

Exercise program and blood pressure in children: The moderating role of sedentary time

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Objectives: The aim of the present study was to test a before-school physical activity intervention (Active-Start intervention) on blood pressure in children and examine whether sedentary time moderates the effect of the intervention on blood pressure. **Design:** Randomized controlled trial.

Methods: The Active-Start intervention comprising 170 children (8-10 years old) from three public schools with low socioeconomic status in Santiago (Chile). The exercise intervention was delivered daily, before starting the first school-class (8:00-8:30 a.m.), for 8 weeks. The intervention was mainly a program of cooperative physical games at moderate-vigorous intensity. Resting systolic and diastolic blood pressure was determined from the average of two measurements at baseline and at the end of intervention. Moderate-to-vigorous physical activity and sedentary time was assessed using a GENEActiv tri-axial accelerometer prior to the program intervention. **Results:** The Active-Start intervention decreased blood pressure levels in children ($p < 0.01$) but did not change relative to the control group. Johnson-Neyman analysis revealed a significant relationship between the effect of intervention on systolic blood pressure and mean arterial pressure when sedentary time

was below, but not at or above, 657 and 659 min per day (i.e., the effect of physical exercise disappears), respectively. Conclusions: The effect of physical activity on blood pressure could disappear in children with excessive sedentary time, which highlights the need to reduce total levels of sedentary time in the day-to-day life of young people in and out of schools. © 2020 Sports

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