Alcohol and Health: Current Evidence

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ALCOHOL AND HEALTH OUTCOMES

Alcohol May Increase the Risk of Colon Cancer

The results of studies examining the association between alcohol intake and colon cancer have been inconsistent. Researchers assessed alcohol use and incident cases of colon cancer among participants of a national health and nutrition survey. Of 10,418 participants who were followed for 10 years, 111 developed colon cancer.

- In analyses adjusted for colon cancer risk factors, drinking an average of >=1 drinks per day, compared with abstinence, significantly increased the risk of developing colon cancer (relative risk [RR] 1.7).
- The risk of colon cancer increased as alcohol intake increased (from 0 drinks to <1 drink to >=1 drinks per day, *P* for trend=0.04).
- Regular drinking for >34 years, compared with abstinence, also significantly increased colon cancer risk (RR 1.7).
- In analyses stratified by type of alcohol, the increase in risk was significant for liquor, but not beer or wine, consumption.

Comments: The results of this study suggest that alcohol may increase the risk of colon cancer. Although the authors propose several plausible mechanisms, no specific effect of alcohol on colon cancer carcinogenesis is known. Nonetheless, additional studies should be conducted to confirm the observed association.

Richard Saitz, MD, MPH

Reference: Su LJ, et al. Alcohol consumption and risk of colon cancer: evidence from the National Health and Nutrition Examination Survey I Epidemiologic Follow-Up Study. *Nutr and Cancer.* 2004;50(2):111–119.

No U-Shaped Curve for Alcohol and All-Cause Mortality in Younger Men

Most studies that support the benefits of moderate drinking have focused on middle-aged men. To examine whether younger men also experience these benefits, investigators assessed alcohol consumption, vital status, and all-cause mortality in 17,279 male construction workers (aged 25–64 years) in Germany. Subjects underwent an occupational health examination at baseline and were followed for an average of 10 years; during follow-up, 698 died.

- In analyses adjusted for age, nationality, and smoking, the relationship between alcohol consumption and all-cause mortality among men aged 35–64 years was J or U-shaped (i.e., higher risk among nondrinkers and heavier daily drinkers than in occasional drinkers).
- However, for men aged 25–34 years, the relationship was linear: mortality increased as consumption increased from 0 drinks per day (relative risk [RR] 0.9 compared with occasional drinking) to >=8 drinks per day (RR 2.5) (*P* for trend=0.02).
- Results did not change substantially when analyses were also adjusted for disorders at baseline that could influence drinking behavior and mortality (e.g., liver diseases, cancer).

Comments: This study showed that moderate alcohol consumption may lower all-cause mortality in middle-aged and older men. This is likely due to the protective effects of moderate consumption on coronary heart disease. Any benefit from moderate drinking among younger people, who have a lower risk of heart disease, is not apparent. Thus, the "U-shaped" curve does not apply to the young.

R. Curtis Ellison, MD

Reference: Arndt V, et al. Age, alcohol consumption, and all-cause mortality. *Ann Epidemiol.* 2004;14(10):750–753.

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Drinking Frequency and Amount Have Opposite Effects on BMI

Some research suggests that alcohol consumption may influence a person's weight. To examine the potential relationship between drinking patterns and body mass index (BMI), investigators in the United States pooled cross-sectional data from 45,896 adult participants in a national health survey. Subjects were current drinkers who never smoked.

- In weighted and adjusted analyses, BMI significantly increased in both men and women as alcohol intake increased from 1 drink to >= 4 drinks per drinking day on average (*P* for trend <0.001).
- However, BMI significantly decreased in both men and women as drinking frequency increased from the lowest quintiles of drinking days (1–11 drinking days in the past year) to the highest quintiles (2–7 drinking days per week) (*P* for trend <0.001).
- Those who consumed the smallest amounts (1 drink per drinking day) the most frequently were the leanest; those who consumed the greatest amounts (>=3 drinks per drinking day) the least frequently were the heaviest.

Comments: Limiting analyses to nonsmokers is a strength of this study since teasing apart the separate effects of drinking and smoking—behaviors that often co-occur—is difficult. Among these nonsmokers, there was a strong pattern of decreasing BMI with increasing drinking frequency, particularly with consumption of small amounts. As is the case with drinking and many other health consequences, benefits accrue with regular moderate alcohol use while harm often ensues from heavy episodic drinking.

R. Curtis Ellison, MD

Reference: Breslow RA, et al. Drinking patterns and body mass index in never smokers. National Health Interview Survey, 1997–2001. *Am J Epidemiol*. 2005;161(4):368–376.

Intimate Partner Violence: The Role of Alcohol

Episodes of intimate partner violence are associated with alcohol consumption. To explore this relationship further, researchers interviewed a random sample of heterosexual couples at baseline and 5 years later. They assessed alcohol use and related problems, and the incidence (new cases) and recurrence (cases at both follow-up and baseline) of male-to-female-partner violence (MFPV) and female-to-male partner violence (FMPV). Analyses included only couples who were cohabitating and/or married at both baseline and follow-up (n=1136 couples). Partner violence was defined as a range of violent behaviors, such as slapping, kicking, forcing sex, and threatening with a gun or knife.

- At follow-up, the incidence of both FMPV and MFPV was only 6%. However, recurrence was more common (FMPV 44%, MFPV 39%).
- In unadjusted analyses, incidence and/or recurrence of partner violence was significantly associated with greater mean consumption by male perpetrators; heavy drinking (>=5 drinks on an occasion in the past year) by male and female perpetrators; and/or alcohol problems among male and female perpetrators.
- Among these alcohol indicators, only mean consumption (among both female perpetrators and male victims) remained significantly associated with new or recurrent cases of FMPV when analyses were adjusted for potential confounders.

Comments: FMPV was as common as MFPV in this population-based sample, whereas male perpetration of partner violence is often the norm in clinical samples. Nevertheless, heavy episodic drinking, alcohol problems, and higher average alcohol consumption should be considered risk factors for partner violence and addressed in prevention efforts.

Joseph Conigliaro, MD, MPH

Reference: Caetano R, et al. Drinking, alcohol problems and the five-year recurrence and incidence of male to female and female to male partner violence. *Alcohol Clin Exp Res.* 2005;29(1):98–106.

Moderate Drinking and a Longer Life

To examine the relationship between alcohol consumption and mortality among older adults, researchers conducted a 23-year prospective study of approximately 12,000 male British doctors aged 48–78 years. Mean daily alcohol intake was about 1.5–2 standard drinks. During follow-up, 7364 deaths occurred. Analyses were adjusted for age, smoking, and follow-up duration.

- Compared with nondrinkers (including ex-drinkers), current drinkers had significantly lower risks of death from ischemic heart disease (relative risk [RR] 0.7), other vascular diseases (RR 0.8), and respiratory disease (RR 0.8). Because these causes accounted for most deaths, current drinkers also had a lower risk of total mortality (RR 0.8).
- The relationship between alcohol consumption and mortality was U-shaped (i.e., nondrinkers and heavier drinkers had the highest rates) for all causes except alcohol-augmentable causes (i.e., those increased by heaving drinking, such as liver disease). Risk of death from alcohol-augmentable causes increased as consumption increased from <5 to >20 drinks per week.
- When recent ex-drinkers were grouped with current drinkers, the association between alcohol consumption and total mortality was attenuated (RR 0.9).

Comments: This study from a leading epidemiologist confirms the relationship between moderate drinking and lowered risk of total and heart disease mortality. However, its finding of decreased risk of respiratory disease mortality is surprising. An editorialist notes that the main results may be due partially to a greater risk of death among ex-drinkers (e.g., those who stopped drinking because of illness) and/or insufficient adjustment for confounding factors.

R. Curtis Ellison, MD

References: Doll R, et al. Mortality in relation to alcohol consumption: a prospective study among male British doctors. *Int J Epidemiol.* 2005;34(1):199–204; Wannamethee SG. Commentary. Alcohol and mortality: diminishing returns for benefits of alcohol. *Int J Epidemiol.* 2005;34(1):205–206.

Alcohol and the Risk of Renal Cell Cancer in Male Smokers

Alcohol's potential role in the carcinogenesis of renal cell cancer (RCC) is unclear. In this study, researchers assessed alcohol intake and the incidence of RCC in 27,111 Finnish male smokers aged 50–69 years. Over 12 years, 195 cases of RCC developed.

- In analyses adjusted for potential confounders, the risk of RCC in those consuming >0.2 drinks per day, compared with those consuming less, decreased as alcohol consumption increased (relative risk [RR] 0.9 for 0.2 to <1 drink per day, RR 0.9 for 1–2 drinks per day, and RR 0.5 for >2 drinks per day, *P* for trend=0.005).
- In analyses adjusted for beverage type, risk significantly decreased with increasing beer use and liquor use. There were too few wine drinkers in the cohort to assess the association between wine intake and RCC.
- Other risk factors (e.g., age, body mass index, number of cigarettes smoked per day) did not modify alcohol's effect on RCC.

Comments: This large prospective study found that increased alcohol intake is associated with decreased risk of RCC in smokers. Drinkers in the highest quartile of consumption (>2 drinks per day) had the lowest risk. Because this amount is associated with adverse health consequences that are more common than RCC, results from this study should not influence current lower-risk drinking recommendations. Further, these results—though intriguing—should be prospectively confirmed in other populations before accepted.

Kevin L. Kraemer, MD, MSc

Reference: Mahabir S, et al. Prospective study of alcohol drinking and renal cell cancer risk in a cohort of Finnish male smokers. *Cancer Epidemiol Biomarkers Prev.* 2005;14(1):170–175.

INTERVENTIONS

Brief Counseling At Regular Office Visits Reduces Drinking For 1 Year

In most studies of alcohol brief interventions, counseling occurs during a visit scheduled specifically to discuss unhealthy alcohol use rather than during a routine primary care visit. However, some research has found that 5–10 minutes of counseling during a regularly scheduled primary care visit can decrease weekly consumption at 6-month follow-up. To examine whether this decrease remains at 12 months, researchers analyzed data from 445 adult patients who had been drinking risky amounts[1] and had participated in a controlled trial of brief intervention during regular primary care visits. Of the 46 participating clinicians (from 4 different primary care practices), 19 had received training in and provided brief intervention.

In analyses adjusted for potential confounders (e.g., sex, baseline level of consumption), patients assigned to brief intervention, compared with those assigned to usual care,

- had significantly greater decreases in the average number of drinks consumed per week (-5.7 versus -3.2 drinks);
- had significantly fewer episodes of binge drinking[2] per month (-2.0 versus -1.6 episodes);
- were more likely to adhere to safe drinking limits at the 12-month follow-up (54% versus 49%, a borderline significant finding).

Comments: This study demonstrates that a single, 5–10 minute brief intervention during a regular primary care visit can produce modest, yet lasting, reductions in alcohol intake among those drinking risky amounts. Additional research is needed to determine whether brief counseling over multiple visits in the context of a long-term patient-clinician relationship can further reduce risky drinking.

Peter Friedmann, MD, MPH

Reference: Reiff-Hekking S, et al. Brief physician and nurse practitioner-delivered counseling for high-risk drinking. Results at 12-month follow-up. *J Gen Intern Med.* 2005;20(1):7–13.

[1]Defined in this study as >12 standard drinks per week or binge drinking on 1 or more occasions in the previous month for men; >9 standard drinks per week or binge drinking on 1 or more occasions in the previous month for women

[2]>=5 drinks on 1 occasion for men; >=4 drinks on 1 occasion for women

Opiate Antagonists for Alcohol Dependence: Do They Work?

Many studies have examined the role of opiate antagonists in treating alcohol dependence. To summarize the findings of these studies, researchers from the Cochrane Collaboration systematically reviewed all relevant randomized controlled trials (RCTs) of opiate antagonists, including 27 RCTs of naltrexone and 2 RCTs of nalmefene. In most trials, subjects also received psychosocial treatment.

- Most of the identified studies examined short-term (up to 12 weeks) treatment with naltrexone and short-term outcomes. The majority of these studies found that naltrexone, compared with placebo, decreased the risks of returning to heavy drinking (relative risk [RR] 0.6, a significant finding) and returning to any drinking (RR 0.9, a borderline significant finding).
- In the few studies of short-term treatment and medium-term (>12 weeks to 52 weeks) outcomes, naltrexone significantly decreased the risk of returning to heavy drinking (RR 0.8) but not returning to any drinking. Studies that directly compared naltrexone with other drugs (e.g., acamprosate, disulfiram) were inconclusive but generally favored naltrexone.
- The few placebo-controlled studies of nalmefene found that short-term treatment with the drug significantly decreased the short-term risk of returning to any drinking (RR 0.6); data on returning to heavy drinking, medium-term treatment, and medium-term outcomes were not reported.

Comments: High-quality RCTs support the short-term use of naltrexone for treating alcohol dependence. Nalmefene shows promise but is only supported by 2 small studies. Longer-term studies, including comparisons with other biological and behavioral treatments, are needed to determine the appropriate medium- and long-term use of opiate antagonists in treating alcohol dependence.

Kevin L. Kraemer, MD, MSc

Reference: Srisurapanont M, et al. Opioid antagonists for alcohol dependence. *Cochrane Database Syst Rev.* 2005;Volume 1.

AUDIT and CRAFFT Outperform CAGE in Screening Young People

Prevention experts recommend that medical providers screen young people for alcohol problems, but the most accurate and efficient method is uncertain. In a cross-sectional study of 358 people aged 15–24 years, researchers compared the performance of 3 common screening instruments against a gold-standard diagnostic interview. Subjects were attending a sexually transmitted disease clinic and reported alcohol use in the past year.

- One-third met DSM-IV criteria for a current alcohol use disorder.
- The 10-item AUDIT[1] discriminated best (76% sensitivity and 79% specificity at a cut-off score of 9), followed by the 6-item CRAFFT[2] (94% sensitivity and 33% specificity at a cut-off score of 2), and the 4-item CAGE[3] (69% sensitivity and 63% specificity at a cut-off score of 1).
- The AUDIT and the CRAFFT performed better than the CAGE among men, women and blacks. Among whites, the AUDIT performed best.

Comments: This study affirms that the CAGE alone is a limited screening tool for younger people. The AUDIT, though an excellent tool, is likely too long and awkward to score for widespread clinical use. Several features make the CRAFFT attractive: its brevity, easy scoring, relevance to young people, and high sensitivity even among diverse populations. Epidemiologic studies suggest that adding questions about typical consumption patterns, especially binge use, would increase the performance of these instruments to detect alcohol use disorders in young populations. Further research to clarify whether these instruments can also identify those who are at risk for or have experienced alcohol-related problems is warranted.

Peter Friedmann, MD, MPH

Reference: Cook RL, et al. Alcohol screening in young persons attending a sexually transmitted disease clinic: comparison of AUDIT, CRAFFT, and CAGE instruments. *J Gen Intern Med*. 2005;20(1):1–6.

[1]Alcohol Use Disorders Identification Test
[2]A mnemonic standing for *C*ar, *R*elax, *A*lone, *F*orget, *F*riends, *T*rouble
[3]A mnemonic standing for *C*ut-down, *A*nnoyed, *G*uilty, *E*ye-opener

SPECIAL POPULATIONS

The Prevalence of Drinking Among Women Who Are or Might Become Pregnant

Drinking alcohol during pregnancy can harm both the mother and the fetus. To characterize alcohol use among women who are pregnant or might become pregnant (i.e., are sexually active, able to become pregnant, and do not use birth control), researchers in the United States analyzed data from women aged 18–44 years who had participated in a national behavioral risk survey.

- About 10% of 2689 pregnant women reported alcohol use (at least 1 drink on 1 occasion) in the past month; 2% reported binge drinking (>=5 drinks on 1 occasion) or frequent drinking (>=7 drinks per week or binge drinking).
- Nearly 55% of 4404 women who might become pregnant reported alcohol use in the past month; 12%–13% reported binge or frequent drinking.
- Among women who might become pregnant, binge drinking was more common in 18–34 year olds, non-Hispanic whites, current smokers, unmarried women, and women who had driven while alcohol-impaired.

Comments: Drinking among pregnant women may have been underreported since self-report of alcohol use is subject to social desirability bias (i.e., interviewees' desire to report abstinence from alcohol during pregnancy). Drinking among women who might become pregnant was also likely underestimated because this group did not include women who used ineffective birth control methods. Nonetheless, this study's findings suggest a need for continued efforts to screen all women of childbearing age for alcohol use and to counsel them—well before they choose to become pregnant—about the adverse effects of alcohol on pregnancy.

Joseph Conigliaro, MD, MPH

Reference: Tsai J, et al. Alcohol consumption among women who are pregnant or who might become pregnant- United States, 2002. *Morb Mortal Wkly Rep.* 2004:53(50);1178–1181.

Predicting Drinking Patterns Among Aging Adults

Understanding how drinking patterns change over time has particularly important implications for an aging population. To examine these patterns, investigators in the United States analyzed data on alcohol use from 14,105 adult participants in a national health and nutrition survey. Subjects were interviewed at baseline (mean age 47 years) and at 4 additional times over 20 years. Forty-three percent consistently (i.e., at each interview) identified themselves as drinkers.

- In analyses adjusted for birth year, per capita consumption, and various demographic factors (e.g., sex, race, education), weekly alcohol consumption at age 57 (the reference age) was greater in men, whites, smokers, those who were unmarried, and those with higher educational and income levels.
- Alcohol consumption decreased as age increased. This decline was lower in more recent birth cohorts and greater in men, nonwhites, smokers, those who were unmarried, and those with a lower educational level.

Comments: These high-quality data reveal patterns (such as a lower age-associated decline in intake among more recent birth cohorts) that may prove to have public health consequences. Comparable patterns among unhealthy drinkers would be of particular interest.

Jeffrey Samet, MD, MA, MPH

Reference: Moore AA, et al. Longitudinal patterns and predictors of alcohol consumption in the United States. *Am J Public Health*. 2005;95(3):458–465.

Comorbidity Doesn't Explain the Prevalence of Alcoholism in Native Americans

The co-occurrence of anxiety or affective disorders and alcoholism in Native Americans has not been well characterized. To determine the prevalence of these co-occurring disorders, investigators interviewed 483 Southwest California Indians (known as Mission Indians) who were at least one-sixteenth Native American and lived on contiguous reservations.

- Subjects were demographically similar to Mission Indians as a whole, according to United States census figures (mean age 30 years). Sixty-six percent of the men and 53% of the women had current or past alcohol dependence.
- The most common anxiety and affective disorders independent of substance use included major depressive disorder (12%), agoraphobia (7%), and social phobia (7%). The prevalences of these disorders did not differ significantly between people with and without alcohol dependence.
- The same was true for the prevalences of agoraphobia and social phobia overall (i.e., independent disorders and those concurrent with substance abuse).
- However, major depressive disorders overall (independent disorders and those concurrent with substance abuse) were significantly more common in people with alcohol dependence than in people without dependence (22% versus 11%).

Comments: At least in this Native American population, anxiety and affective disorders independent of substance abuse were not more common in people with alcohol dependence. And even though major depressive disorders overall were more prevalent in those with dependence, they were much less common than was dependence. Affective and anxiety disorders remain important considerations in the treatment of Native Americans with alcohol dependence. However, they do not appear to explain the high prevalence of alcoholism in this group.

Richard Saitz, MD, MPH

Reference: Gilder DA, et al. Comorbidity of select anxiety and affective disorders with alcohol dependence in southwest California Indians. *Alcohol Clin Exp Res.* 2004;28(12):1805–1813.

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