

**Table 2.7. Cohort studies of smokeless tobacco and oesophageal cancer**

Reference, location, name of study	Cohort description	Exposure assessment	Organ site (ICD code)	Exposure categories	No. of cases/deaths	Relative risk (95% CI)*	Adjustment for potential confounders	Comments
<b>Europe</b> Boffetta et al. (2005), Norwegian cohort	Probability sample of general adult population of Norway from 1960 census and relatives of migrants to the USA, alive on 1 January 1966 ( <i>n</i> = 12 431) Follow-up for cancer incidence via cancer registries, 1966–2001 (99.85% complete)	Mailed questionnaires on lifestyle habits in 1964 and 1967; information on smokeless tobacco available for 10 136		Never user Ever user Current user Former user	18 9 4 5	1.0 1.40 (0.61–3.24) 1.06 (0.35–3.23) 1.90 (0.69–5.27)	Adjusted for age, smoking	Included in Boffetta 2008 and Lee and Hamling 2009 meta-analyses.
Zendehdel et al., (2008) Swedish Construction cohort	361 280 persons who were blue and white collar workers in the Swedish building industry nationally between 1969 and 1993 who received at least one preventive health check-up between 1971 and 1993. Women who were less than 5% of the participants, were excluded leaving 343 822 male workers. This number reduced to 336 381 after exclusion of invalid national ID numbers, missing BMI data, or previous cancer. Followed through nationwide register of cancer, death, total population and migration. Followed to end of 2004. Cancer registry 98% complete. 100% histologically confirmed.	Self-administered questionnaire at first preventive health visit from 1971–1975 and obtained by staff member and entered on form from 1978 until 1993	ICD7 code 150	<b>In the entire Cohort</b>  Non-users of snus <i>Snus users, adjusted only for BMI and attained age</i> < 70 years old ≥ 70 years old  <i>Snus users, additionally adjusted for smoking intensity</i> < 70 years old ≥ 70 years old  <b>Among ever smokers</b> Non-users of snus <i>Snus users adjusted only for BMI and attained age</i> < 70 years old ≥ 70 years old	<b>Adenocarcinoma</b>  103 27  14 13  27  14 13  83 26  13 13	<b>Squamous cell</b>  1.0 1.0 (0.6–1.5)  0.7 (0.4–1.2) 1.6 (0.8–3.0)  1.0 (0.6–1.5)  0.7 (0.4–1.3) 1.7 (0.9–3.3)  1.0 1.0 (0.6–1.5)  0.6 (0.3–1.1) 2.3 (1.1–4.6)	186 50  28 22  50  28 22  170 40  23 17	1.0 1.1 (0.8–1.5)  0.9 (0.6–1.4) 1.4 (0.8–2.2)  1.0 (0.8–1.4)  0.9 (0.6–1.3) 1.4 (0.8–2.2)  1.0 0.6 (0.5–1.2)  0.7 (0.4–1.1) 1.1 (0.6–1.9)

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Zendehdel et al., (2008) (contd)				<i>Snus users, additionally adjusted for smoking variables</i>	26	1.3 (0.8–2.0)	40	1.2 (0.8–1.7)
				< 70 years old	13	0.8 (0.4–1.5)	23	1.0 (0.6–1.6)
				≥ 70 years old	13	2.9 (1.4–6.0)	17	1.6 (0.9–2.8)
				<b>Among never smokers, adjusting for attained age and BMI</b>				
				Never users of any tobacco	20	1.0	16	1.0
				<i>Users of snus only</i>	1	0.2 (0.0–1.9)	10	3.5 (1.6–7.6)
				< 70 years old	1	0.6 (0.1–5.0)	5	3.7 (1.2–11.4)
				≥ 70 years old	0	-	5	3.1(1.0–9.4)
								Included in Boffetta 2008 and Lee and Hamling 2009 meta-analyses.