

Table 2.11. Cohort studies on the consumption of alcoholic beverage and upper-aerodigestive tract cancer combined

Reference, study location, period	Organ site (ICD code)	Characteristics of study population	Exposure assessment	Exposure categories	Cases	Relative risk and 95% CI	Adjustment factors	Comments
Freedman <i>et al.</i> (2007a) USA	Oral cavity, oropharynx, hypopharynx and larynx (ICD-O-3: C00.1-C06.9, C0.9.0-C09.9, C10.0-C10.9, C12.9, C13.0-C13.9, C14.0, C32.0-C32.9)	492 960 participants in the NIH-AARP Diet and health study cohort 794 cases (611 men and 183 women)	Self-administered questionnaire	<i>Total alcohol</i> Women 0 drink per day < 1 drink per day 1–3 drinks per day > 3 drinks per day p trend Men 0 drink per day < 1 drink per day 1–3 drinks per day > 3 drinks per day p trend	54 75 36 18 165 226 110 110	1.46 (1.02–2.08) 1.00 1.99 (1.33–2.99) 2.52 (1.46–4.35) 0.0002 1.68 (1.37–2.06) 1.0 1.23 (0.98–1.55) 1.48 (1.15–1.90) 0.001	Gender, age, education, body mass index, smoke-quit-dose, vigorous physical activity, usual activity throughout the day, fruit intake, vegetable intake, and total energy	Results generally similar when stratified for beverage type. Low frequency of heavy wine drinking.
Allen <i>et al.</i> (2009) United Kingdom	Upper-aero digestive tract (ICD-10: C00-C14, C15, C32).	Million Women Study: cohort of 1 280 296 middle-age women in the United Kingdom;	Self-administered questionnaire	<i>Alcohol intake</i> Never smokers ≤ 2 drinks/week 3–6 drinks/week ≥ 7 drinks/week P for trend Past smokers ≤ 2 drinks/week 3–6 drinks/week ≥ 7 drinks/week P for trend Current smokers ≤ 2 drinks/week 3–6 drinks/week ≥ 7 drinks/week P for trend	165 121 83 88 75 116 112 126 257	1.00 (0.86–1.17) 1.04 (0.87–1.25) 0.93 (0.75–1.16) 0.8 1.28 (1.04–1.58) 1.22 (0.97–1.53) 1.46 (1.22–1.75) 0.09 2.54 (2.10–3.06) 3.57 (2.99–4.26) 5.22 (4.60–5.92) < 0.001	Age, region of residence, socioeconomic status, body mass index, physical activity, oral contraceptives and hormone replacement therapy.	Floated confidence intervals, ≤ 2 drinks/week reference group

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Thygesen <i>et al.</i> (2007), Denmark, Copenhagen City Heart Study	Tongue, oral cavity, pharynx, larynx, oesophagus (ICD7: 141.0, 141.1, 141.8, 143.0, 144.0, 144.2, 145.0, 146.0, 146.4, 147.0, 148.0, 161.0, 161.1, 150.0-150.2)	Randomly selected 4 896 men and 6 239 women from Copenhagen, examined in 1976–1978 and 1981–83, were followed from 1981 to 2002	Multiple-choice format to describe beverage consumption (questionnaire)	<i>Alcohol intake in 1981</i>		1.00	Age, sex, smoking, level of education, average income, body mass index Results for changes in alcohol intake were adjusted for age, sex, initial alcohol intake and changes in smoking	
				<1 <i>drinks/week</i>		0.6 (0.3–1.3)		
				1–6 <i>drinks/week</i>		1.1 (0.6–2.1)		
				7–14 <i>drinks/week</i>		1.0 (0.4–2.1)		
				15–21 <i>drinks/week</i>		1.2 (0.5–3.1)		
				22–41 <i>drinks/week</i>		2.5 (1.3–5.0)		
				42–68 <i>drinks/week</i>		3.3 (1.2–9.6)		
				≥ 69 <i>drinks/week</i>		0.0001		
				<i>p-trend</i>	2			
				<i>Change in alcohol intake between 1976–1978 and 1981–1983</i>	22			
				≤ 7 <i>drinks/week</i>	14	0.5 (0.1–2.5)		
				–6.9–1 <i>drinks/week</i>	35	1.2 (0.5–2.7)		
				–0.9–0.9 <i>drinks/week</i>		1.00		
+1–6.9 <i>drinks/week</i>		1.3 (0.6–2.7)						
+7–14 <i>drinks/week</i>		1.4 (0.6–3.3)						
> 14 <i>drinks/week</i>		2.5 (1.1–5.3)						
<i>p-trend</i>		<0.0001						

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Weikert <i>et al.</i> (2009), European Prospective Investigation into Cancer and Nutrition	UADT squamous cell carcinoma (C01-C06, C09-C10, C13-C14, C15, C32)	Cohort of 271 253 participants from six European countries	Interview or, mostly, self-administered questionnaire	Men				Age, smoking, education, fruit and vegetable intake, body mass index	Interaction between lifetime alcohol and smoking not significant ($P = 0.27$ men; $P = 0.49$ women). Significant difference by beverage type in males, but not in females.
				Baseline alcohol intake					
				Never	1	0.44 (0.06–3.24)			
				Former	36	3.51 (2.16–5.71)			
				0.1–6.0 g/d	35	1.00			
				6.1–18.0 g/d	34	0.68 (0.42–1.09)			
				18.1–30.0 g/d	25	0.80 (0.47–1.36)			
				30.1–60.0 g/d	63	1.31 (0.85–2.01)			
				60.1–96.0 g/d	37	1.66 (1.02–2.71)			
				≥ 96 g/d	48	4.79 (2.96–7.74)			
				p-trend		< 0.0001			
				per 10 g/d increase	279	1.14 (1.11–1.18)			
				Lifetime alcohol intake					
				Never	1	0.51 (0.07–3.80)			
				Former	36	4.14 (2.38–7.19)			
0.1–6.0 g/d	23	1.00							
6.1–18.0 g/d	44	0.78 (0.47–1.31)							
18.1–30.0 g/d	46	1.10 (0.65–1.86)							
30.1–60.0 g/d	70	1.65 (1.00–2.71)							
60.1–96.0 g/d	30	2.20 (1.23–3.95)							
≥ 96 g/d	32	4.63 (2.52–8.48)							
p-trend		< 0.0001							
per 10 g/d increase	279	1.10 (1.08–1.13)							

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Weikert <i>et al.</i> (2009) (contd)				<i>Women</i>				
				Baseline alcohol intake				
				Never	9	2.33 (1.02–5.30)		
				Former	9	2.07 (0.93–4.63)		
				0.1–6.0 g/d	29	1.00		
				6.1–18.0 g/d	34	1.86 (1.12–3.09)		
				18.1–30.0 g/d	8	1.29 (0.58–2.89)		
				≥ 30 g/d	24	3.26 (1.82–5.87)		
				p-trend		0.0009		
				per 10 g/d increase	113	1.23 (1.11–1.36)		
				Lifetime alcohol intake				
				Never	9	2.22 (0.99–4.99)		
				Former	9	2.01 (0.91–4.43)		
				0.1–6.0 g/d	34	1.00		
6.1–18.0 g/d	38	1.67 (1.03–2.69)						
18.1–30.0 g/d	11	1.84 (0.90–3.75)						
≥ 30 g/d	12	6.05 (2.98–12.3)						
p-trend		< 0.0001						
per 10 g/d increase	113	1.29 (1.16–1.43)						