

**Table 2.10. Case-control studies of combined estrogen-progestogen oral contraceptives and malignant melanoma**

Reference, location	No. of cases	Age (years)	No. of controls	Exposure	No. of cases/No. of controls	Odds ratios (95% CI)	Adjustment/comments
Beral et al. (1977), USA	37 from hospital-based cancer register	20–59	74	Never used	22/33	1.0	Walnut Creek Contraceptive Drug Study; review of medical records
				Ever used	13/36	1.8 [0.7–4.6]	
				No information	2/5	–	
Adam et al. (1981), United Kingdom	169	15–49	342	Never used	66/214	1.0	Unadjusted; cases were moderately more sensitive to sun and more likely to engage in outdoor tanning activities; 8% of cases and 3% of controls had ever used sunlamps ( $P < 0.05$ ); postal questionnaire
				Ever used	44/126	[1.1 (0.7–1.8)]	
				<i>Current or past use</i>			
				1 month–4 years	22/72	[1.0 (0.6–1.8)]	
				≥ 5 years	17/35	1.6 (0.8–3.1)	
				No information	5/19		
Holly et al. (1983), Seattle, USA	87	35–74	863	Never used	38/621	1.0	Age; no data on exposure to sun
				<i>Current or past use</i>			
				1–4 years	6/118	[0.8 (0.3–2.2)]	
				5–9 years	9/78	[1.9 (0.8–4.2)]	
				≥ 10 years	9/47	[3.1 (1.3–7.3)]	
				<i>For SSM only, use for</i>			
				≥ 5 years, and			
				Current use	NR	0.9 (0.1–9.7)	
				1–4 years since last use	NR	2.5 (0.8–7.0)	
				≥ 5 years since last use	NR	5.1 (2.0–12.8)	
Lew et al. (1983), Massachusetts State, USA	111	23–81	107	–	–	–	No data reported but authors stated that there was no difference in combined oral contraceptive use between cases and controls.

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Beral et al. (1984), Sydney, Australia	287	15-24	574	Never used	79/159	1.0	No adjustment made, but authors stated that education, phenotype, history of sunburn and exposure to sun did not alter results; no difference by body location, thickness or histological type of melanoma
				<i>Current or past use</i>			
				1-4 years	124/274	[0.9 (0.6-1.3)]	
				5-9 years	56/103	[1.1 (0.7-1.7)]	
				≥ 10 years	28/36	[1.6 (0.9-2.9)]	
Helmrich et al. (1984), Canada and USA	160	20-59	640	Never used	97/370	1.0	Adjusted for age, area, religion, education, hormone-related variables
				Ever used	63/270	0.9 (0.6-1.3)	
				Use during year before study	8/52	0.5 (0.2-1.3)	
				Use for 5 years before study	4/18	0.9 (0.3-2.9)	
				<i>Current or past use</i>			
				< 1 year	15/82	0.7 (0.4-1.3)	
				1-4 years	23/106	0.8 (0.5-1.4)	
				5-9 years	11/49	0.8 (0.4-1.7)	
				≥ 10 years	5/21	1.0 (0.4-2.9)	
				Unknown	9/12		
			Use for ≥ 5 years, starting 10 years before study	12/46	1.0 (0.5-2.1)		
Holman et al. (1984), Western Australia	276	18-79	276	Never used	NR	1.0	Adjusted for sensitivity to sun, migration status, sun exposure; no difference in risk estimates for the different histological types; no association with time since last use; home interviews
				Ever used	NR	1.0 (0.6-1.6)	
				<i>Current or past use</i>			
				< 2 years	NR	0.8 (0.3-2.0)	
				2-4 years	NR	2.2 (0.7-6.8)	
≥ 5 years	NR	1.6 (0.5-4.9)					

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Gallagher et al. (1985), Canada	361	20-79	361	Never used	NR	1.0	Adjusted for age, education, phenotype, freckling; no difference in risk estimates for the different histological types; home interviews
				<i>Current or past use</i>			
				< 1 year			
				1-4 years	NR	1.0 (NR)	
				≥ 5 years	NR	0.9 (NR)	
					NR	0.8 (NR)	
						Trend NS	
Green & Bain (1985), Queensland, Australia	91	15-81	91	Never used	48/42	1.0	Adjustment for phenotypic characteristics, solar exposure did not change results; no trend with time since last use and age at last use
				Ever used	43/49	0.7 (0.4-1.5)	
				<i>Current and past use</i>			
				1 month-4 years	31/30	[0.9 (0.5-1.8)]	
				> 4 years	12/19	0.4 (0.2-1.1)	
Østerlind et al. (1988), Denmark	280	20-79	536	Never used	167/299	1.0	Adjusted for age, sensitivity to sun, sunbathing; no difference according to type and potency of combined oral contraceptives
				Ever used	111/237	0.8 (0.5-1.2)	
				<i>Current or past use</i>			
				< 2 years	24/58	0.8 (0.4-1.4)	
				2-4 years	30/68	0.8 (0.4-1.3)	
				5-9 years	27/59	0.8 (0.4-1.4)	
				≥ 10 years	30/52	1.0 (0.6-1.7)	
Zanetti et al. (1990), Province of Turin, Italy	186	19-92	205	Never used	83/88	1.0	Analysed only in women aged 60 or younger; adjusted for age, education, phenotype, sunbathing; risk did not change according to type or location of melanoma, age or potency of combined oral contraceptive; hospital and home interviews.
				Ever used	NR	1.0 (0.5-1.9)	
				<i>Current or past use</i>			
				< 3 years	14/18	0.9 (0.4-1.8)	
				≥ 3 years	13/17	0.9 (0.3-2.0)	

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Lê et al. (1992), France	91	18–44	149	Never used	24/38	1.0	Adjusted for sensitivity, exposure to sun for a subgroup of cases and controls with no substantial changes in risk estimates for duration of use; no association with time since first use, age at first use or combined duration of use and time since first use
				<i>Current or past use</i>			
				1–9 years	54/97	1.1 (0.6–2.0)	
				≥ 10 years	13/14	2.1 (0.7–5.9)	
Palmer et al. (1992), New York and Philadelphia, USA	615	18–64	2107	Never used	313/800	1.0	Adjusted for age, education, body mass index, menopause, phenotype; elevated risk among non-severe cases of melanoma was attributed to surveillance bias; similar relative risk for different types
				<i>Current or past use</i>			
				< 3 years	201/447	[1.2 (0.9–1.4)]	
				≥ 3 years	73/193	[1.0 (0.7–1.3)]	
				Unknown	23/57		
				<i>Severe cases with</i>			
				5–9 years of use	12/80	1.0 (0.5–2.0)	
≥ 10 years of use	29/187	1.1 (0.6–2.1)					
<i>Non-severe cases with</i>							
5–9 years of use	11/79	1.5 (0.8–2.6)					
≥ 10 years of use	6/80	2.0 (0.9–4.3)					
Zaridze et al. (1992), Moscow, Russian Federation	54	NR	54	Never used	53/47	1.0	Adjusted for phenotype, naevi and sunbathing
				Ever used	1/7	0.04 (0.00–0.5)	

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Holly et al. (1995), San Francisco, USA	452	25–59	930	<b>CMM</b>			Adjusted for age; authors stated that risk estimates were unaltered by education, phenotype or exposure to sun.
				Never used	NR	1.0	
				Ever used	NR	0.7 (0.5–1.0)	
				<i>Current or past use</i>			
				< 5 years	NR	0.6 (0.4–0.9)	
				5–9 years	NR	0.9 (0.6–1.4)	
				≥ 10 years	NR	1.0 (0.6–1.6)	
				<b>SMM</b>			
				Ever used	NR	0.7 (0.5–0.9)	
				<i>Current or past use</i>			
< 5 years	NR	0.6 (0.4–0.8)					
5–9 years	NR	0.8 (0.6–1.1)					
≥ 10 years	NR	0.8 (0.5–1.3)					
Westerdahl et al. (1996), Sweden	180	15–75	292	Never used	108/182	1.0	Adjusted for phenotype, naevi, sunburn; age at use and timing of use in relation to first child did not influence risk.
				Ever used	65/78	1.6 (0.9–2.8)	
				<i>Current or past use</i>			
				< 4 years	26/30	2.2 (0.9–4.6)	
				4–7 years	20/28	1.5 (0.7–3.5)	
≥ 8 years	19/40	1.0 (0.5–2.0)					
Smith et al. (1998), Connecticut State, USA	308	≥ 18	233	Never used	170/131	1.0	Adjusted for age, marital status, hair colour, number of arm naevi, sun exposure index; no trend with duration of use and no association with age at first use
				Ever used	138/72	1.1 (0.6–1.7)	
				<i>Current or past use</i>			
				≤ 2 years	60/40	1.3 (0.7–2.3)	
				> 2–5 years	29/7	0.6 (0.3–1.2)	
> 5 years	49/25	1.4 (0.7–2.8)					
Naldi et al. (2005), Italy	316	≥ 18	308	Never used	266/258	1.0	Adjusted for age, education, body mass index, number of melanocytic naevi, pigmentary traits, history of sunburn and reaction to sun exposure
				Ever used	50/60	1.1 (0.6–1.7)	

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Lea, et al. (2007), USA	318	20-79	395	Never used Ever used	73/92 183/194	1.0 1.3 (0.8-2.0)	

CI, confidence interval; CMM, cutaneous malignant melanoma; NR, not reported; NS, not significant; SMM, superficial spreading melanoma