

Alcohol use in adults and its impact on health

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To alcohol!
The cause of -and solution to-
all of lifes problems.



MATT
GROENING

What is a drink?

My Doctor said "Only 1 glass of alcohol a day". I can live with that.



Which of the following are standard drinks in the US? (select all that apply)

12 oz beer

3 oz 80-proof spirits
(whiskey, tequila)

3 oz wine

Poll 1

- Which of the following are standard drinks in the US?
(select all that apply)
 - a) 12 oz beer
 - b) 3 oz 80-proof spirits (whiskey, tequila)
 - c) 3 oz wine



What is a standard drink in the US? (14 grams of ethanol)

1 bottle of
beer or ale
12 oz.



1 shot of
80-proof
spirits
1.5 oz.



1 glass of
wine
4-6 oz.



1 can malt
liquor
8 oz.



1 glass of liqueur,
aperitif, or
fortified wine
3-4 oz.



U.S. Guidelines for Low-Risk Drinking

- **Men under age 65**
≤ 4 drinks on any day and ≤ 14 drinks per week
- **Nonpregnant women and men 65 and over**
≤ 3 drinks on any day and ≤ 7 drinks per week

Why do guidelines differ by gender and age? Due to differences in...

physiology

prevalence of negative
outcomes from alcohol

comorbidity

Poll 2

- Why do guidelines differ by gender and age?
 - Differences in
 - a) **physiology**
 - b) prevalence of negative outcomes from alcohol
 - c) **comorbidity**



Why do guidelines differ by gender and age?

- **Women:** Lower body size and reduced activity of gastric dehydrogenase (enzyme that metabolizes alcohol)
- **Women and Older Adults:** Lower percentage of body weight composed of water which results in a higher blood alcohol level for given amount of alcohol intake
- **Older Adults:** Increased psychomotor effects, comorbid conditions, medications used

**Mr. J is an 80 year old who drinks two 12 oz beers every day.
Would you have any concerns about his drinking given what
you have learned so far?**

Yes

No

Case presentation/Poll 3 ANSWER

- Mr. J is an 80 year old who drinks two 12 oz beers every day.
- Would you have any concerns about his drinking given what you have learned so far?
 - a) Yes –his drinking exceeds low risk drinking limits.
 - b) No

Prevalence of 12-Month Alcohol Use, High-Risk Drinking, and *DSM-IV* Alcohol Use Disorder in the United States, 2001-2002 to 2012-2013

Results From the National Epidemiologic Survey on Alcohol and Related Conditions

Bridget F. Grant, PhD¹; S. Patricia Chou, PhD¹; Tulshi D. Saha, PhD¹; [et al](#)

[» Author Affiliations](#) | [Article Information](#)

JAMA Psychiatry. 2017;74(9):911-923. doi:10.1001/jamapsychiatry.2017.2161

	2001-2 Prevalence (%)	2012-13 Prevalence (%)	% Change
Alcohol Use	65.4	72.7	↑ 11.2
High-Risk Drinking*	9.7	12.6	↑ 29.9
DSM-IV Alcohol Use Disorder	8.5	12.7	↑ 49.4

*High-risk drinking is 5+ drinks per occasion for men (4+ for women) at least weekly

Drinking among adults aged ≥ 65 years

NESARC 2001-2 and 2012-13

	2001-2 Prevalence (%)	2012-13 Prevalence (%)	% Change
12-month Alcohol Use	45.1	55.2	↑ 22.4
High-Risk Drinking*	2.3	3.8	↑ 65.2
DSM-IV Alcohol Use Disorder	1.5	3.1	↑ 106.7

*High-risk drinking is 5+ drinks per occasion for men (4+ for women) at least weekly

Which of these are reduced with low risk drinking?

Diabetes

Colon cancer

Coronary artery disease

Poll 4

- Which of these are reduced with low risk drinking?
 - a) Diabetes
 - b) Colon cancer
 - c) Coronary artery disease



ANSWERS



"Not much—just flushing out my arteries."

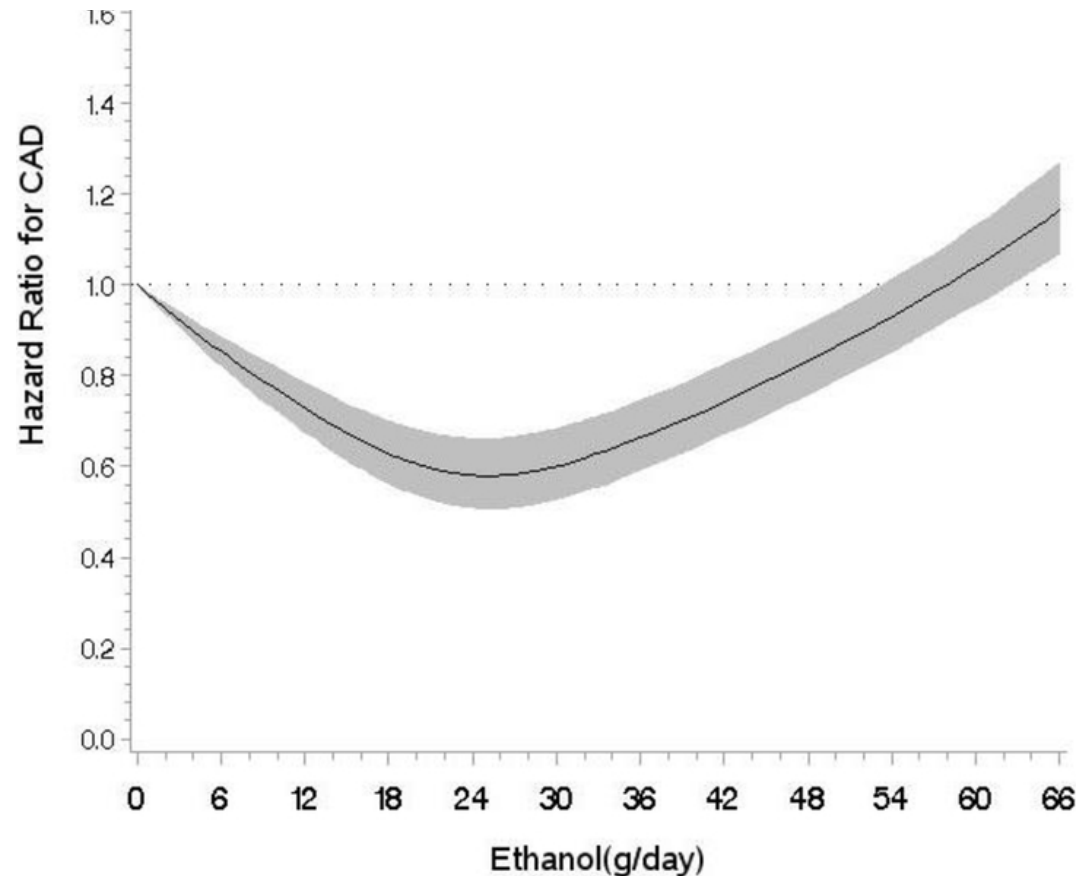
Conditions that may be prevented by low-risk alcohol use

- Coronary heart disease
- Gall stones
- Ischemic stroke
- Diabetes
- Osteoporosis
- Dementia
- Disability

Mukamal et al. ACER 2016,
Gunzerath et al, ACER 2004

Alcohol Consumption and Risk of Coronary Artery Disease (From The Million Veteran Program)

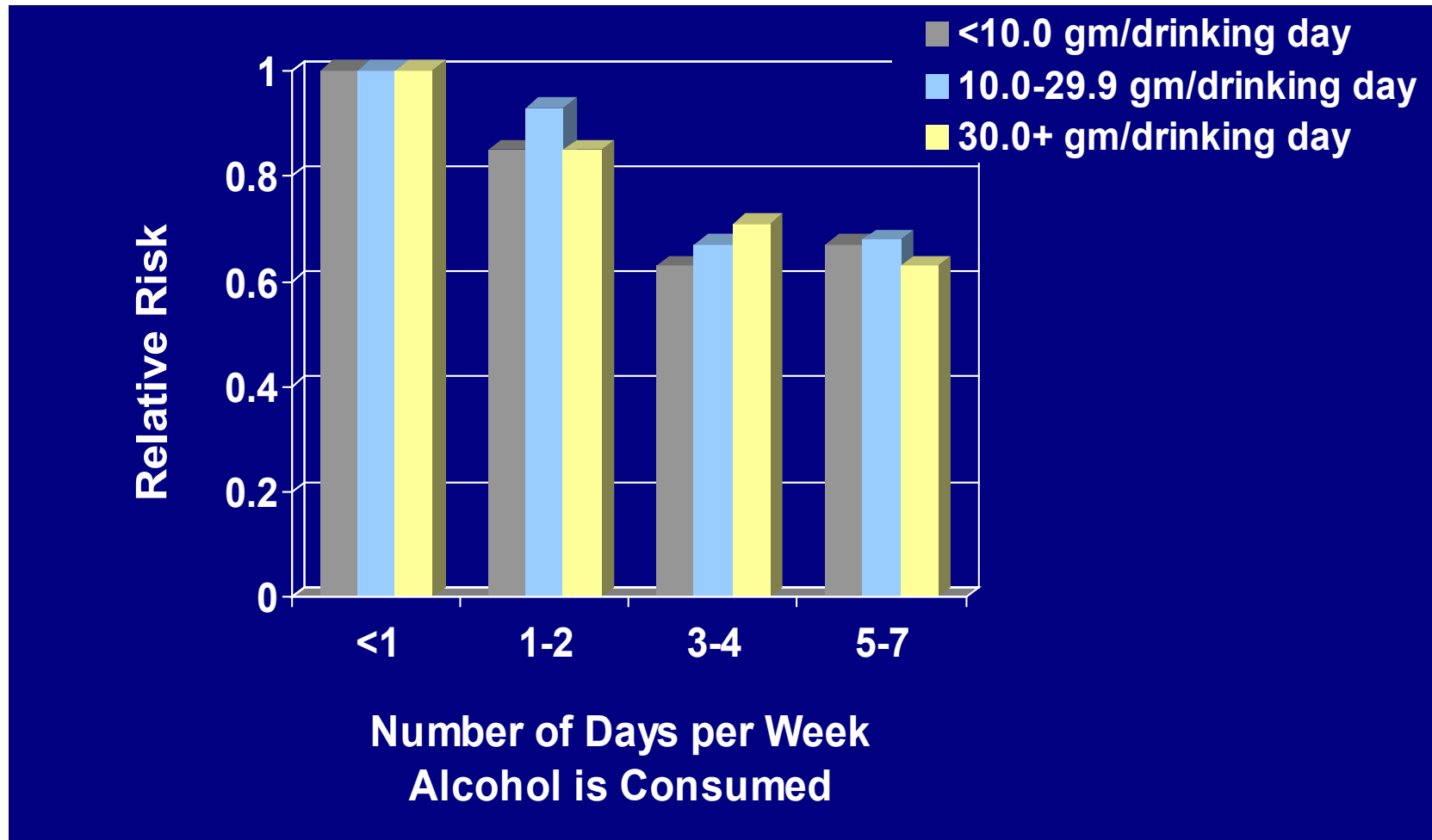
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Am J Cardiology
2018

Roles of Drinking Pattern and Type of Alcohol Consumed in Coronary Heart Disease in Men

Kenneth J. Mukamal, M.D., M.P.H., Katherine M. Conigrave, M.B., B.S., Ph.D., Murray A. Mittleman, M.D., Dr.P.H., Carlos A. Camargo, Jr., M.D., Dr.P.H., Meir J. Stampfer, M.D., Dr.P.H., Walter C. Willett, M.D., Dr.P.H., and Eric B. Rimm, Sc.D.



NEJM 2003

Lifetime Alcohol Use Patterns and Risk of Diabetes Onset in the National Alcohol Survey

William C. Kerr , Yu Ye, Edwina Williams, Camillia K. Lui, Thomas K. Greenfield, E. Anne Lown

First published: 13 November 2018 | <https://doi.org/10.1111/acer.13924> | Citations: 4

- Studies have shown reduced risk for diabetes among low-to-moderate alcohol drinkers relative to abstainers and heavy drinkers or have found significant U-shaped relationships between alcohol and diabetes risk.
- Few studies have included lifetime alcohol use measures including heavy occasions.
- Data from 2014015 National Alcohol Survey of US population
- Estimated diabetes risk from drinking patterns at time of onset
- Compared to lifetime abstainers, those drinking at least weekly and drinking 5+ drinks less than monthly had a lower hazard ratio (0.64) for risk of developing diabetes among total sample.
- Results are consistent with some prior studies finding reduced risks for regular light-to-moderate drinkers, but not consistent with findings from other studies showing increased risks from heavy occasion drinking.

Alcohol and Health

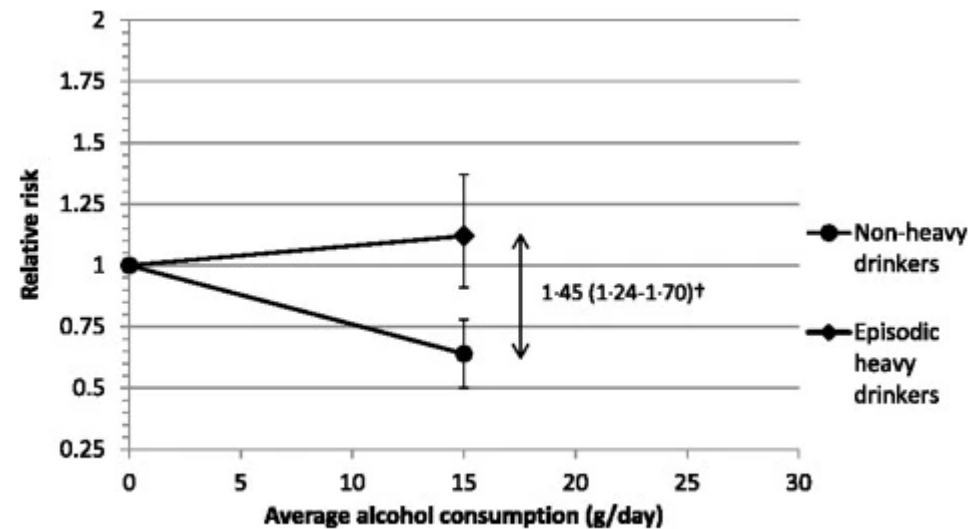
Limitations of Observational Studies

- **Comparison group**
 - Abstainers may include those who have mental/physical illness or those who are former heavy or dependent drinkers (e.g. sick quitters).
- **Difficulty in completely accounting for health-related differences between drinkers and abstainers (e.g., confounding)**
 - Drinkers have better self-rated health, less obese, higher income and more physical activity but are more likely to be smokers.
- **Reporting inaccuracies**
 - Alcohol use may be underestimated resulting in risk estimates that are lower than they should be.

Alcohol consumption, drinking patterns, and ischemic heart disease: a narrative review of meta-analyses and a systematic review and meta-analysis of the impact of heavy drinking occasions on risk for moderate drinkers

Michael Roerecke [✉](#) & Jürgen Rehm

- J-shaped relationship between average alcohol consumption and IHD risk with higher risk at high levels of alcohol consumption when compared to lifetime abstainers or low-level drinkers
- Among those consuming on average <30g /day, as compared to lifetime abstainers, those who also engaged in episodic heavy drinking did not have lower IHD risk while those who did not, did have lower IHD risk



Mr. M is an 50 year old who drinks 1-2 5 oz glasses of wine on most days. He has HTN and DM and his father died from CAD at age 65. He denies ever drinking more than two drinks on an occasion. Would you have concerns about his drinking?

Yes

No

Case presentation/ ANSWERS Poll 5

- Mr. M is an 50 year old who drinks 1-2 5 oz glasses of wine on most days. He has HTN and DM and his father died from CAD at age 65. He denies ever drinking more than two drinks on an occasion.
- Would you have concerns about his drinking given what you have learned so far?
 - a) Yes
 - b) No

Why does low-risk alcohol consumption have potential health benefits?

- ↑ HDL-C in dose-dependent manner ↓ CHD
- ↓ fibrinogen which helps prevent clotting
↓ CHD & stroke
- ↑ adiponectin which protects against insulin resistance ↓ DM & CHD
- ↑ estrone/dehydroepiandrosterone sulfate
↑ bone density

The Moderate Alcohol and Cardiovascular Health Trial (U10)

- A worldwide six-year randomized trial
- Compares 14 g (1 oz) of alcohol daily to placebo on risk of cardiovascular disease
- 7800 adults aged 50 years and older at above average risk for cardiovascular disease



"My heart is healthy, but my liver is shot to hell."

Which of these are exacerbated/caused with heavy drinking?

Atrial fibrillation

Colon Cancer

Anxiety

Poll 6

- Which of these are exacerbated/caused with heavy drinking?
 - a) Atrial fibrillation
 - b) Colon cancer
 - c) Anxiety



Conditions that alcohol causes or for which alcohol is detrimental

- **Cancer of:**
 - Lip
 - Oropharynx
 - Esophagus
 - Larynx
 - Liver
 - Colon
 - Breast
- **Gastrointestinal conditions**
 - Cirrhosis
 - Pancreatitis
- **Infections**
 - Tuberculosis
 - HIV/AIDS
 - Other sexually transmitted disease
 - Pneumonia
- **Cardiovascular disease**
 - Hypertension
 - Ischemic heart disease
 - Atrial fibrillation
 - Hemorrhagic stroke

Conditions that alcohol causes or for which alcohol is detrimental

- Neuropsychiatric disorders

 - Alzheimer's/other dementias

 - Depression

 - Seizures

- Pregnancy

- Injuries

 - Injuries

 - Violence

 - Suicide

- Alcohol use disorders

Alcohol and Cancer Risk

Table 1. Summary of Relative Risks From a Meta-Analysis for the Association Between Amount of Alcohol Drinking and Risk of Cancer

Type of Cancer	Relative Risk (95% CI)			
	Nondrinker	Light Drinker	Moderate Drinker	Heavy Drinker
Oral cavity and pharynx	1.0 (referent)	1.13 (1.0 to 1.26)	1.83 (1.62 to 2.07)	5.13 (4.31 to 6.10)
Esophageal squamous cell carcinoma	1.0 (referent)	1.26 (1.06 to 1.50)	2.23 (1.87 to 2.65)	4.95 (3.86 to 6.34)
Larynx	1.0 (referent)	0.87 (0.68 to 1.11)	1.44 (1.25 to 1.66)	2.65 (2.19 to 3.19)
Liver	1.0 (referent)	1.00 (0.85 to 1.18)	1.08 (0.97 to 1.20)	2.07 (1.66 to 2.58)
Female breast	1.0 (referent)	1.04 (1.01 to 1.07)	1.23 (1.19 to 1.28)	1.61 (1.33 to 1.94)
Colorectum	1.0 (referent)	0.99 (0.95 to 1.04)	1.17 (1.11 to 1.24)	1.44 (1.25 to 1.65)

NOTE. Adapted from results of Bagnardi et al (2015).²⁸

Light ≤ 12.5 g per day, Moderate ≤ 50 g per day, Heavy > 50 g per day

Alcohol-Medication Interactions

- Raise or lower drug levels (raise if you drink lots some of the time and lower if you drink lots all the time)
 - Sedating medications, opioids, warfarin
- Makes drugs less effective if you drink and take medicines for a condition that is worsened by alcohol
 - High blood pressure, gout, gastritis, depression, insomnia
- Worsen known medication side effects
 - Sedation (e.g., opioids, sleeping medications)
 - Bleeding (eg., NSAIDs, anticoagulants)
 - Orthostasis (e.g., nitrates)

Mrs. S is an 70 year old who drinks 1 glass of whiskey nightly. She also takes Tylenol PM nightly and has a history of breast cancer. Would you have concerns about her drinking given what you have learned so far?

Yes

No

Case presentation/ANSWER Poll 7

- Mrs. S is an 70 year old who drinks 1 glass of whiskey nightly. She also takes Tylenol PM nightly and has a history of breast cancer.
- Would you have concerns about her drinking given what you have learned so far?
 - a) Yes
 - b) No

Summary

- Alcohol has varying effects on health depending on quantity and frequency consumed, duration of use, as well as context.
- Context includes both comorbidities, medications, age, gender as well as before driving, or in a circumstance that is otherwise dangerous or can lead to unsafe behavior (e.g., unprotected sex).

Thank you!

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