

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments
Ericson <i>et al.</i> (2007), Sweden, Malmö Diet and Cancer Cohort [update of Mattisson <i>et al.</i> (2004)]	Analytical cohort of 11 699 women; aged > 50 years; recruited 1991–96; follow-up until 2003; 392 invasive cases identified through cancer registry	Interview-administered diet history (7- day diary)	<i>Intake (g/d)</i>			Age	
			None	26	1.0		
			< 15	304	1.25 (0.84–1.87)		
			15–29	47	1.20 (0.74–1.94)		
			≥ 30	15	2.52 (1.33–4.77)		
Mørch <i>et al.</i> (2007), Denmark, Danish Nurse Cohort Study	Analytical cohort of 17 647 women, aged > 44 years, recruited 1993; followed-up until 2001; 457 invasive cases identified through cancer registry, hospital discharge registry and Danish Breast Cancer Group	Self-administered questionnaire	<i>Usual intake (drinks/week)</i>			Age, age at first birth, menarche, family history, history of benign breast disease	No differences by menopausal status; binge drinking at week-ends (> 10 drinks over the week-end versus 1 drink) associated with an increased risk compared to women drinking 1–3 drinks/week. Risk also increased among women drinking 4–5 drinks versus 1 drink on the last week day
			0	92	1.27 (0.92–1.75)		
			1–3	65	1.0		
			4–7	74	0.99 (0.71–1.38)		
			8–14	95	1.10 (0.80–1.51)		
			15–21	61	1.33 (0.94–1.89)		
			22–27	42	2.30 (1.56–3.39)		
			> 27	28	1.62 (1.04–2.52)		
<i>Per drink/day</i>		1.02 (1.01–1.03)					

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments	
Visvanathan <i>et al.</i> (2007) CLUE II, Washington County, US	Nested case-control study (cohort of 14 625 women recruited 1989; followed-up until 2002); 321 cases identified through cancer registries, matched to 313 non-malignant and alive controls, by age, ethnicity, freeze/thaw status, availability of food-frequency questionnaire, menopausal status	Self-administered questionnaire	<i>Alcohol status in last year</i>				Education, smoking, family history, age at menarche, age at first birth, breastfeeding, oral contraceptive use, hormone-replacement therapy use, body mass index	No significant difference by menopausal status, although association with drinking slightly stronger in younger (premenopausal) versus older women; significant association with drinking among women with a high education level; association with wine, but not for beer or liquor
			Non-drinker	167	1.0			
			Drinker	95	1.40 (0.97–2.03)			
			<i>Women</i>					
			Non-drinker		1.0			
			Drinker v Non-drinker		2.69 (1.00–7.26)			
			<i>Women</i>					
				Drinker	1.0			
					1.25 (0.84–1.87)			

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments	
Zhang <i>et al.</i> (2007) Women's Health Study, US	Analytical cohort of 38 454 women recruited in 1992, aged 45 and older; followed-up until 2004; 1 484 self-reported cases (1 190 invasive, 294 in situ) verified through medical records	Self-administered questionnaire	<i>Intake in last year (g/d)</i>				Age, randomized treatment assignment, age at menarche, age at first birth, parity, menopausal status, age at menopause, hormone-replacement therapy use, body mass index, family history, benign breast disease, physical activity, vitamin supplement use, energy intake	No significant difference by beverage type, although significant positive association for beer intake, and no significant association for white wine, red wine or liquor; no significant difference by subgroups of menopausal status, body mass index, family history, folate intake or hormone-replacement therapy use, although slightly higher risk with alcohol intake in current users and no association in never or past users
			None					
			0.1–4.6	516	1.0			
			5–9.9	549	1.02 (0.90–1.15)			
			10–14.9	181	1.13 (0.95–1.34)			
			15–29.9	109	1.14 (0.92–1.40)			
			≥ 30	88	1.16 (0.92–1.45)			
			p for trend	41	1.32 (0.96–1.82)			
Per 10 g/d		0.02						
		<i>All tumours</i>			1.07 (1.01–1.14)			
		<i>Invasive tumours</i>			1.09 (1.02–1.16)			
		<i>Premenopausal women</i>			1.08 (0.96–1.22)			
		<i>Postmenopausal women</i>			1.07 (0.99–1.15)			
Duffy <i>et al.</i> (2009), US, Women's Health Initiative – Observational Study	Analytical cohort of 88 530 women aged 50–79 years, recruited 1993–98; follow-up for a median of 5.5 years; 1 783 self-reported cases verified through pathology and radiology reports	Self-administered questionnaire	<i>Usual intake (drinks/week)</i>				Age, ethnicity, income, education, smoking, body mass index, breast biopsy, parity, breastfeeding, family history, hormone replacement therapy use, age at menarche, age at menopause, exercise (weekly METs)	No significant difference by folate intake
			None	561	1.0			
			< 5	470	1.10 (0.97–1.24)			
			5–15	322	1.14 (0.99–1.31)			
			> 15	246	1.13 (0.96–1.32)			
			Per 1 g/d		1.005 (1.001–1.009)			
p for trend		0.009						

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments
Kabat <i>et al.</i> (2008); update of Friedenreich <i>et al.</i> (1993) and Rohan <i>et al.</i> (2000). Canadian National Breast Screening Study, Canada	Analytical cohort of 49 654 women aged 40–59 years enrolled in a randomized controlled trial of screening for breast cancer and who completed a dietary questionnaire, recruited 1980–85; follow-up for an average of 16 years; 2 491 cases identified through cancer databases	Self-administered questionnaire	<i>Alcohol intake (g/d)</i> None < 5 5–9 10–19 20–29 ≥ 30 p for trend	Not given	1.0 1.00 (0.91–1.12) 0.98 (0.86–1.13) 1.07 (0.93–1.23) 1.08 (0.89–1.32) 1.17 (0.98–1.39) 0.06	Age, body mass index, smoking, education, menopausal status, family history, history of breast biopsy, age at menarche, parity, use of oral contraceptives, use of hormone replacement therapy, energy intake	No significant difference by intake of folate or B vitamins or by menopausal status

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments					
Nielsen and Grøn­bæk (2008) and Thygesen <i>et al.</i> (2008); Update of Petri <i>et al.</i> (2004). Data also presented in Rod <i>et al.</i> (2009). Denmark, Copenhagen City Heart Study	Nielsen and Grøn­bæk (2008) Analytical cohort of 5 035 postmenopausal women, recruited 1981–83; followed-up until 2002; 267 cases identified through cancer registry	Self-administered questionnaire	<i>Usual intake (drinks/week)</i>				Age, education, physical activity, body mass index, smoking, parity, psychological stress, hormone-replacement therapy use	Smallest cohort study; significant interaction with hormone-replacement therapy use – increase risk among women drinking 8–14 drinks/week and who were current hormone users (HR = 2.99, 95% CI: 1.69–5.29) versus abstainers who were not hormone users; no association among non hormone-replacement therapy users				
			< 1	107	1.0							
			1–7	101	1.19 (0.90–1.57)							
			8–14	36	1.28 (0.87–1.89)							
			15–21	14	1.61 (0.92–2.84)							
			> 21	9	1.54 (0.77–3.10)							
			p for trend		0.06							
			<i>Per drink/day</i>			1.11 (0.99–1.25)						
			<i>Baseline intake (g/d)</i>								Age, education, physical activity, body mass index, smoking, parity, hormone-replacement therapy use	Small cohort and small numbers of cases; risk was attenuated when using updated alcohol information: no association when using updated information [this may be due to a long latency period between alcohol intake and breast cancer risk].
			< 1.71	145	1.0							
1.71–12	236	1.00 (0.80–1.24)										
13–24	79	1.36 (1.01–1.81)										
25–47	8	1.71 (0.82–3.57)										
≥ 48	4	4.64 (1.67–12.9)										
p for trend		< 0.001										

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments
Allen <i>et al.</i> (2009), United Kingdom, Million Women Study	Analytical cohort of 1 280 296 women recruited 1996–2001; aged 50–64 years; follow-up until 2006; 28 380 cases identified through cancer registries	Self-administered questionnaire at baseline and 3 years later	<i>Usual intake (drinks/week)</i>		(Floated 95% CI)	Age, region, socioeconomic status, body mass index, smoking, physical activity, oral contraceptive use, hormone replacement therapy use	Alcohol intake of < 2 drinks/week taken to be the reference group; no significant difference by hormone replacement therapy use; no difference by beverage type (wine versus other drinks) or by red, white or both types of wine
			None	6 409	1.00 (0.97–1.03)		
			< 2	7 841	1.00 (0.98–1.02)		
			3–6	6 642	1.08 (1.05–1.10)		
			7–24	5 672	1.13 (1.10–1.16)		
			≥ 15	1 816	1.29 (1.23–1.35)		
Per 10 g/d p for trend		1.12 (1.09–1.14) < 0.001					
Engeset <i>et al.</i> (2009), Norwegian European Prospective Investigation into Cancer and Nutrition; data also included in Tjønneland <i>et al.</i> (2007)	Analytical cohort of 34471 women recruited in 1998; age range not stated (mean: 48 years); followed-up until 2005; 547 cases identified through cancer registry	Self-administered questionnaire	<i>Alcohol dietary pattern</i>	547	1.0 1.01 (0.71–1.45)	Age, smoking, energy, use of oral contraceptives	85% of women included in the ‘alcohol’ dietary pattern cluster had an alcohol intake ≥ 27 g/d; no significant difference by menopausal status
			No				
			Yes				

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments
Gibson <i>et al.</i> (2009); Manila, Philippines	Nested case-control study (cohort of 151168 women recruited 1995–97, aged 35–64 years, as part of a randomized controlled trial of screening for breast cancer); follow-up until 2001; 123 incident cases matched to 978 controls, on area of residence, date of breast examination, age	Interview-administered questionnaire	<i>Drinker</i> No Yes	115 8	1.0 0.52 (0.2–1.5)	Age, area of residence, parity, age at first birth, education	
Lew <i>et al.</i> (2009), NIH-AARP Study	Analytical cohort of 184418 women recruited 1995–1996; aged 50–71 years; follow-up until 2003 (for an average of 7 years); 5 461 cases identified through cancer registry	Self-administered questionnaire	<i>Alcohol intake (g/d)</i> 0 0.1–5 5.1–10 10.1–20 20.1–35 > 35 Per drink/day p for trend	1 493 2 531 395 550 265 227	1.0 1.04 (0.97–1.10) 1.04 (0.93–1.16) 1.13 (1.02–1.25) 1.23 (1.08–1.41) 1.35 (1.17–1.56) 1.05 (1.03–1.07) < 0.001	Age, ethnicity, height, body mass index, age at first birth, parity, family history, age at menopause, physical activity, smoking, oral contraceptive use, hormone-replacement therapy use, breast biopsies, folate intake, fat intake, energy intake	No significant difference by subgroup of hormone-replacement therapy use, total folate intake, body mass index, family history, history of breast biopsy, smoking; similar associations for all histological subtypes and for all beverage types

Table 2.36. Cohort studies of consumption of alcoholic beverages and cancer of female breast

Reference, location, name of study	Cohort description (No. in analysis)	Exposure assessment	Exposure categories	No. of cases	Relative risk (95% CI)	Adjustment factors	Comments	
Li <i>et al.</i> (2009b), USA, Kaiser Permanente	Analytical cohort of 70033 women recruited 1978–1985; mean age 40.6 years; followed-up until 2004; 2 829 cases identified through cancer registry	Self-administered questionnaire	<i>Alcohol intake</i>				Age, ethnicity, education, body mass index, marital status, smoking, breast surgery, family history, parity	No significant difference by subgroups of ethnicity, age at recruitment, age at diagnosis, smoking, stage of cancer, time between recruitment and diagnosis, vital status; no significant difference by beverage type
			Never	442	1.0			
			Former	82	1.2 (1.0–1.5)			
			< 1 drink/month	761	1.1 (1.0–1.3)			
			< 1 drink/day	896	1.1 (1.0–1.2)			
			1–2 drinks/day	466	1.2 (1.1–1.4)			
			≥ 3 drinks/day	147	1.4 (1.1–1.7)			
Per drink/day		1.05 (1.01–1.10)						
p for trend		0.008						