

**Table 2.10. Case-control studies on consumption of alcoholic beverages and cancer of the oesophagus**

Reference, study location and period	Organ site (ICD code)	Characteristics of cases	Characteristics of controls	Exposure categories	No. of exposed cases	Relative risk (95% CI)	Adjustment for potential confounders	Comments
Vioque <i>et al.</i> (2008), Spain, 1995–99	Oesophagus	202 (187 men, 15 women), histologically confirmed; 160 (79.2%) squamous-cell carcinomas, 42 adenocarcinoma; Participation rate, 95.8%. Face-to-face interview	455 hospital patients (285 men, 170 women) with diseases not related a priori to tobacco and alcohol use and diet; frequency matched to cases by age, sex, and province; Participation rate, 99.6%. Face to face interview	<b>All oesophageal cancers</b> Alcohol consumption Never Former drinker Current pure ethanol intake 1–24 g/day 25–74 g/day ≥ 75 g/day  <i>Years since quitting</i> Current drinker <5 yr ≥5 yr  <b>Only OSCC</b> <i>Alcohol consumption</i> Never Former drinker Current pure ethanol intake 1–24 g/day 25–74 g/day ≥ 75 g/day <i>P</i> for trend  <i>Years since quitting</i> Current drinker <5 yr ≥5 yr	  16 38  27 45 75  148 16 22  6 31 12 38 72  123 14 17	  1.00 5.40 (2.43–12.00)  1.16 (0.54–2.49) 2.89 (1.29–6.48) 7.65 (3.16–18.49)  1.00 3.60 (1.34–9.69) 1.71 (0.86–3.41)  1.00 16.03 (5.34–48.07) 1.71 (0.56–5.20) 8.02 (2.64–24.40) 23.20 (7.19–74.90) <0.00001  1.00 5.89 (2.01–17.25) 1.70 (0.79–3.66)	Sex, age, education level, province, tobacco smoking, energy-adjusted intake of fruit and vegetable, energy intake	Too few cases to examine beverage type reliably. Increasing risk with duration of drinking, no association with age at starting to drink. Risk estimates higher if the analysis included squamous cell carcinomas only.

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Pandeya <i>et al.</i> (2009) Australia	Oesophagus or oesophagogastric junction	From 2002-2005 oesophagus cancer patients were recruited through treatment centres or cancer registries; 70% participation rate. Self-completed questionnaire. In total, 365 adenocarcinomas, 426 oesophagogastric junction adenocarcinomas (OGJAC) and 303 squamous cell carcinomas.	Controls selected randomly from the Australian Electoral Roll frequency matched on age and residence. Females oversampled intentionally to accommodate an intentional ovarian cancer study. 51% response rate. Self-completed questionnaire.	<i>Average lifetime alcohol intake</i>			Adjusted for age, sex, body mass index 1 year ago, frequency of heartburn/acid reflux, aspirin use and smoking	At alcohol intakes below 170 g/week, no association with OSCC. Indications of a decreased risk of oesophageal cancer in low/moderate wine drinkers, but residual confounding could not be ruled out. No association between alcohol intake and OAC/OGJAC when stratified for smoking status. Similar associations found in men and women.
				<b>OAC</b>	365	1.00		
				Never drinkers		0.73 (0.31-1.67)		
				<10g/week		0.75 (0.43-1.30)		
				10-69.9g		0.71 (0.41-1.24)		
				70.0-209.9g		0.67 (0.37-1.21)		
				210-419.9g		0.89 (0.42-1.89)		
				>420g		0.92		
				P for trend				
				<b>OGJAC</b>	426	1.00		
				Never drinkers		0.79 (0.39-1.63)		
				<10g/week		0.81 (0.50-1.33)		
				10-69.9g		0.69 (0.42-1.14)		
				70.0-209.9g		0.68 (0.40-1.17)		
				210-419.9g		0.83 (0.41-1.67)		
				>420g		0.38		
				P for trend				
				<b>OSCC</b>				
				Never drinkers	303	1.00		
				<10g/week		0.89 (0.45-1.78)		
				10-69.9g		0.62 (0.37-1.04)		
				70.0-209.9g		0.71 (0.41-1.22)		
				210-419.9g		1.93 (1.08-3.45)		
				>420g		4.67 (2.28-9.55)		
				P for trend		<0.001		

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Pandeya <i>et al.</i> (2009) contd.				<b>OSCC</b>				
				<b>Never smokers</b>	77		Adjusted for age, sex, body mass index 1 year ago, frequency of heartburn/acid reflux and aspirin us	
				Never drinkers		1.0		
				<10g/week		0.50 (0.18-1.39)		
				10-69.9g		0.46 (0.23-0.95)		
				70.0-209.9g		0.78 (0.32-1.92)		
				210-419.9g		2.88 (1.04-7.97)		
				>420g		1.86 (0.19-18.11)		
				<b>Former smokers</b>	93			
				Never drinkers		1.0		
				<10g/week		4.13 (0.76-22.41)		
				10-69.9g		2.30 (0.49-10.80)		
				70.0-209.9g		1.41 (0.30-6.74)		
				210-419.9g		3.69 (0.77-17.66)		
				>420g		8.43 (1.59-44.80)		
				<b>Current smokers</b>	132			
				Never drinkers		1.0		
				<10g/week		0.35 (0.03-4.28)		
				10-69.9g		0.48 (0.11-2.09)		
				70.0-209.9g		2.00 (0.50-7.98)		
				210-419.9g		4.95 (1.08-22.66)		
				>420g		21.9 (3.90-122.5)		

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Benedetti <i>et al.</i> (2009) Canada	Oesophagus	Males aged 35-70 years living in the Montreal area newly diagnosed at any Montreal-area hospital. Multiple cancer sites included. 78 oesophageal cancer cases. Population-based. Response rate for oesophageal cancer and several other cancer types combined was 82%. Face to face interview	Population controls randomly selected from electoral lists, area and age stratified to the distribution of all cancer sites. 507 controls in total. Response rate 72%, 13% were additionally excluded due to missing alcohol information. Face to face interview	<b>Total alcohol intake</b> Never weekly 1-6 drinks/weekly 7+ drinks/weekly  <b>Cumulative use among those with 7+ drinks/weekly</b> 0-71 drink-years 72-179 drink-years 180+ drink-years  <b>Any alcohol intake by histological subtype</b> OSCC OAC	7 19 52  7 14 31	1.00 1.83 (0.7-4.5) 2.97 (1.3-6.8)  1.09 (0.4-3.4) 2.33 (0.9-6.1) 7.40 (3.0-18.4)  6.1 (1.4-26.6) 1.5 (0.4-5.7)	Adjusted for age, smoking status and duration, ethnicity, income, years of schooling and time since quitting alcohol. Additional adjustments for fruit and vegetable consumption in analyses for cumulative intake.	In the cumulative use and histological subtype analyses, 'never drinkers' was the reference.

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Lee <i>et al.</i> (2005) Taiwan 1996-2003	Oesophagus (ICD 9: 150)	513 cases (428 men, 45 women) aged 28-89 years, systematically recruited from 3 hospitals, 64.5% participation rate, histologically confirmed squamous cell. Face to face interview	Healthy hospital-based controls who attended for check-ups, matched by gender and age; 1-3 controls per case, 95.0% participation rate. Face to face interview	Never drinker Former drinker Current drinker <i>P</i> for trend <i>Years of drinking</i> 1-15 16-35 >35 <i>P</i> for trend <i>Average alcohol intake (g/day)</i> 1-20 21-40 >40 <i>P</i> for trend <i>Type of beverage</i> Beer Wine Spirits <i>Years since quitting</i> current drinker 1-5 6-10 >10 never drinker <i>P</i> for trend	110 114 289  45 203 155  119 66 218  186 159 58  289 66 22 26 110	1.0 5.5 (3.6-8.6) 7.6 (5.2-11.1) <0.0001 5.5 (3.1-9.9) 6.1 (4.1-9.2) 8.6 (5.5-13.5) <0.0001 3.6 (2.4-5.4) 6.1 (3.6-10.3) 19.5 (12.1-31.2) <0.0001 5.9 (4.0-8.8) 7.7 (5.0-11.8) 9.0 (5.0-16.3) 1.0 1.3 (0.7-2.4) 0.8 (0.4-1.8) 0.3 (0.1-0.6) 0.1 (0.1-0.2) 0.002	Sex, age, study hospital, education, consumption of vegetables and fruits, cumulative use of cigarettes and betel quid chewing	No difference according to age at starting of drinking ( $\leq 26$ versus $> 26$ years)

ICD, international classification of disease; CI, confidence interval; OAC, oesophageal adenocarcinoma; OSCC, oesophageal squamous cell carcinoma