

## **Over Time, Even Low Alcohol Use Ups Breast Cancer Risk As With HRT, Cumulative Amount Seems Key**

Nick Mulcahy

November 1, 2011 — The regular consumption of a modest amount of alcohol — 3 to 6 glasses of wine per week — over a long period of time increases a woman's risk for invasive breast cancer by a small but statistically significant amount, according to researchers.

Their prospective observational study of 105,986 women comes from the large Nurses' Health Study and examines "cumulative average consumption" over the 28-year study period. Participants were followed from 1980 to 2008, and completed 8 updated alcohol-assessment questionnaires during that time.

The [study appears](#) in the November 2 issue of *JAMA, The Journal of the American Medical Association*.

It adds to the literature on the effects of alcohol consumption on breast cancer risk, particularly that of "low levels of drinking," which "has not been well quantified," say the authors, led by Wendy Y. Chen, MD, MPH, from Brigham and Women's Hospital and Harvard Medical School in Boston, Massachusetts.

Not surprisingly, larger amounts of alcohol consumption were associated with increased breast cancer risk over the study period, the authors report.

However, Dr. Chen and her coauthors found that the risk was statistically significant at levels as low as 5 to 9.9 g per day, which is the equivalent to 3 to 6 drinks per week (relative risk [RR], 1.15; 95% confidence interval [CI], 1.06 to 1.24). But the authors also described this 15% increase in risk as "quite small."

Drinking an average of 10.0 to 19.9 g of alcohol per day (6 to 12 drinks a week) resulted in a 22% increase in risk (RR, 1.22; 95% CI, 1.07 to 1.35). At the upper end of the drinking scale, drinking 30 g or more a day resulted in a 51% increased risk (RR, 1.51; 95% CI, 1.35 to 1.70), compared with drinking no alcohol at all.

Should all women be teetotalers?

The data do not suggest as much. Drinking an average of up to 4.9 g of alcohol a day over the study period was not associated with any significantly increased breast cancer risk, compared with never drinking (RR, 1.06; 95% CI, 0.99 to 1.12).

A little alcohol is okay, said Dr. Chen.

### **Limit consumption to a few drinks per week or less.**

"I tell my patients to limit consumption to a few drinks per week or less, which is what I also practice," she told *Medscape Medical News*. "It is important to remember that we were looking at cumulative average alcohol intake over a long period of time."

Dr. Chen suggested that alcohol amounts should be consumed strategically.

For example, she explained, "if someone is on vacation or wants to 'unwind' by having a few extra drinks, they can offset that by drinking less at other time points."

The authors believe that, in making an individual decision about alcohol use, any breast cancer risk must be weighed against "the beneficial effects on cardiovascular disease."

### **Insight: Alcohol Effect Appears to Be Like HRT**

This study indicates that "the cumulative amount of alcohol a woman consumes during adulthood is the best predictor of her breast cancer risk," writes Steven Narod, MD, from the

Women's College Research Institute in Toronto, Ontario, Canada, in an [editorial accompanying](#) the study.

### **Alcohol...appears similar to hormone therapy.**

Dr. Narod also notes that alcohol seems akin to another known breast carcinogen — hormone replacement therapy (HRT). "Alcohol...appears similar to hormone therapy in that lifetime risk exposure also is associated with annual risk," he writes. He is referring to research that shows that lifetime hormonal exposure is the [best predictor of breast cancer risk](#) in women who are current users of HRT.

However, what is "not known" is whether the effect of alcohol on breast cancer risk will diminish once intake is stopped. This is the case with hormone therapy; the [risk dissipates](#) within 2 years of cessation. Dr. Narod, citing the likely effect of alcohol on sex hormones, believes that breast cancer risk "may be expected to decline after alcohol intake ceases."

The authors suspect that the link between alcohol consumption and breast cancer, although not understood, might be related to "alcohol's effects on circulating estrogen levels." Studies indicate that "moderate levels of alcohol consumption increased circulating sex hormone levels in both premenopausal and postmenopausal women.

### **Applies to American Women in General**

The women in the study were 30 to 55 years old at baseline, were primarily white (93.7%), and had an alcohol intake that was "fairly similar" to that of American women in general, say the authors.

During the 28-year study period, which started in 1980, data on alcohol consumption were updated in 1984, 1986, 1990, 1994, 1998, 2002, and 2006. Cumulative average alcohol intake was calculated by averaging alcohol use over time, beginning in 1980.

Follow-up in the study was "extremely high," say the authors, with only 4.4% of "person-time" lost to follow-up.

There were 7690 cases of invasive breast cancer with 2.4 million person-years of follow-up.

Cox proportional hazards models were used to compute hazard ratios as estimates of age-adjusted and multivariate-adjusted relative risks and 95% confidence intervals. The variables included age and other commonly accepted breast cancer risk factors, such as menopausal status, age at menarche, parity, age at first birth, body mass index, family history, and cigarette smoking.

The authors also evaluated whether the association between alcohol consumption and breast cancer risk varied by type of alcohol, but found "little difference" between wine, beer, and liquor.

The study included some novel data, according to the authors. "To our knowledge, this is the first study to evaluate breast cancer risk in relation to both frequency of drinking and binge drinking," they write. Binge drinking, but not frequency of drinking, was associated with breast cancer risk after controlling for cumulative alcohol intake, they report.

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## Original Contribution

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### Moderate Alcohol Consumption During Adult Life, Drinking Patterns, and Breast Cancer Risk

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#### **ABSTRACT**

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**Context** Multiple studies have linked alcohol consumption to breast cancer risk, but the risk of lower levels of consumption has not been well quantified. In addition, the role of drinking patterns (ie, frequency of drinking and "binge" drinking) and consumption at different times of adult life are not well understood.

**Objective** To evaluate the association of breast cancer with alcohol consumption during adult life, including quantity, frequency, and age at consumption.

**Design, Setting, and Participants** Prospective observational study of 105 986 women enrolled in the Nurses' Health Study followed up from 1980 until 2008 with an early adult alcohol assessment and 8 updated alcohol assessments.

**Main Outcome Measures** Relative risks of developing invasive breast cancer.

**Results** During 2.4 million person-years of follow-up, 7690 cases of invasive breast cancer were diagnosed. Increasing alcohol consumption was associated with increased breast cancer risk that was statistically significant at levels as low as 5.0 to 9.9 g per day, equivalent to 3 to 6 drinks per week (relative risk, 1.15; 95% CI, 1.06-1.24; 333 cases/100 000 person-years). Binge drinking, but not frequency of drinking, was associated with breast cancer risk after controlling for cumulative alcohol intake. Alcohol intake both earlier and later in adult life was independently associated with risk.

**Conclusions** Low levels of alcohol consumption were associated with a small increase in breast cancer risk, with the most consistent measure being cumulative alcohol intake throughout adult life. Alcohol intake both earlier and later in adult life was independently associated with risk.

## Editorial

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### Alcohol and Risk of Breast Cancer

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*Since this article does not have an abstract, we have provided the first 150 words of the full text.*

In this issue of *JAMA*, Chen and colleagues<sup>1</sup> report findings from the Nurses' Health Study exploring the relationship between alcohol consumption and breast cancer risk. The authors' principal findings were that the cumulative amount of alcohol a woman consumes during adulthood is the best predictor of her breast cancer risk and that low levels of alcohol consumption (as few as 3 drinks a week) are associated with an increased risk of breast cancer. In addition, the risk of breast cancer was increased with the quantity consumed; for example, women who drank 2 or more drinks per day had a risk of breast cancer approximately 1.5 times higher than women who never consumed alcohol, and their 10-year risk of breast cancer increased by 1.3% (from 2.8% to 4.1%). For women who drank 1 drink per day, the risk was approximately 1.2 times higher than expected and their 10-year risk ...