



## ORIGINAL ARTICLE

# Physical activity and screen time in children and adolescents in a medium size town in the South of Brazil



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### KEYWORDS

Sedentary lifestyles;  
Socioeconomic factors;  
Leisure activities;  
Television;  
Obesity

### Abstract

**Objective:** To analyze the associations between sex and age with behaviour related to physical activity practice and sedentary behaviour in children and adolescents.

**Methods:** A cross-sectional study with 480 (236 boys) subjects enrolled in a public school in the city of Londrina, in the south of Brazil, aged 8–17 years. Measures of physical activity, sports practice and screen times were obtained using the Physical Activity Questionnaire for Older Children. The Mann–Whitney *U* test was used to compare variables between boys and girls. The Chi squared test was used for categorical analysis and Poisson regression was used to identify prevalence.

**Results:** Girls (69.6%; PR=1.05 [0.99–1.12]) spent more time with sedentary behaviour than boys (62.2%). Boys (80%; PR=0.95 [0.92–0.98]) were more physically active than girls (91%). Older students aged 13–17 showed a higher prevalence of physical inactivity (91.4%; PR=1.06 [1.02–1.10]) and time spent with sedentary behaviour of  $\geq 2$ h/day (71.8%; PR=0.91 [0.85–0.97]) when compared to younger peers aged 8–12 (78.7 and 58.5%, respectively).

**Conclusions:** The prevalence of physical inactivity was higher in girls. Older students spent more screen time in comparison to younger students.

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**PALAVRAS-CHAVE**

Sedentarismo;  
Fatores  
socioeconômicos;  
Atividades de lazer;  
Televisão;  
Obesidade

**Atividade física e tempo de tela em jovens de uma cidade de médio porte do Sul do Brasil****Resumo**

**Objetivo:** Analisar a associação do sexo e idade com comportamentos relacionados à prática de atividades físicas e sedentarismo em crianças e adolescentes.

**Métodos:** Estudo transversal com 480 (236 sexo masculino) estudantes de uma escola pública da cidade de Londrina, Paraná, Brasil, com idade entre 8 e 17 anos. As medidas de atividade física, prática de esportes e quantidade de comportamentos sedentários foram obtidas mediante aplicação do *Physical Activity Questionnaire for Older Children*. O Teste de Mann-Whitney *U* foi utilizado para comparar variáveis de rapazes e moças. O Teste de Qui-Quadrado foi usado para variáveis categóricas e a Regressão de Poisson para identificar prevalências.

**Resultados:** Moças (69,6%; RP=1.05 [0.99–1.12]) dedicaram mais tempo ao comportamento sedentário quando comparadas a rapazes (62,2%). Rapazes (80%; RP=0.95 [0.92–0.98]) apresentaram maiores níveis de atividade física quando comparados a moças (91%). Estudantes mais velhos com idade entre 13–17 anos (91,4%; RP=1.06 [1.02–1.10]) apresentaram maior prevalência de inatividade física e comportamento sedentário de  $\geq 2$ h/dia (71,8%; RP=0.91 [0.85–0.97]) quando comparados a estudantes com idade entre 8 e 12 anos (78,7 e 58,5%, respectivamente).

**Conclusões:** A prevalência de inatividade física foi superior entre as moças. Estudantes mais velhos despenderam mais tempo em tela quando comparados a estudantes mais novos.

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**Introduction**

The current literature reports that higher levels of physical activity can reduce the risk of premature all-cause mortality, and also supports the dose-response relationship between physical inactivity and chronic conditions, *i.e.* cardiovascular disease, stroke, hypertension, colon cancer, breast cancer, type 2 diabetes and osteoporosis.<sup>1</sup> Studies have shown that increased sedentary behaviours, such as television viewing, video game playing, playing computer games, and/or electronic game playing, are associated with unfavourable body composition, decreased fitness, lowered scores for self-esteem and pro-social behaviour and decreased academic achievement in school-aged children.<sup>2</sup>

Low levels of physical activity in childhood and adolescence have been reported worldwide, with a proportion of 80.3% doing fewer than 60min of physical activity of moderate to vigorous intensity per day.<sup>3</sup> A study describing adolescents' physical activity levels with data from 32 countries concluded that the majority of adolescents do not meet current recommendations of physical activity.<sup>4</sup> In Brazil, high levels of physical inactivity in children and adolescents were reported in the southern<sup>5</sup> and northeast regions.<sup>6</sup>

Sedentary behaviour is related to an unhealthy lifestyle early in childhood and adolescence. Watching television for more than two hours, for instance, increases the chances of overweight and obesity as reductions in sedentary behaviour are linked to better body composition.<sup>2</sup> Recent publications have shown that sedentary behaviour in young people, especially in the form of TV viewing, is associated with a less healthful diet, such as less fruit and vegetable consumption and a greater consumption of energy-dense snacks and beverages containing sugar.<sup>7,8</sup> Moreover, behaviours established

in school-age children tend to continue into adulthood<sup>9</sup> and studies that include this population have been suggested.<sup>1</sup>

Some previous Brazilian studies involving physical inactivity and sedentary behaviour focused on investigating adolescents<sup>5,6</sup> but did not stratify subgroups *i.e.* age and gender comparisons as recommended elsewhere.<sup>7</sup> Studies that aimed at other variables among children and adolescents also did not present data differentiating the age of girls and boys.<sup>10</sup> These stratifications would give a better understanding of disease mechanisms during childhood and adolescence and help the maintenance of a healthy lifestyle from childhood into adulthood. Thus, the aim of this study was to analyze the associations between sex and age with behaviour related to physical activity practice and sedentary behaviour in children and adolescents.

**Method**

This study had a cross-sectional design. Data collection took place during the second semester of 2011 in the city of Londrina, the fourth largest city in the southern region of Brazil. The city of Londrina has a population size of 543,003 inhabitants, with a Human Development Index of 0.778. It is the second largest city in the state of Parana after the capital, Curitiba. The city has a stable economy and according to its Gross Domestic Product it is ranked as the richest city in the north of Parana.<sup>11</sup> This study was approved by the Ethics Committee on Research with Human Subjects of the Universidade Estadual de Londrina (CAAE 0089.0.268.000-11) (Fig. 1).

In order to compose a sample of boys and girls aged 8–17 years, the major school in the city was chosen and all students from the 3rd to 8th grades in this school were invited to participate in the study. The school has a total area of

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