



MODERATE-TO-VIGOROUS PHYSICAL ACTIVITY AND RISK OF OVERWEIGHT IN A SAMPLE OF PORTUGUESE PRE-SCHOOL CHILDREN

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Background and Purpose

Research on the obesity risk and its association with lifestyle behaviours in early ages of life is potentially important for identifying subgroups of children at risk and targeted for interventions. This present study aimed to analyse the associations among the risk of overweight and objectively measured moderate-to-vigorous physical activity (MVPA) in pre-school children.

Methods

Cross-sectional sample of 134 children (70 males) aged 3-5 years participated in the present survey. Height, weight were measured, and BMI was calculated subsequently. A tri-axial accelerometer was used to obtain seven consecutive days of moderate-to-vigorous physical activity (MVPA), as well as the weekly time being sedentary. Logistic regression analysis were used to examine the afore-mentioned relationship among the risk of obesity and MVPA, controlling for sex, age, and sedentary behaviour.



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Results

Characteristics of the sample stratified by sex are summarized in Table 1.

Overall, 16.0% of the sample is overweight or obese (boys 12.2%, girls 20.0%).

Table 1. Descriptive statistics and results of the t-test analysing the effect of the sex on body size, sedentary behaviour, and physical activity in a sample of children aged 3-5 years.

	MALES (n=74)	FEMALES (n=60)
Chronological age, years	4.54±0.8	4.45±0.9
Height, m	1.10±0.08	1.08±0.07
Weight, Kg	19.37±3.42	19.16±3.14
BMI, kg . m ⁻²	16.03±1.59	16.21±1.34
Sedentary: week, min	606.5±89.1	633.3±95.2
Sedentary: weekend, min	506.4±148.5	540.0±177.1
Sedentary: all days, min	577.9±81.8	606.6±103.1
Light PA: week, min	63.3±11.4	61.5±14.8
Light PA: weekend, min	57.9±19.6	58.7±20.5
Light PA: all days, min	61.8±10.9	60.7±14.2
MVPA: week, min	90.9±21.8	77.6±21.7 **
MVPA: weekend, min	86.1±34.9	77.8±33.3
MVPA: all days, min	89.5±20.4	77.7±21.6 **

BMI (Body Mass Index); PA (Physical Activity); SED (minutes spent sedentary); MVPA (Moderate-to-Vigorous Physical Activity).



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Results

MVPA was inversely associated with the risk of being overweight in pre-school children after adjustment for potential confounders; Children with higher levels of MVPA have 99% less likely to be classified as overweight and/or obese than less active children (95% CI 0.96 to 0.99, $p < 0.05$).

Table 2. The association between sedentary behaviour and overweight risk, controlling for confounders (i.e. sex, age, and physical activity) in children aged 3-5 years.

n	Model ^a	Overweight/Obesity				
		B	S.E.	e ^B	95% C.I.	p
134	1	-0.01	0.003	0.99	0.98 to 1.01	0.080
	2	-0.07	0.003	0.99	0.99 to 1.00	0.046
	3	-0.07	0.004	0.99	0.98 to 1.00	0.040

^a Model 1 = unadjusted; Model 2 = model 1 + sex and chronological age; Model 3 = model 2 + moderate-to-vigorous physical activity.



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Conclusion

Objectively measured MVPA was independent and inversely associated with increased risk of overweight in pre-school children. Interventions for improving health in youth should target the promotion of MVPA, particularly at younger school ages.

References

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