

SEDENTARY ACTIVITIES AND TELOMERE LENGTH IN 4-YEAR-OLD CHILDREN FROM THE INMA STUDY

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BACKGROUND AND OBJECTIVE

To explore the cross-sectional association between parent-reported sedentary behavior and telomere length in 4-year-old children from Spain.

METHODOLOGY

Sample



669 4-year-old boys and girls



Main variables



Screen time: how many hours their child spent during weekdays and weekends watching TV/videos, divided in tertiles (low, middle and high).



Other sedentary activities: playing games or other sedentary activities outside school, divided in tertiles (low, middle and high).



Outcome: relative leukocyte telomere length measured using qPCR, expressed as the ratio of telomere copy number to single-copy gene number (T/S) relative to the average T/S ratio of the entire sample set.

Statistical analysis

Robust multiple linear regressions:

Model 1) Adjusted for blood storage time and cohort origin.

Model 2) Additional adjustment for child's energy intake (Kcals/day), ultra-processed food (g/day) and age at baseline (years).

Model 3) Additional adjustment for child's sex (male, female).



RESULTS

Table 1. Association between sedentary behavior in tertiles (hr/day) and telomere length at the age of 4.

Sedentary activities	No.	Model 1		Model 2		Model 3	
		% change (CI 95%)	P	% change (CI 95%)	P	% change (CI 95%)	P
Screen time							
Low (0.0-1.0)	271	Ref		Ref		Ref	
Middle (1.1-1.5)	184	-3.4 (-6.9 to 0.1)	0.05	-3.7 (-7.1 to -0.1)	0.04	-3.3 (-6.7 to 0.4)	0.07
High (1.6-5.0)	214	-4.3 (-7.6 to -0.9)	0.01	-4.6 (-7.9 to -1.1)	0.01	-3.9 (-7.4 to -0.4)	0.03
Other sedentary activities							
Low (0.0-1.0)	278	Ref		Ref		Ref	
Middle (1.1-1.5)	190	-2.1 (-5.5 to 1.4)	0.22	-2.0 (-5.4 to 1.5)	0.26	-2.4 (-5.8 to 1.1)	0.17
High (1.6-4.4)	201	1.6 (-2.0 to 5.3)	0.38	1.8 (-1.8 to 5.5)	0.34	1.1 (-2.4 to 4.8)	0.53
Total							
Low (0.0-2.2)	223	Ref		Ref		Ref	
Middle (2.3-3.1)	226	-2.1 (-5.7 to 1.7)	0.27	-2.1 (-5.7 to 1.7)	0.28	-2.4 (-6.0 to 1.4)	0.20
High (3.2-7.9)	220	-2.2 (-5.7 to 1.4)	0.22	-2.1 (-5.6 to 1.5)	0.24	-2.1 (-5.6 to 1.5)	0.25

CONCLUSIONS

These results suggest that high daily screen time is likely associated with lower TL at 4 years. Although these results have to be confirmed by longitudinal studies, they support the potential negative effect of sedentary behaviors in human health during the early stages of life.

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