



Fig. S1. Comparison between the number of naevi/site within each age group (4-, 8- and 14-year-old children). Distribution of the number of naevi in each age group according to the anatomical site where they are located is shown. The trunk is the anatomical site where naevi are most common and the one registering a faster increase in the number of naevi with age. SWA: swimwear-covered area.

Appendix S1.

MATERIALS AND METHODS

Constitutional pigmentation characteristics

Information about hair colour (light, dark or red) and eye colour (light or dark) was collected. Skin colour was evaluated according to a 7-grade scale based on the skin colour on the inside of the arms (white fairly light, light brown, medium brown, beige, dark brown, almost black). Pattern of reaction to sun exposure was assessed with the question: "What happens to your child if he/she plays on the beach without sun protection?" and answered with one of these items: he/she gets very tanned, usually tans, usually red and sometimes tans, always red, not known and, always wears sunscreen. Moreover, the child's usual skin reaction to sunlight was registered and classified as: always burns, almost always burns but sometimes gets a little tanned, almost always gets tanned and never burns. This question was added to the previous one to avoid a possible bias due to parents' guilt in front of the doctor if they said they did not systematically apply sun-block to their children.

Regional naevi counts

Naevi were counted over the following 7 specific anatomical areas: head (excluding scalp), trunk, swimwear-covered area (underpants for both sexes), arms, hands, legs and feet.

Sun exposure and sun protection habits

In order to calculate the total number of hours of sun exposure, 2 different year periods were contemplated (April–June and July–September, both from 10.00 h to 18.00 h). For the April to June period, the following activities were considered: wearing summer or sports clothes (T-shirt and shorts/skirt) walking, at school (playground and physical education class) and during outside extracurricular activities. From July to September, the following activities were considered: hours spent walking outdoors with summer or sports clothes walking, at school and during outside extracurricular activities and hours with swimwear at the pool and/or beach. Sun exposure during the short days of the October to March period was not taken into account because, in our region, located in the west and inner side of Catalonia, the number of sunny days during these months is low.

Regarding the use of sunscreen, parents were asked about its use in certain situations: for a walk outdoors wearing T-shirt and/or shorts and on the beach/swimming pool. Frequency of reapplication of sunscreen and the sun protection factor were also recorded.

Number of sunburns

Number and intensity (without or with blisters) of lifetime sunburns were registered.

Table SI. Presence of naevi for each anatomical site stratified by age

Anatomical site	Age, years	Naevi presence n (%)	Differences
Head	4	31 (17.0)	χ^2 test $p=0.000005$, where: OR (8 vs. 4)=3.0, 95% CI=[1.73, 5.35] OR (14 vs. 8)= 1.2, 95% CI=[0.63, 2.40]
	8	48 (38.4)	
	14	27 (43.5)	
Trunk	4	80 (44.0)	χ^2 test $p<0.000001$, where: OR (8 vs. 4)=6.7, 95% CI=[3.72, 12.35] OR (14 vs. 8)=1.8, 95% CI=[0.64, 5.71]
	8	105 (84.0)	
	14	56 (90.3)	
Swimwear area	4	11 (6.0)	Fisher's exact test $p=0.108$
	8	14 (11.2)	
	14	2 (3.2)	
Arms	4	35 (19.2)	χ^2 test $p<0.000001$, where: OR (8 vs. 4)=2.6, 95% CI=[1.51, 4.54] OR (14 vs. 8)=2.1, 95% CI=[1.07, 4.05]
	8	48 (38.4)	
	14	35 (56.4)	
Hands	4	1 (0.5)	Fisher's exact test $p=0.021129$, where: OR (8 vs. 4)=9.1, 95% CI=[1.08, 421.15] OR (14 vs. 8)=1.0, 95% CI=[0.16, 4.92]
	8	6 (4.8)	
	14	3 (4.8)	
Legs	4	40 (22.0)	χ^2 test $p=0.000001$, where: OR (8 vs. 4)=1.7, 95% CI=[1.00, 2.99] OR (14 vs. 8)=2.8, 95% CI=[1.44, 5.58]
	8	41 (32.8)	
	14	36 (58.1)	
Feet	4	5 (2.7)	Fisher's exact test $p=0.504$
	8	6 (4.8)	
	14	3 (4.8)	

Statistical analysis of these variables showed the following results. (A) Significant differences between the 3 age groups in relationship to the presence of naevi located on the arms. (B) Significant differences between the 4-year-old group and the 8-year-old group in relationship to the presence of naevi located on the head, trunk and hands. (C) Significant differences between the 8- and 14-year-old groups in relationship to the presence of naevi located on the legs. (D) No significant differences between the 3 age groups if we considered the presence of naevi located on feet and swimwear-covered area. OR: odds ratio; 95% CI: 95% confidence interval.

Table SII. Melanocytic naevi density by anatomical site and age in the sample of 4-, 8- and 14-year-old children

Anatomical site	Age, years	Naevi number/site Mean (SD)	Naevi number/site (IQR) [min-max]	Differences
Head	4	0.3 (0.8)	0 (0-0) [0-5]	$p=0.0000005$
	8	1.08 (2.32)	0 (0-1) [0-20]	
	14	1.87 (3.31)	0 (0-2) [0-13]	
Trunk	4	0.38 (0.99)	0 (0-2) [0-8]	$p<0.0000001$
	8	3.6 (3.6)	2 (0-5) [0-17]	
	14	8.92 (8.98)	5 (2.25-14.75) [0-38]	
Swimwear area	4	0.06 (0.24)	0 (0-0) [0-1]	$p=0.08679$
	8	0.17 (0.53)	0 (0-0) [0-3]	
	14	0.06 (0.40)	0 (0-0) [0-3]	
Arms	4	0.38 (0.99)	0 (0-0) [0-5]	$p<0.0000001$
	8	0.97 (2.02)	0 (0-1) [0-17]	
	14	4.05 (6.04)	1.5 (0-5.75) [0-26]	
Hands	4	0.01 (0.07)	0 (0-0) [0-1]	$p=0.05487$
	8	0.06 (0.26)	0 (0-0) [0-2]	
	14	0.05 (0.28)	0 (0-0) [0-2]	
Legs	4	0.43 (1.18)	0 (0-0) [0-9]	$p=0.0000001$
	8	0.87 (2.47)	0 (0-1) [0-20]	
	14	2.10 (3.63)	1 (0-2) [0-20]	
Feet	4	0.03 (0.16)	0 (0-0) [0-1]	$p=0.6298$
	8	0.05 (0.21)	0 (0-0) [0-1]	
	14	0.05 (0.28)	0 (0-0) [0-2]	

SD: standard deviation; IQR: interquartile range.

Table SIII. Melanocytic naevi density by anatomical site, age and sex in the sample of 4-, 8- and 14-year-old children

Anatomical site	Age, years	Boys		Girls		p-value
		Median (IQR) [min-max]	Mean (SD)	Median (IQR) [min-max]	Mean (SD)	
Head	4	0.0 (0-0) [0-5]	0.3 (0.8)	0.0 (0-0) [0-4]	0.3 (0.8)	0.55
	8	0.0 (0-2) [0-20]	1.5 (3)	0.0 (0-1) [0-7]	0.7 (1.3)	0.17
	14	0.0 (0-2.3) [0-12]	2 (3.3)	0.0 (0-1.8) [0-13]	1.7 (3.4)	0.71
Trunk	4	0.0 (0-1.3) [0-4]	0.8 (1.1)	0.0 (0-2) [0-8]	1.1 (1.7)	0.81
	8	3 (1-5.5) [0-17]	3.8 (3.7)	2 (1-4) [0-17]	3.3 (3.5)	0.41
	14	6 (3-18.3) [0-38]	11.1 (10.2)	4 (2-9.8) [0-26]	6.6 (6.9)	0.063
Swimwear area	4	0.0 (0-0) [0-1]	0.1 (0.2)	0.0 (0-0) [0-1]	0.1 (0.2)	0.93
	8	0.0 (0-0) [0-3]	0.2 (0.7)	0.0 (0-0) [0-2]	0.1 (0.4)	0.19
	14	0.0 (0-0) [0-3]	0.1 (0.6)	0.0 (0-0) [0-0]	0 (0)	0.17
Arms	4	0.0 (0-0) [0-5]	0.4 (1)	0.0 (0-0) [0-5]	0.4 (1)	0.21
	8	0.0 (0-1) [0-8]	0.8 (1.6)	0.0 (0-2) [0-17]	1 (2.3)	0.33
	14	2.5 (0-5.5) [0-22]	4.7 (6.5)	1 (0-6) [0-26]	3.7 (5.7)	0.59
Hands	4	0.0 (0-0) [0-4]	0 (0)	0.0 (0-0) [0-1]	0 (0.1)	0.29
	8	0.0 (0-0) [0-2]	0.1 (0.2)	0.0 (0-0) [0-1]	0 (0.3)	0.34
	14	0.0 (0-0) [0-1]	0.1 (0.2)	0.0 (0-0) [0-2]	0.1 (0.4)	0.64
Legs	4	0.0 (0-0) [0-7]	0.4 (1.1)	0.0 (0-0) [0-9]	0.5 (1.3)	0.41
	8	0.0 (0-0) [0-3]	0.3 (0.7)	0.0 (0-1) [0-15]	1.1 (2.3)	0.023
	14	0.0 (0-1) [0-14]	1.6 (3)	1 (0-3) [0-20]	2.6 (4.2)	0.083
Feet	4	0.0 (0-0) [0-1]	0 (0.1)	0.0 (0-0) [0-1]	0 (0.2)	0.55
	8	0.0 (0-0) [0-1]	0.1 (0.3)	0.0 (0-0) [0-1]	0 (0.2)	0.34
	14	0.0 (0-0) [0-1]	0.1 (0.2)	0.0 (0-0) [0-2]	0.1 (0.4)	0.64

SD: standard deviation; IQR: interquartile range.

Table SIV. Sunscreen use stratified by age in the sample of 4-, 8- and 14-year-old children

Sunscreen use	Age			Differences
	4 years	8 years	14 years	
Always/almost	37 (20.3%)	13 (10.4%)	4 (6.5%)	χ^2 test $p=0.007289$, where: OR (8 vs. 4)=0.46, 95% CI=[0.21, 0.93] OR (14 vs. 8)=0.60, 95% CI=[0.14, 2.04]
Always/almost at beach/pool	146 (80.2%)	100 (80.0%)	37 (59.7%)	χ^2 test $p=0.002389$, where: OR (8 vs. 4)=0.99, 95% CI=[0.54, 1.83] OR (14 vs. 8)=0.37, 95% CI=[0.18, 0.77]
Always/almost SPF > 15 and every 2 h	28 (15.4%)	4 (3.2%)	1 (1.6%)	χ^2 test $p=0.000100$, where: OR (8 vs. 4)=0.18, 95% CI=[0.05, 0.54] OR (14 vs. 8)=0.50, 95% CI=[0.01, 5.17]
Always/almost SPF > 15 and every 2 h at beach/pool	94 (51.6%)	53 (42.4%)	21 (33.9%)	χ^2 test $p=0.036166$, where: OR (8 vs. 4)=0.69, 95% CI=[0.42, 1.12] OR (14 vs. 8)=0.70, 95% CI=[0.35, 1.37] OR (14 vs. 4)=0.48, 95% CI=[0.25, 0.91]

SPF: sun protection factor; OR: odds ratio; 95% CI: 95% confidence interval.

Table SV. Multivariate significant association measures (after checking the confounding effect)

Variable	Negative binomial GLM by age group, years			
	4	8	14	
			Unprotected	Protected
Sex male	–	–	1.79 [1.06, 3.01]	2.55 [1.11, 6.11]
Skin type, I–II vs. III–IV	–	–	2.32 [1.31, 4.30]	2.93 [1.14, 8.61]
Accumulated sun exposure outdoors	1.0005 [1.0002, 1.0008]	–	–	–
Accumulated sun exposure beach/pool	–	1.0004 [1.0002, 1.0006]	1.0004 [1.0002, 1.0005]	1.0000 [0.9996, 1.0003]

The exponential of the coefficients and 95% confidence intervals (CI) of the same models reported in Table II once simplified by dropping variables with neither statistical significant contribution nor confounding effect i.e., not changing the coefficients of the other explanatory variables in the model in >20% when dropped). As shown, all the statistically significant associations with constitutional factors are positive, meaning that the expected number of naevi is increased by any of these characteristics.

GLM: generalized linear models.