



Shaping Tomorrow's Nephrology: Insight-Driven Kidney Care

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Hypertension and Prolonged Screen Time : A Systematic Literature Review

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Objectives : Hypertension remains the leading modifiable risk factor for cardiovascular morbidity and premature mortality worldwide. In parallel with this global burden, rapid digitalization has led to unprecedented increases in screen-based behaviors across all age groups, including children, adolescents, working-age adults, and older populations. Screen time represents a distinct form of sedentary behavior characterized not only by physical inactivity but also by prolonged exposure to artificial light, cognitive stimulation, sleep disruption, and behavioral displacement of physical activity. Emerging evidence suggests that excessive screen exposure may influence blood pressure regulation through multiple interconnected mechanisms, including autonomic imbalance, sympathetic nervous system activation, circadian rhythm disruption, impaired sleep quality, metabolic dysregulation, and adverse lifestyle patterns such as reduced physical activity and unhealthy dietary behaviors. Despite growing epidemiological interest, findings across studies remain heterogeneous, and the magnitude and consistency of the association between screen time and hypertension have not been systematically synthesized in recent years. Given the rapid evolution of digital media use and its potential public health implications, an updated systematic review and meta-analytic assessment is warranted.

Methods : To systematically examine recent worldwide evidence on the relationship between screen time and hypertension, we used studies published from 2022 to 2025 addressing both screen exposure and blood pressure outcomes. Screening, selection, and synthesis followed PRISMA (Preferred Reporting Items for Systematic Reviews and Meta-Analyses) guidelines.

Results : Out of 2,436 titles identified, 24 full-text articles were screened, five studies met the inclusion criteria and were included in the quantitative synthesis. Prolonged screen time was consistently associated with higher odds of hypertension across populations.

Conclusions : Evidence supports a significant association between prolonged screen time and hypertension risk. However, variations in measurement methods and study design warrant further longitudinal and interventional research to clarify causal mechanisms and thresholds for risk.

Table 1.jpeg



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Author (Year)	Study Design & Population	Exposure / Intervention	Main Results	Authors' Conclusions
Farhangi et al. (2023)	Systematic review and dose-response meta-analysis of observational studies; children and adolescents	Total daily screen time (TV, computer, smartphone)	Each additional hour of screen time was associated with a statistically significant increase in hypertension risk; dose-response relationship observed	Excessive screen time is positively associated with elevated blood pressure and hypertension in <u>pediatric</u> populations
Hu et al. (2025)	Cross-sectional study; Chinese adolescents (n > 10,000)	Daily screen time ≥2-3 hours/day	Higher screen time significantly associated with increased odds of hypertension after adjustment for BMI, physical activity, and sleep duration	Prolonged screen exposure is an independent risk factor for hypertension among adolescents
Li et al. (2025)	Population-based cross-sectional study; adults	Short-video viewing before bedtime	Participants with frequent bedtime short-video use had higher prevalence of hypertension compared with low-use groups	Nighttime screen exposure may contribute to hypertension through sleep disruption and circadian dysregulation
Roomi et al. (2024)	Cross-sectional study; adult population	Recreational screen time (TV, smartphones, computers)	Longer recreational screen time associated with higher systolic and diastolic blood pressure and increased cardiometabolic risk	Screen-based sedentary behaviour is associated with adverse blood pressure profiles in adults
Yasin et al. (2025)	Prospective cohort study; adolescents	Cumulative daily digital screen exposure	Higher screen time predicted increased incidence of hypertension over follow-up period	Digital screen exposure may contribute to the early development of hypertension in youth
Zhang et al. (2023)	Cross-sectional study; middle-aged and older adults	Television viewing time	Watching TV ≥4 hours/day associated with higher odds of hypertension compared to <2 hours/day	Prolonged television viewing is linked to increased hypertension risk in adults
Park et al. (2024)	Cross-sectional study; Korean adults	Smartphone and computer screen time	Longer screen time associated with elevated blood pressure independent of physical activity	Screen time represents a distinct sedentary behaviour associated with hypertension
Gao et al. (2023)	Cross-sectional study; Chinese adults	Total sedentary screen time	Positive association between screen time and hypertension prevalence	Reducing screen exposure may help lower population-level hypertension risk
Almeida et al. (2022)	Cross-sectional study; Brazilian adolescents	Combined screen-based sedentary behaviours	Adolescents with high screen exposure showed higher blood pressure levels	Screen time may contribute to early cardiovascular risk
Kim et al. (2024)	Cross-sectional study; working-age adults	Occupational and recreational screen time	Occupational screen time combined with low physical activity increased hypertension risk	Workplace screen exposure should be considered in hypertension prevention strategies

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