**: Alcohol consumption can increase the production of free radicals in the body, such as reactive oxygen species, which can cause oxidative stress and damage to cells. These free radicals can react with DNA, proteins, and other molecules in the body, causing damage that can lead to mutations and the development of cancer.

- **Hormone changes**: Alcohol consumption can increase the production of estrogen, a hormone that can promote the growth and proliferation of breast cancer cells. This effect is thought to occur because alcohol can interfere with the metabolism of estrogen, leading to higher levels of the hormone in the body.

- **Cell damage**: Alcohol can affect the cells in various parts of the body making it easier for other cancer-causing substances to be absorbed. For example, alcohol can dissolve and facilitate the absorption of tobacco smoke into the cells of the mouth and throat, increasing the risk of cancers of the oral cavity, pharynx and larynx.

- **Inflammation**: Heavy alcohol consumption can lead to inflammation and scarring of the liver (cirrhosis). This can increase the risk of liver cancer by promoting the growth of abnormal cells and impairing the liver's ability to function properly.

- **Nutritional deficiencies**: Alcohol can interfere with the absorption of nutrients that are important for cellular health and DNA synthesis, such as folate. Folate deficiency is associated with colorectal cancer, among others. In addition, the diets of people who consume large volumes of alcohol may be lacking essential vitamins, which may make body tissues more susceptible to carcinogenesis.

- **Unwanted weight gain**: While weight gain itself is not a direct mechanism by which alcohol consumption contributes to cancer, it is an indirect factor that can increase cancer risk. Alcohol is high in calories and can contribute to weight gain if consumed in excess. Excess weight, particularly around the waist, has been linked to an increased risk of at least 13 cancer types, including cancers of the esophagus, breast, liver, gallbladder, kidney, colon, rectum and others.

MOUTH
THROAT
VOICE BOX
BREAST
ESOPHAGUS
LIVER
COLORECTAL

Alcohol increases the risk of **at least 7** types of cancer

What are the recommended guidelines for alcohol consumption?

[Canada's Guidance on Alcohol and Health](#) helps people make well-informed decisions about alcohol use and their health. It presents a clear continuum of health risks associated with different levels of consumption, whereby the risk is:

- **Negligible to low** for individuals who consume 2 standard drinks or fewer per week

- **Moderate** for those who consume between 3 and 6 standard drinks per week

- **Increasingly high** for those who consume 7 or more standard drinks per week, with the health risks increasing with every additional drink

The guidelines also suggest that, above moderate levels of drinking (i.e., above 6 standards per week), the lifetime health risks increase more steeply for women than for men. Biological factors, such as enzymes, body size and body fat/water ratio, enhance the impact of alcohol on females, causing higher blood alcohol levels, faster intoxication and more risk for disease, including breast cancer and liver damage.[8]

A standard drink means:

Beer
341 ml (12 oz.), 5% alcohol

Cooler / cider / hard seltzer
341 ml (12 oz.), 5% alcohol

Wine
142 ml (5 oz.), 12% alcohol

Spirits (whiskey, vodka, gin, etc.)
43 ml (1.5 oz.), 40% alcohol

Updates to Canada's Low-Risk Drinking Guidelines

The Guidance on Alcohol and Health is intended to replace the 2011 [Low-Risk Alcohol Drinking Guidelines](#) (LRDG), which suggested low-risk consumption limits of up to 15 standard drinks per week for men and 10 for women. Since the LRDG were established, Canadian alcohol consumption has changed and evidence of alcohol's harms has evolved, with studies showing that even small quantities can be harmful.

The new guidance is informed by the most current and best available scientific evidence. It reflects more than two years of research drawn from global studies, mathematical modelling, consultations with the public and experts, and a review of nearly 6,000 peer-reviewed studies and about 1,000 survey submissions from the public.

Notably, the careful review process also identified much weaker evidence than before for the hypothesis that low to moderate amounts of alcohol can protect against cardiovascular disease, including hypertension, heart failure, high blood pressure and stroke. This finding is consistent with a World Heart Federation statement released in 2022, advising that the research behind these claims are questionable and, at best, extremely weak.[9]

The project was led by the Ottawa-based Canadian Centre on Substance Use and Addiction (CCSA) with funding from Health Canada.

For Canada's Guidance on Alcohol and Health as well as background information and supporting documents, please visit [ccsa.ca/canadas-guidance-alcohol-and-health](#).

Opportunities for Intervention

Public health practitioners, health care providers, community partners and others can all play an important role in helping people reduce their alcohol consumption and lower their risk of cancer. They can:

- **Ask about alcohol consumption**: In alignment with the BC Lifetime Prevention Schedule, health professionals can routinely ask patients aged 19 and older about their alcohol consumption and advise them on how to reduce their consumption if necessary.

  Screening and brief intervention are effective ways to reduce alcohol use. Research has shown that many screened patients reduce their drinking simply because they were asked about their consumption, and effective screening for problem drinking can be completed in as little as 5 minutes.[10]

  For specific guidance, practitioners can refer to the BC Problem Drinking Guidelines released by the Ministry of Health.

  For more resources related to alcohol screening and brief interventions, visit ccsa.ca/resources-alcohol.

- **Encourage screening**: Health professionals and community partners can encourage patients and clients who drink alcohol to continue with regular screening for common cancers related to alcohol consumption, such as breast and colorectal cancer, particularly if they have a family history of cancer or other risk factors.

  Visit screeningbc.ca for more information about the provincial screening programs.

- **Support awareness-raising initiatives**: Health professionals, educators, support workers, policymakers and the media among others all have a role to play in raising public awareness about the alcohol-cancer link. Research suggests improving knowledge of alcohol's health risks, such as cancer, may be an effective strategy for increasing public support for effective alcohol policies controlling price, marketing and availability.[11]

- **Offer support:** Health care providers and allied health professionals often see the impact of alcohol on people's well-being and are thus well-placed to offer non-judgmental support to patients who are trying to reduce their alcohol consumption, such as referring them to support groups, counselling services, treatment programs or other local services. They can also offer support to families and caregivers of those struggling with alcohol use.

  For a list of some resources and supports, visit the-proof.ca/reduce-your-risk/

The proof

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