Alcohol & Cancer

ALCOHOL INCREASES THE RISK FOR SEVERAL TYPES OF CANCER

Even low and moderate intake of alcohol can increase your risk for cancer, including:

- Mouth and throat
- Voice box
- Esophagus
- Breast (in women)
- Liver
- Rectal and colon[1-3]

In a nationally representative survey of U.S. adults, while 80% of people knew tobacco was a risk factor for cancer, only 30% correctly identified alcohol as a risk factor for cancer.[4] Alcohol is engrained in U.S. culture and is often included as part of social events. A large majority (86.4%) of adults reported drinking alcohol at some point in their life, so it is important that everyone understands the risks associated with alcohol consumption.[5]

Minnesota has one of the highest binge drinking rates in the nation—in 2017, 20% of adults reporting binge drinking, compared to 17% of all U.S. adults.[6] Binge drinking is defined as having four or more drinks on one occasion for women, or five or more drinks for men. The most common ages for cancer diagnoses are later in life, between the ages of 65-74, however young adulthood is a key period to form healthy lifestyle habits for cancer prevention[7]—and young adults in their 20's are the most likely age group to report binge drinking.[6]

Unfortunately, binge drinking alone is not the problem. There is a dose-response relationship between alcohol use and cancer, meaning that cancer risk increases with every alcoholic beverage consumed.[8-10] At this time, we cannot determine a "safe" amount of alcohol consumption.

In 2016, cancer was the leading cause of death in Minnesota, and an estimated 316-364 of those deaths were related to alcohol.[2] Given that alcohol consumption is a modifiable lifestyle choice, there is work to be done to prevent unnecessary deaths and reduce cancer risk among Minnesotans and nationally.

Research evidence for alcohol's impact on cancer:

Alcohol can increase the risk for multiple cancers in various amounts depending upon how much one drinks.

Type of cancer	Absolute Risk for Cancer Development per the National Cancer Institute	Light drinker (≤1 drink/day)[4] vs. non-drinker Relative Risk (95% CI)	Moderate drinker (1-4 drinks/day)[4] vs. non-drinker Relative Risk (95% CI)	Heavy drinker (>4 drinks/day)[4] vs. non-drinker Relative Risk (95% CI)
Mouth & throat	1.1%	1.13 (1.0-1.26)	1.83 (1.62-2.07)	5.13 (4.31-6.10)

Esophageal	0.5%	1.26 (1.06-1.50)	2.23 (1.87-2.65)	4.95 (3.86-6.34)
Voice box	0.3%	0.87 (0.68-1.11)	1.44 (1.25-1.66)	2.65 (2.19-3.19)
Liver	1.0%	1.0 (0.85-1.18)	1.08 (0.97-1.20)	2.07 (1.66-2.58)
Breast (female)	12.4%	1.04 (1.01-1.07)	1.23 (1.19-1.28)	1.61 (1.33-1.94)
Colon & rectum	4.3%	0.99 (0.95-1.04)	1.17 (1.11-1.24)	1.44 (1.25-1.65)

It is important to consider the actual risk for developing different types of cancer in one's life. Unfortunately, the exact risk each person has for different types of cancers is difficult to discern. Each individual has their own risk for the development of different types of cancers based on their own genetics and behavioral lifestyle choices. For example, someone who chooses to smoke is at greater risk for lung cancer than someone who does not smoke. Similarly, someone who frequently uses a tanning bed is at greater risk for skin cancer than someone who doesn't use a tanning bed often, spends time indoors, and uses ample sunscreen when outside.

As of now, there is no one type of alcohol that is more risky than another is. It is not the type of alcohol, but the amount of alcohol and number of drinks that determines the total risk.[11]

How alcohol causes cancer:

In the body, alcohol is turned into acetaldehyde, a known carcinogen. The body can process smaller amounts, but when large amounts of alcohol are consumed, acetaldehyde builds up in the body. This build up of the toxic chemical damages DNA and prevents it from repairing. Cells can begin growing out of control, which can lead to cancerous tumors.

Acetaldehyde can cause:

- Mistakes in DNA
- Chromosome rearrangements
- DNA to bind and form clumps

Although acetaldehyde is most commonly used to explain the association between alcohol and cancer, there are some other potential mechanisms. For example:

- Contaminants that are introduced during fermentation and production can be linked to cancer.[12]

- Heavy alcohol consumption can cause liver cirrhosis, which increases the risk for cancer
- Alcohol increases levels of estrogen, which contribute to breast cancer risk[12]
- Alcohol can increase the absorption of other cancer-causing agents in, for example, tobacco, which is also a known carcinogen[13]
- Alcohol can affect the absorption and metabolism of other nutrients, for example, folate, which can contribute to cancer.[12]

What can we do?

As individuals, we can work to limit excessive alcohol intake and stay up to date on alcohol and cancer related research and recommendations. As communities, we can work to promote policies and practices that reduce excessive drinking among adults and reduce drinking among minors.

References

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Suggested Citation

Olzenak K, Gloppen K. Alcohol and Cancer. Saint Paul, MN: Minnesota Department of Health, August 2019.

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8/5/2019