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Deep Link Between Alcohol and Cancer Described in New Report

Analysis by Dr. Joseph Mercola | November 07, 2024

STORY AT-A-GLANCE

- The American Association for Cancer Research's 2024 report reveals a significant link between alcohol consumption and cancer risk, with 5.4% of U.S. cancer cases in 2019 attributed to alcohol — and this is likely an underestimate
- Six types of cancer are directly linked to excessive alcohol consumption: liver, breast, colorectal, esophageal, stomach, and head and neck cancers
- Even light drinking increases cancer risk. A U.K. Biobank study found that low levels of alcohol consumption raise cancer mortality risk, especially in vulnerable populations
- Alcohol's carcinogenic effects begin in the mouth, where bacteria convert it to acetaldehyde. It also disrupts hormones, gut health, mitochondrial function and sleep patterns, further increasing cancer risk
- Abstaining from alcohol is the best prevention. For those who drink, taking N-acetylcysteine (NAC) supplements before consuming alcohol may help reduce its harmful effects

The American Association for Cancer Research (AACR) has released its 2024 Cancer Progress Report,[1] which reveals a significant link between alcohol consumption and cancer risk. While many are aware of alcohol's detrimental effects on liver health, its role in cancer development is less widely recognized.

Yet, according to the report, 5.4% of all cancer cases in the U.S. in 2019 were attributed to alcohol consumption.[2] This statistic likely underestimate alcohol's true toll on cancer incidence, however, as some experts believe **alcohol may contribute to 1 in 3 cancers** — and even this estimate could be low.

Six Cancers Closely Linked to Alcohol

Moderate alcohol consumption, once thought to be harmless or even beneficial, is now recognized as detrimental to health, with no safe level of alcohol consumption. AACR's report underscores the urgent need for increased awareness and action to mitigate this preventable risk factor.

Yet, 51% of Americans are unaware that alcohol consumption increases their risk of certain types of cancer.[3] The AACR report identifies six types of cancer that are directly linked to excessive alcohol consumption:[4]

Liver cancer	Breast cancer	Colorectal cancer
Esophageal cancer	Stomach cancer	Head and neck cancers

The good news is that reducing or eliminating your alcohol consumption has a significant positive impact on your cancer risk. According to the AACR report, individuals who decrease their alcohol intake or stop drinking altogether lower their risk of developing alcohol-related cancers by 8%.

This reduction in alcohol consumption is associated with a 4% decrease in the risk of all types of cancer compared to those who maintain or increase their alcohol intake.[5]

New Study Challenges Assumed Benefits of Light Drinking

A recent study from the U.K. Biobank cohort added to the growing evidence that even moderate and light drinking increases cancer risk.[6] The research, involving 135,103

older adults, found that low levels of alcohol consumption increase cancer mortality risk, especially among individuals with health-related or socioeconomic risk factors.

This finding contradicts previous studies that reported protective effects of moderate alcohol consumption on cardiovascular disease and overall mortality. The difference may be due to improved methodology in this study, which used occasional drinkers as a reference group rather than lifetime abstainers, avoiding selection biases that have plagued earlier research.

In this study, drinking patterns were categorized based on daily alcohol consumption. Occasional drinkers were defined as those consuming 2.86 grams or less of alcohol per day, equivalent to about 1.4 drinks or fewer per week. Low-risk drinkers were men consuming more than 2.86 but no more than 20 grams daily (about one to 10 drinks weekly), and women consuming more than 2.86 but no more than 10 grams daily (about one to five drinks weekly).

Moderate-risk drinkers included men consuming between 20 and 40 grams daily (10 to 20 drinks weekly) and women consuming between 10 and 20 grams daily (five to 10 drinks weekly).

High-risk drinkers were classified as men consuming over 40 grams daily (more than 20 drinks weekly) and women consuming over 20 grams daily (more than 10 drinks weekly). For reference, a standard U.S. drink contains about 14 grams of pure alcohol, roughly equivalent to a 12-ounce beer, a 5-ounce glass of wine or a 1.5-ounce shot of spirits.

Compared to occasional drinkers, low-risk drinkers had higher cancer mortality, moderate-risk drinkers showed increased all-cause and cancer mortality and high-risk drinkers faced elevated risks across all-cause, cancer and cardiovascular disease mortality categories.[7]

Your socioeconomic status and overall health also play a role in how alcohol affects your mortality risk. The negative impacts of alcohol consumption were more pronounced in individuals with health-related and socioeconomic risk factors. Among

these groups, even low-risk drinkers showed higher mortality rates, particularly from cancer.

Alcohol's Destructive Path in Your Mouth and Throat

When you drink, the ethanol in alcoholic beverages is metabolized into acetaldehyde, a highly mutagenic compound. This process begins right in your oral cavity, where bacteria and yeast in your normal mouth flora convert alcohol into acetaldehyde. The longer ethanol lingers in your body, the more acetaldehyde accumulates in your saliva.[8]

Mutagenic levels of acetaldehyde can be reached by drinking diluted vodka in as little as 20 to 40 minutes. This localized buildup of a cancer-causing agent puts the delicate tissues in your mouth at significant risk for DNA damage and cellular changes that lead to tumor formation.

As a result, alcohol is one of the top risk factors for oral cancer, and the risk increases in combination with tobacco use.[9] The ethanol in alcoholic drinks acts as a solvent, enhancing the penetration of tobacco-specific carcinogens into the oral mucosa. Additionally, alcohol dehydrates cell membranes, making them more permeable to harmful substances. Alcohol also interferes with DNA repair mechanisms.

Esophageal cancer also shows a strong link to alcohol consumption. After removing outlier genetic variants, a study published in Epidemiologia found that alcohol intake was associated with a 3.44 times higher risk of developing esophageal cancer.[10]

In your esophagus, where the tissue is particularly vulnerable, DNA damage from acetaldehyde may lead to mutations and eventually cancer. The study also found an increased risk for biliary tract cancer, with alcohol consumption raising the risk by 3.86 times.

Alcohol Harms Your Hormonal Balance and Gut Health

Another one of alcohol's insidious risks is its effects on your hormones, particularly the balance between testosterone and estrogen. Alcohol increases the conversion of testosterone to estrogen,[11] which has various negative effects in both men and women. Estrogens are one of the primary factors that increase your cancer risk.

Alcohol also increases cancer risk via other mechanisms, including not only acetaldehyde toxicity but also inflammation, leaky gut and weakened immune function. Drinking alcohol also disrupts sleep, which means you're not getting a restorative night's sleep when you drink, another cancer risk factor.

Drinking alcohol negatively affects your gut microbiome and gut-liver-brain axis, a bidirectional communication network that links these three crucial systems in your body. Alcohol's antimicrobial properties, which make it effective for sterilization, also indiscriminately kill beneficial gut bacteria.

For instance, alcohol consumption decreases Akkermansia muciniphila, a beneficial bacterial species naturally found in the human gut.[12] This, in turn, is associated with "dysregulation of microbial metabolite production, impaired intestinal permeability, induction of chronic inflammation, and production of cytokines."[13]

How Alcohol Wreaks Havoc in Your Body

To comprehend the full impact of alcohol on your health, understanding the intricate processes that unfold within your body when you consume it is important. The metabolization of alcohol is an energy-intensive process that depletes your body of essential nutrients and cofactors. This substantial energy demand puts a considerable strain on your system, compromising various aspects of your health.

This metabolic process also generates harmful byproducts, with acetaldehyde being a notable example. This toxic compound inflicts damage on your cells, not only affecting them directly but also disrupting your body's overall physiological equilibrium.

The ripple effects of alcohol consumption extend to your endocrine system, throwing your hormones and blood sugar levels off balance. These disruptions manifest as mood

fluctuations and erratic energy levels, while also paving the way for chronic health conditions such as diabetes and thyroid disorders.

Additionally, your liver, which plays a pivotal role in neutralizing harmful substances, may become overburdened. When your liver's efficiency is compromised, its ability to process other toxins diminishes, leading to a buildup of harmful substances in your body.

The impact of alcohol isn't limited to your internal organs; it also affects your digestive tract. By damaging the lining of your gut and disturbing the delicate balance of your microbiome — the complex ecosystem of microorganisms residing in your digestive system — alcohol undermines both your digestive health and immune function.

This disruption triggers a range of issues, from immediate digestive discomfort to increased susceptibility to infections and long-term health complications.

In fact, consuming alcohol shares similarities with consuming excessive omega-6 fats, such as **linoleic acid**, in terms of the damaging compounds they produce. When metabolized, these substances generate oxidized linoleic metabolites, known as OXLAMs.

The common thread among these molecules is their nature as reactive aldehydes. Alcohol, as mentioned, transforms into a reactive aldehyde called acetaldehyde. These reactive aldehydes wreak havoc throughout your body, causing damage to mitochondria — your cells' powerhouses — and accelerating the aging process at a cellular level.

Alcohol Damages Your Mitochondrial Function

In the past, I occasionally indulged in alcoholic beverages, but that changed after I looked further into the research on alcohol's health effects. Armed with this knowledge, I've made the decision to abstain completely. I urge you to critically examine your own alcohol consumption habits — dive into the scientific literature yourself. Weigh the momentary enjoyment of drinking against the scientifically proven harm it inflicts on your system.

The most effective method to prevent alcohol's negative impacts is abstaining from drinking altogether. However, if you intend to consume alcohol, taking **N-acetylcysteine (NAC)** supplements beforehand serves as a protective measure. NAC, derived from the amino acid cysteine, enhances glutathione production and helps counteract acetaldehyde toxicity, which is a major factor in hangover symptoms.

Consuming a minimum of 200 milligrams of NAC approximately 30 minutes prior to drinking may help lessen alcohol's harmful effects. It's believed that combining NAC with vitamin B1 (thiamine) may increase its effectiveness.

For optimal health, however, consider avoiding alcohol completely and instead exploring the underlying reasons why you're drinking alcohol. Whether it's due to stress, social pressures or just habit, look for alternative methods to fulfill these needs. This might include choosing social activities that don't involve drinking, embracing **alternative methods for stress reduction** or changing your routine so you're not tempted to drink.

These revelations about alcohol's effects are part of a broader investigation I've conducted into the core factors influencing health and longevity. At the heart of this research lies the crucial role of mitochondrial health. I explore this topic in depth in my book, "Your Guide to Cellular Health: Unlocking the Science of Longevity and Joy," where I reveal that enhancing mitochondrial function is essential for both preventing and reversing long-term illnesses.

Alcohol consumption is just one of several key factors that negatively impact mitochondria and speed up the aging process. Other significant contributors include an overabundance of omega-6 fatty acids, exposure to electromagnetic fields (EMFs) and chemicals that disrupt your endocrine system. By eliminating these harmful influences and prioritizing the health of your cells, you have the ability to significantly enhance your overall well-being and extend your lifespan.

Sources and References

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