

Table 2.54. Cohort studies of consumption of alcoholic beverages and cancer of the prostate in general populations

Reference, location, name of study	Cohort description	Exposure assessment	Exposure categories	No. of cases/deaths	Relative risk (95% CI)	Adjustment factors	Comments
Weinstein <i>et al.</i> (2006), Finland, USA, ATBC study in Collaboration: Finnish National Public Health Inst. and US National Cancer Inst.	1 270 men included in analysis of 1 347 cases total from a randomized control trial on Alpha-tocopheryl acetate and β -carotene, analysed as a cohort of 29 133 smoking (≥ 5 cigarettes/day) men aged 50–69 years; recruited between 1985–1988; from southwestern Finland; follow up until 2002	Self-administered Food Frequency Questionnaire	<i>Alcohol (g/d)</i> Non drinkers ≤ 3.7 > 3.7 and ≤ 10.0 > 10.0 and ≤ 18.7 > 18.7 and ≤ 32.2 > 32.2	151 255 234 236 202 192	1.00 0.98 (0.80–1.20) 0.96 (0.78–1.17) 1.03 (0.84–1.26) 0.90 (0.73–1.11) 0.94 (0.76–1.16) p -trend = 0.41	Age at randomization and vitamin supplement use	Majority of cases identified by symptoms; a few cases identified by PSA.

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Velicer <i>et al.</i> (2006), USA, Washington State, VITAL cohort study	34 565 men aged 50–76 years included in analysis; from 37 382 eligible men in a cohort of 77 738 men and women; recruited between October 2000 and December 2002; follow-up until December 2004	Self-administered Food Frequency Questionnaire	<i>Use in past year</i>		Hazard ratios	Age and PSA testing	Total alcohol consumed at ages 18, 30, and 45 was not associated with risk of prostate cancer
			None or < 1/ mo	1.00			
			1+/ mo	1.20 (1.02–1.40)			
			<i>No. of drinks in past year</i>				
			None or < 1/ mo	1.00			
			< 1/ mo – ≤ 4/ wk	1.26 (1.05–1.50)			
			5/ wk – < 2/ day	1.20 (0.99–1.46)			
			2+/ day	1.08 (0.86–1.34)			
				<i>p</i> trend = 0.36			
			<i>No. of drinks over lifetime</i>				
			None or < 1/ mo	1.00			
			< 1/ mo – ≤ 4/ wk	1.33 (0.96–1.85)			
			5/ wk – < 2/ day	1.16 (0.82–1.64)			
2+/ day	1.02 (0.64–1.64)						
	<i>p</i> trend = 0.27						
<i>White wine intake in past year</i>							
None	1.00						
Any	1.27 (1.08–1.49)						
<i>No. of white wine drinks in past year</i>							
None or < 1/ mo	1.00						
< 1/ mo – ≤ 4/ wk	1.29 (1.09–1.52)						
5/ wk – < 2/ day	1.12 (0.74–1.68)						
2+/ day	1.12 (0.60–2.11)						
	<i>p</i> trend = 0.03						

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Sutcliffe <i>et al.</i> (2007), USA, Health Professionals Follow-up Study	Ongoing cohort study of American health professionals aged 40–75 at enrolment in 1986	Questionnaire on lifestyle, demographics, and medical history each second year since baseline in 1986; Semiquantitative food frequency questionnaire every 4 th year	<i>Total alcohol consumption at baseline(g/day)</i>				Age, ethnicity family history of prostate cancer through 1996, height, BMI at age 21, cigarette smoking past 10 years, baseline intake of total energy, tomato sauce, red meat, fish, calcium, vitamin E, energy adjusted intake of fructose, and α -linolenic acid, vigorous physical activity, diabetes mellitus 2, vasectomy Red wine consumption was further adjusted for intake of all other specific alcoholic beverage types
			None	307	1.00		
			0.01–1.31	158	0.90 (0.74–1.09)		
			1.32–2.41	205	1.02 (0.85–1.22)		
			2.42–7.03	594	1.12 (0.97–1.29)		
			7.04–16.4	840	1.16 (1.01–1.32)		
			≥ 16.5	798	1.14 (0.99–1.31)		
					<i>p</i> trend = 0.0030		
			<i>Unchanged alcohol consumption 1976–86 Total alc. consumption</i>				
			None	239	1.00		
			0.01–1.31	41	0.68 (0.48–0.95)		
			1.32–2.41	78	1.06 (0.82–1.38)		
			2.42–7.03	295	1.16 (0.97–1.38)		
			7.04–16.4	502	1.09 (0.93–1.29)		
			≥ 16.5	544	1.14 (0.96–1.34)		
					<i>p</i> trend = 0.030		
			<i>Red wine consumption at baseline(g/day)</i>				
			None	1598	1.00		
			0.01–1.31	655	0.91 (0.82–1.01)		
			1.32–2.41	300	0.89 (0.77–1.03)		
			2.42–7.03	232	0.91 (0.78–1.07)		
7.04–16.4	90	1.12 (0.89–1.40)					
≥ 16.5	27	1.06 (0.72–1.56)					
		<i>p</i> trend = 0.35					
<i>White wine consumption at baseline(g/day)</i>							
None	1041	1.00					
0.01–1.31	806	1.05 (0.94–1.17)					
1.32–2.41	425	1.12 (0.98–1.28)					
2.42–7.03	430	1.22 (1.06–1.39)					
7.04–16.4	151	1.02 (0.84–1.22)					
≥ 16.5	49	1.19 (0.89–1.60)					
		<i>p</i> trend = 0.03					

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Sutcliffe <i>et al.</i> (2007), (contd)			<i>Beer consumption at baseline(g/day)</i>				
			None	1069	1.00		
			0.01–1.31	627	1.04 (0.94–1.16)		
			1.32–2.41	385	1.08 (0.96–1.23)		
			2.42–7.03	450	1.03 (0.92–1.16)		
			7.04–16.4	256	1.07 (0.92–1.23)		
			≥ 16.5	115	1.10 (0.89–1.34)		
						<i>p</i> trend = 0.27	
			<i>Liquor consumption at baseline(g/day)</i>				
			None	1007	1.00		
			0.01–1.31	463	1.01 (0.90–1.13)		
			1.32–2.41	284	1.08 (0.94–1.23)		
			2.42–7.03	458	1.08 (0.96–1.21)		
			7.04–16.4	399	1.07 (0.94–1.21)		
			≥ 16.5	291	1.10 (0.96–1.27)		
						<i>p</i> trend = 0.09	
			High-grade cancer				
			<i>Unchanged red wine consumption 1976–86</i>				
			None	305	1.00		
			0.01–1.31	113	0.76 (0.59–0.97)		
1.32–2.41	70	0.80 (0.58–1.10)					
2.42–7.03	45	0.75 (0.52–1.08)					
7.04–16.4	17	0.86 (0.50–1.48)					
≥ 16.5	10	1.72 (0.88–3.36)					
			<i>p</i> trend = 0.42				

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Rohrmann <i>et al.</i> (2008), EPIC; European Prospective Investigation into Cancer and Nutrition	From 148 372 males participants recruited between 1992–2000, 142 607 were eligible for analysis; 2 655 prostate cancer were observed during 8.7 years of follow-up	Self administered food frequency questionnaire	<i>Alcohol consumption at baseline (g/day)</i>				Stratified by: Age, study centre; Adjusted for: weight, height, total physical activity, smoking status, energy intake without energy from alcohol
			<i>All cases</i>				
			0	204	0.95 (0.81–1.12)		
			0.1–4.9	615	1.00 (ref)		
			5–14.9	745	0.99 (0.89–1.11)		
			15–29.9	531	0.95 (0.84–1.08)		
			30–59.9	422	1.03 (0.90–1.18)		
			≥ 60	138	0.88 (0.72–1.08)		
			<i>Average lifetime alcohol consumption (g/day)</i>				
			<i>All cases</i>				
			0	20	0.82 (0.51–1.29)		
			0.1–4.9	260	1.00 (ref)		
			5–14.9	482	1.03 (0.88–1.21)		
			15–29.9	421	1.08 (0.91–1.27)		
30–59.9	283	1.02 (0.85–1.23)					
≥ 60	142	1.09 (0.86–1.39)					
Advanced cancer							
<i>Alcohol consumption at baseline (g/day)</i>							
0	33	0.74 (0.50–1.10)					
0.1–4.9	136	1.00 (ref)					
5–14.9	161	0.97 (0.77–1.23)					
15–29.9	93	0.73 (0.55–0.97)					
30–59.9	76	0.77 (0.57–1.05)					
≥ 60	38	0.98 (0.66–1.44)					
<i>Average lifetime alcohol consumption (g/day)</i>							
0	4	0.81 (0.29–2.25)					
0.1–4.9	65	1.00 (ref)					
5–14.9	110	0.90 (0.65–1.25)					
15–29.9	76	0.72 (0.50–1.03)					
30–59.9	66	0.96 (0.65–1.40)					
≥ 60	33	1.28 (0.79–2.07)					

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Chao <i>et al.</i> (2010), USA, California Men's Health Study	Multiethnic cohort of 84 170 men aged 45–69 years. Baseline questionnaire between 2002 and 2003; Follow-up until end of December 2007. Follow-up rate: 83% 2028 cancer cases detected at end of follow-up; cancer patients and diagnosis of prostate cancer < 12 months from start were excluded; 1 340 cases included in analysis	Mailed questionnaires	Red wine intake (drinks)				Age, race, income, BMI, intake of other alcoholic beverages, meat consumption, family history of prostate cancer, own history of PSA testing, STI, BPH, BPH surgery, prostatitis, diabetes mellitus
			<i>All cases</i>				
			Non drinker	775	1.00		
			< 1/week	186	0.89 (0.74–1.07)		
			≥ 1 week, < 1 day	294	0.99 (0.83–1.17)		
			≥ 1 day	85	0.88 (0.70–1.12)		
					<i>p</i> trend = 0.92		
			<i>White</i>				
			Non drinker	445	1.00		
			< 1/week	116	0.85 (0.67–1.07)		
			≥ 1 week, < 1 day	237	1.03 (0.85–1.26)		
			≥ 1 day	65	0.84 (0.64–1.11)		
					<i>p</i> trend = 0.44		
			<i>African American</i>				
			Non drinker	145	1.00		
< 1/week	26	1.11 (0.67–1.84)					
≥ 1 week, < 1 day	17	1.05 (0.59–1.88)					
≥ 1 day	5	1.14 (0.45–2.86)					
		<i>p</i> trend = 0.87					
<i>High-grade cancer</i>							
Non drinker	263	1.00					
< 1/week	64	0.87 (0.64–1.20)					
≥ 1 week, < 1 day	91	0.90 (0.86–1.31)					
≥ 1 day	25	0.73 (0.47–1.13)					
		<i>p</i> trend = 0.40					
Beer intake (drinks)							
<i>All cases</i>							
Non drinker				1.00			
< 1/week				1.00 (0.85–1.17)			
≥ 1 week, < 1 day				0.96 (0.83–1.13)			
≥ 1 day				0.96 (0.78–1.18)			
				<i>p</i> trend = 0.77			

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Chao <i>et al.</i> (2010) (contd)			White wine intake (drinks) <i>All cases</i>				
			Non drinker		1.00		
			< 1/week		0.94 (0.79–1.12)		
			≥ 1 week, < 1 day		0.95 (0.79–1.14)		
			≥ 1 day		1.10 (0.81–1.49)		
					<i>p</i> trend = 0.78		
			Liquor intake (drinks) <i>All cases</i>				
			Non drinker		1.00		
			< 1/week		1.10 (0.93–1.30)		
			≥ 1 week, < 1 day		1.13 (0.96–1.34)		
			≥ 1 day		1.05 (0.82–1.33)		
					<i>p</i> trend = 0.74		

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Gong <i>et al.</i> (2009), USA, Prostate Cancer Prevention Trial	10 920 eligible men ≥ 55 years, with normal digital rectal examination and PSA ≤ 3.0 ng/mL randomized to receive finasteride or placebo (combined group = finasteride + placebo). 7 years of follow-up; 2 129 prostate cancer cases detected during follow-up	Self administered questionnaire at baseline	High-grade cancer				Age, race, BMI, education, diabetes, smoking, family history of prostate cancer, physical activity, baseline PSA level Results for beer consumption were also adjusted for intake of other alcoholic beverage types
			Placebo arm			1.00	
			No alcohol	57	1.03 (0.73–1.45)		
			>0, <3 g/day	67	1.17 (0.84–1.62)		
			3, <15	81	0.96 (0.62–1.48)		
			15, <30	29	1.20 (0.71–2.04)		
			30, <50	17	1.67 (0.81–3.41)		
			≥ 50 g/day	8	<i>p</i> trend = 0.31		
			Beer intake				
			None	96	1.00		
			>0, <15 g/day	142	0.83 (0.61–1.14)		
			15, <50 g/day	13	0.87 (0.48–1.58)		
≥ 50 g/day	6	2.65 (1.19–5.92)					
			<i>p</i> trend = 0.85				
			High-grade cancer				
			Combined arm				
			Total alcohol				
			None		1.00		
			≥ 50 g/day		2.01 (1.33–3.05)		
			Beer intake				
			None		1.00		
			≥ 50 g/day		2.89 (1.76–4.76)		

The ICD code for prostate cancer is 185