

# Current Effect of Sedentary Screen Time on Child-Adolescent Health Outcomes

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The advent of a more technological society has contributed to an increase in sedentary screen time activity (a spectrum of behaviors such as television watching, video gaming, texting, and computer activity). The proliferation of media available to children and adolescents warrants discussion as to effects of screen time exposure on health. The presence of screen time, beginning early in childhood, is a common reality for many children. As technology continues to become increasingly more complex, accessible, and a component of everyday life, so does the potential for adverse effects associated with too much screen time, too soon. Although moderated screen time may have some learning benefit, the issue of health outcomes is of particular concern to the health care provider. With meteoric advancements in technology, examining the effects of increased sedentary screen time becomes a priority.

It is known that sedentary activity has been associated with blood pressure elevations in children [1]. In children who participated in sedentary screen time activity, each hour increase in time engaged in sedentary activity was linked with an increase in systolic blood pressure [2,3]. Sedentary screen time activities have contributed to a decrease in physical activity in children. As a result of an increased time engaged in sedentary screen time, children participate in less physical activity contributing to the risk of developing adverse health outcomes, such as elevations in blood pressure. In addition, the amount of time children engage in sedentary screen time activities increases during middle school [4] contributing to earlier onset of elevated blood pressure levels; making early intervention a priority.

Elevated blood pressure levels are a significant concern from a global perspective. According to the World Health Organization [WHO] [5], twenty five percent of the global population (one billion people) is classified as hypertensive (a systolic or diastolic pressure equal to or greater than the 95th percentile at three separate office visits) [6]. The prevalence of hypertension is predicted to increase to over 1.56 billion people by the year 2025 [7]. More than 72 million American adults and 2-3 million American children have hypertension [8]. This is a significant problem in that, in the United States, the direct and indirect cost of hypertension is estimated to reach \$1 trillion by 2030 [9].

In addition, hypertension contributes to a variety of significant health issues including atherosclerosis, cerebrovascular disease, peripheral vascular disease, nephrosclerosis, and retinal damage [10]. In respect to the impact on children with elevated blood pressure, it is estimated that 2%-5% of children under the age of 18 meet criteria for a diagnosis of hypertension [11]. Children with hypertension are at a greater risk of having hypertension as an adult along with serious medical conditions such as stroke, myocardial infarction, vision impairment, kidney disease, and coronary artery disease as a result [12-15]. Hypertension in children appears to develop at a much faster pace than in adults and with significant sequelae including left ventricular hypertrophy and increased carotid arterial initial medial thickness [16].

Because many children are not frequently assessed for elevated blood pressure readings, it becomes even more critical to address the impact of sedentary screen time activities and the status of health outcomes, such as blood pressure, in children. The solution is not an

all-inclusive ban on screen time activities. The video gaming industry has made strides in offering more physically engaging games aimed at providing alternatives to traditional, sedentary video games. However, healthcare is struggling to maintain pace with the technological world. In an age of technology, it becomes the responsibility of the healthcare environment to anticipate and determine these effects on future generations and develop interventions focused on positive health outcomes for all.

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