

Alcohol consumption, mammographic density and breast cancer risk

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Results of a population-based Swedish study may make women at high risk of breast cancer think twice about their drinking habits. Published in the *British Journal of Cancer*, the data show an association between alcohol consumption, mammographic density, and breast cancer risk.

For the analysis, researchers looked at data from a web-based self-administered questionnaire completed by a cross-sectional sample of 53,060 Swedish women aged 40 to 74. All had participated in the Swedish national mammography screening program and had baseline mammograms. Women who drank more than 40 bottles of beer per week or >50 g of alcohol per day were excluded. The mammograms used to assess density were mediolateral oblique images, the view routinely used in Sweden.

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On the questionnaire, the participants were asked to provide information about how frequently they consumed alcohol and in what quantity at least once per month during the months before the study. Each woman's risk of developing breast cancer over the next decade was calculated using the Tyrer-Cuzick prediction model, which takes into consideration factors such as family history, personal reproductive history, and history of breast disease.

The researchers found a clear association between higher absolute and percent breast density, which was most pronounced in women at the highest ($\geq 5\%$) Tyrer-Cuzick 10-year risk of breast cancer. For high-risk women compared with non-drinkers, the estimated increase in absolute dense volume in those consuming 5.0-9.9, 10.0-19.9, 20.0-29.9, and 30.0-40.0 g per day of

alcohol was 2.6 cm³ (95% CI, 0.2-4.9), 2.9 cm³ (95% CI, -0.6-6.3), 4.6 cm³ (95% CI, 1.5-7.7) and 10.8 cm³ (95% CI, 4.8-17.0), respectively. Expressed another way, absolute breast volume increased 2.4 cm³ (95% CI, 1.4-3.5) for each additional 10 g of alcohol consumed per day. A trend toward increasing alcohol consumption and higher absolute dense volume was seen in women at low ($\leq 3\%$) risk, but not in those at moderate (3.0%-4.9%) risk of breast cancer.

Of the dose-response relationship between alcohol consumption and breast density, the authors said, “there is a clear modifying effect by background breast cancer risk, with considerably steeper dose-response curves for women with high risk compared with women with low and moderate risk.” Their study, they believe, is the first to evaluate the influence of background breast cancer risk when determining the effect of alcohol consumption on mammographic density.

Among the limitations of the research noted were the cross-sectional design, which did not allow them to rule out reverse causation between alcohol consumption and mammographic density. Unlike previous studies, this analysis used volumetric measures of breast density, which the authors believe is a strength because it takes into account thickness and hence may better reflect the actual amount of fibroglandular tissue in the breast.