

Yoga for Digital-Age Health: A Systematic Review of Its Effects on Screen-Related Stress, Sedentary Behaviour, Sleep, and Digital Well-Being

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ABSTRACT

Background: The increasing dependence on digital technologies has contributed to prolonged screen exposure, sedentary behaviour, sleep disturbances, and technology-related psychological stress. Yoga may provide a holistic approach to addressing these emerging health challenges.

Objective: To systematically review the available evidence on the effects of yoga on screen-related stress, sedentary behaviour, sleep, and digital well-being.

Methods: Relevant clinical and experimental studies evaluating yoga-based interventions in relation to digital-age health outcomes were examined. Evidence was synthesized across psychological, behavioural, sleep-related, and physical-health domains.

Results: Available evidence indicates that yoga may reduce problematic smartphone use and screen time, improve stress regulation and psychological well-being, and support better sleep quality. Yoga may also help address physical and musculoskeletal consequences associated with prolonged sedentary behaviour through improved movement, flexibility, and postural awareness.

Conclusion: Yoga appears to be a promising multidimensional intervention for promoting healthier adaptation to technology-intensive lifestyles. However, the limited number of digital-age-specific studies and methodological heterogeneity highlight the need for larger, well-designed randomized controlled trials.

Keywords: Yoga; Digital Health; Screen Exposure; Sedentary Behaviour; Stress; Sleep; Digital Well-Being.

INTRODUCTION

The rapid integration of smartphones, computers, tablets, and other digital technologies into work, education, communication, and leisure has substantially altered patterns of daily living. Although digital technology provides considerable social, educational, and occupational benefits, prolonged screen exposure and technology-dependent lifestyles have also emerged as important public-health concerns.

Increasing screen-based sedentary behaviour has been associated with adverse physical and psychological outcomes, including reduced physical activity, musculoskeletal discomfort, impaired sleep, stress, and poorer mental well-being (World Health Organization [WHO], 2020). Recent evidence among university students further indicates associations between greater screen exposure and depression, anxiety, stress, physical pain, poorer sleep quality, and digital eye strain (Liu et al., 2026). Sedentary behaviour represents an additional concern in the digital era.

Extended periods of sitting during screen-based occupational, educational, and recreational activities can contribute to an increasingly inactive lifestyle. The WHO recommends limiting sedentary time and replacing sedentary periods with physical activity of any intensity to reduce associated health risks (WHO, 2020). At the same time, continuous digital engagement may contribute to psychological stress, mental fatigue, sleep disturbances, and difficulties in maintaining healthy technology-use patterns. Yoga, as an integrated mind-body practice combining physical postures, breathing techniques, relaxation, and meditative practices, may offer a multidimensional approach to these emerging challenges.

Its potential effects on stress regulation, physical activity, sleep, psychological well-being, and functional health make it particularly relevant to contemporary digital lifestyles. Although evidence supporting yoga for individual outcomes such as stress is growing (Rhoads et al., 2025), the effects of yoga specifically within the broader context of digital-age health have not been comprehensively synthesized.

Therefore, the present systematic review aims to evaluate the available evidence on the effects of yoga on **screen-related stress, sedentary behaviour, sleep, and digital well-being**, and to examine the potential mechanisms through which yoga may contribute to healthier adaptation to increasingly technology-dependent lifestyles.

Digital-Age Lifestyle and Emerging Health Challenges

The widespread use of smartphones, computers, tablets, and other digital devices has transformed everyday patterns of work, education, communication, and recreation. However, increasing dependence on screen-based activities has also contributed to prolonged sedentary behaviour and reduced opportunities for physical activity. Recent evidence indicates that higher screen exposure is associated with poorer sleep quality, psychological distress, physical pain, digital eye strain, and insufficient physical activity, particularly among university students (Zeng et al., 2026). Similarly, recent evidence suggests that behavioural patterns characterized by high screen time combined with low physical activity are associated with less favourable mental-health and sleep outcomes (Gao et al., 2026).

The health burden of digital-age lifestyles is therefore multidimensional, extending beyond physical inactivity to psychological well-being, sleep health, and daily functioning. Excessive engagement with digital technologies may also encourage prolonged sitting and disrupt healthy behavioural routines. Consequently, interventions that simultaneously address physical inactivity, stress regulation, sleep, and psychological well-being are increasingly relevant to contemporary health promotion. Within this context, yoga represents a potentially useful holistic approach for supporting healthier adaptation to technology-intensive lifestyles.

Screen Exposure and Technology-Related Health Burden

Prolonged exposure to smartphones, computers, tablets, and other digital screens has become an integral component of modern work, education, and leisure. However, sustained digital exposure may impose a multidimensional health burden involving visual, musculoskeletal, psychological, sleep-related, and metabolic domains. A recent systematic scoping review of 389 studies identified mental and behavioural outcomes as the most frequently reported category, followed by sleep–wake, metabolic, visual, and musculoskeletal conditions (Golec et al., 2026). The review also highlighted that “screen time” is an incomplete measure of digital exposure because health effects may vary according to device type, duration, interaction pattern, and content.

Visual health represents another important concern. A recent systematic review and dose–response meta-analysis reported a significant association between greater digital screen exposure and myopia, suggesting that prolonged near-screen activity may represent an important modifiable visual-health risk factor (Ha et al., 2025). Similarly, prolonged screen use has been associated with ocular discomfort, visual fatigue, and musculoskeletal symptoms related to sustained posture and repetitive device use (Golec et al., 2026). Collectively, these findings indicate that excessive screen exposure is not a single-dimensional behavioural issue but a broader health challenge involving multiple physiological and psychological pathways.

Technology-Related Stress and Psychological Well-Being

Continuous connectivity, information overload, digital interruptions, and pressure to remain responsive can contribute to technology-related stress, commonly described as *technostress*. Recent evidence indicates that techno-overload, techno-invasion, techno-complexity, and techno-uncertainty are important contributors to technology-induced stress, with adverse implications for psychological well-being and work-related quality of life (Kotek & Vranjes, 2025). A recent systematic review further demonstrated that technostress is associated with poorer overall well-being, engagement, and life satisfaction, with techno-overload and techno-invasion emerging as particularly important stressors (Rohwer et al., 2026).

The psychological burden of digital technology may extend beyond occupational stress to anxiety, depressive symptoms, burnout, loneliness, insomnia, and reduced psychological well-being. A recent meta-analysis of adult populations identified significant relationships between digital-technology exposure and several psychological outcomes, although the magnitude and direction of these associations varied according to the type and context of technology use (Liñan, 2025). These findings highlight the importance of approaches that support stress regulation and psychological resilience in increasingly technology-dependent environments. Yoga, through its combined physical, breathing, relaxation, and meditative components, may therefore represent a promising holistic strategy for addressing technology-related psychological stress.

Sedentary Behaviour and Musculoskeletal Health

The increasing use of digital devices has contributed to prolonged sitting and reduced movement during occupational, educational, and recreational activities. Sustained sedentary behaviour may be accompanied by prolonged static

postures and repetitive device use, potentially increasing musculoskeletal discomfort, particularly in the neck, shoulders, and lower back. Recent evidence indicates that greater sedentary behaviour is associated with a small increase in the likelihood of spinal pain among children and adolescents, although longitudinal evidence remains insufficient to establish a causal relationship (Montgomery et al., 2025). In younger populations, excessive smartphone use has also been associated with sedentary behaviour and reduced physical activity, suggesting a potential behavioural pathway linking digital-device dependence with physical-health risks (Nambirajan et al., 2025).

The musculoskeletal burden may be particularly relevant in students and young adults who spend extended periods using computers and mobile devices. Recent findings indicate that higher screen time and sitting time are associated with greater multisite musculoskeletal pain among university students (Al-Mahmoud et al., 2026). These observations highlight the importance of strategies that interrupt prolonged sitting, promote movement, and improve postural and physical functioning. As a mind–body practice incorporating movement, postural awareness, and physical conditioning, yoga may have potential relevance in addressing these consequences of sedentary digital lifestyles.

Digital Lifestyle and Sleep Disturbances

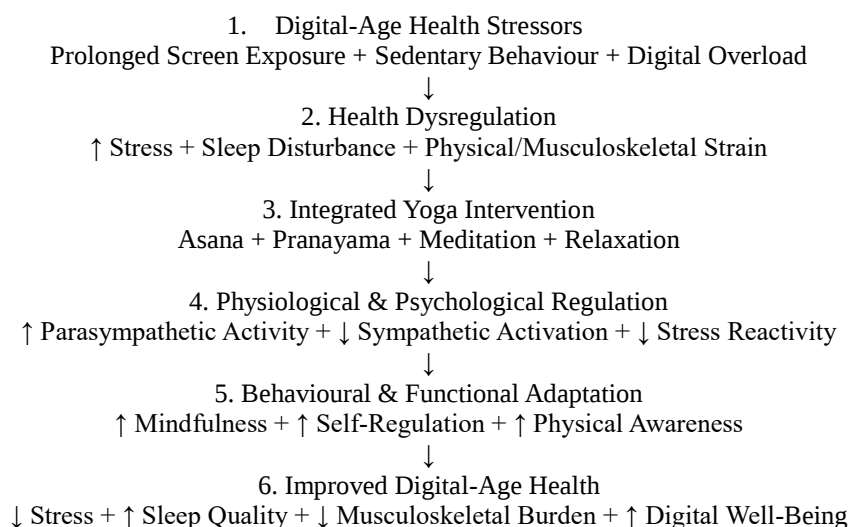
Sleep is particularly vulnerable to the increasing use of digital devices, especially when screen exposure occurs during the evening or close to bedtime. Prolonged screen use may delay bedtime, reduce sleep duration, and impair sleep quality through behavioural displacement, psychological stimulation, and possible disruption of circadian timing. A recent systematic review and meta-analysis involving more than 548,000 participants found that each additional hour of daily screen time was associated with shorter sleep duration and increased risks of short sleep, insomnia symptoms, delayed bedtime, and difficulty initiating sleep (He et al., 2025). Similarly, an umbrella review of systematic reviews and meta-analyses reported that digital-device use, particularly smartphones and problematic internet or social-media use, was associated with shorter sleep duration, poorer sleep quality, and delayed sleep onset among adolescents (Fiore et al., 2025).

Evidence in adults also suggests that bedtime screen exposure may adversely affect sleep. In a large study of more than 122,000 adults, daily electronic-screen use before bed was associated with poorer self-reported sleep quality, shorter sleep duration, and later bedtimes (Zhong et al., 2025). These findings suggest that managing digital exposure may be an important component of sleep-health promotion. Yoga, through relaxation, breath regulation, and mind–body practices, may offer a complementary strategy for improving sleep and supporting healthier adaptation to technology-intensive lifestyles.

Yoga and Digital Well-Being

- 1. Healthy technology use:** Yoga may support greater awareness and self-regulation of technology-use habits, potentially helping individuals develop more balanced patterns of smartphone and screen use. A 10-week randomized controlled trial found a significant reduction in problematic smartphone use among university students receiving yoga intervention (Thapliyal et al., 2025).
- 2. Psychological well-being:** Digital overuse is frequently accompanied by psychological distress, anxiety, and reduced well-being. Yoga-based interventions may address these outcomes through relaxation, breath regulation, mindfulness, and improved emotional regulation. In young adults with excessive technology use, yoga added to psychotherapy produced greater reductions in technology use and psychological distress than psychotherapy alone (Sharma et al., 2024).
- 3. Digital self-regulation:** Mindfulness-related mechanisms may be particularly relevant to digital well-being because greater mindfulness has been associated with lower levels of problematic smartphone use (Ru et al., 2025). Yoga, which incorporates meditative and attentional practices, may therefore contribute to improved awareness of habitual and compulsive technology-use patterns.
- 4. Overall digital well-being:** Emerging evidence suggests that yoga may have a multidimensional role by simultaneously influencing problematic technology use, psychological well-being, and behavioural self-regulation. However, the available evidence remains limited and is concentrated largely among adolescents, university students, and young adults, highlighting the need for larger and methodologically rigorous trials.

Figure 1: Potential Mechanisms of Yoga in Digital-Age Health



The table illustrates a potential pathway through which yoga may mitigate the health consequences of digital-age lifestyles. By improving autonomic regulation, stress response, mindfulness, and physical functioning, yoga may positively influence stress, sleep, musculoskeletal health, and digital self-regulation. Overall, these interconnected effects may contribute to improved digital well-being and overall health.

Table 1: Evidence from Clinical and Experimental Studies

Year	Study / Design	Participants & Intervention	Major Findings	Relevance to Digital-Age Health
2026	Randomized controlled trial	Young adults; morning vs. evening tele-yoga vs. wait-list control	Both yoga groups improved sleep, psychological health and quality of life; morning yoga produced greater improvements in sleep disturbances and restfulness.	Supports yoga for sleep, psychological well-being and lifestyle regulation in technology-mediated settings.
2025	Randomized controlled trial	150 university students; 10-week yoga intervention	Significant reduction in problematic smartphone use, maintained at 2-month follow-up.	Direct evidence for digital self-regulation and problematic smartphone use.
2025	Pilot study	26 female adolescents; 4-week integrated yoga module	Yoga was associated with reduced screen time and improvements in anxiety, depression, well-being and screen-related complications.	Directly addresses screen exposure and digital-age health.
2025	Meta-analysis	36 studies examining yoga and perceived stress	Yoga produced a moderate reduction in perceived stress ($g = 0.48$, 95% CI 0.29–0.66).	Supports yoga for technology-related stress and psychological regulation.
2025	Systematic review/scoping review	57 studies on yoga and sleep quality	Most studies reported improvements in sleep-related outcomes; intervention duration and frequency influenced effects.	Supports yoga as a potential intervention for digital-lifestyle-related sleep disturbance.
2024	Randomized controlled trial	100 adolescents; 12-week yoga vs. digital-hygiene education	Yoga significantly reduced screen time, smartphone-addiction symptoms, anxiety and depressive symptoms.	Strong direct evidence for screen use, psychological health and digital well-being.

2024	Randomized controlled trial	30 young adults with excessive technology use; psychotherapy + yoga vs. psychotherapy alone	Add-on yoga significantly reduced Internet use, smartphone use and psychological distress.	Supports yoga as an adjunctive intervention for problematic technology use.
2024	Randomized controlled trial	Adults with chronic low-back pain; yoga-based intervention	Yoga-based intervention improved pain and functional outcomes.	Relevant to musculoskeletal consequences of prolonged sedentary digital behaviour.

DISCUSSION

The present review indicates that yoga may be a promising multidimensional approach to address health challenges associated with digital lifestyles. Recent randomized trials have demonstrated reductions in screen time and problematic smartphone use following yoga-based interventions, suggesting potential benefits for digital self-regulation (Mona et al., 2024; Thapliyal et al., 2025). In addition, meta-analytic evidence supports a moderate effect of yoga in reducing perceived stress, while evidence on sleep suggests potential benefits for sleep quality and regulation (Rhoads et al., 2025). However, direct evidence specifically targeting digital-age health remains limited, and variations in intervention protocols, populations, and outcome measures restrict definitive conclusions. Future studies should therefore employ larger randomized trials with standardized yoga protocols and longer follow-up periods.

CONCLUSION

The present systematic review suggests that yoga may be a promising holistic approach for promoting health and well-being in the digital age. Its potential benefits extend across screen-related stress, sedentary behaviour, sleep disturbances, and digital self-regulation through interconnected physiological, psychological, and behavioural mechanisms. However, the limited number of digital-age-specific clinical studies and methodological heterogeneity warrant further high-quality randomized controlled trials. Overall, yoga may serve as a useful complementary strategy for healthier adaptation to increasingly technology-dependent lifestyles.

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