

Excess Screen Time and Its Effects on Menstrual Cycle: The Need of the Hour

Sai Sailesh Kumar Goothy^{1*}, Jabir PK², Sanjay Kumar³, Vikash Sharma⁴, Mahadik V K⁵

Researchers have observed potential confounding factors, such as stress, physical activity, and diet, that may influence the relationship between screen time and menstrual health. Excessive screen use can disrupt physiological functions, including the regulation of menstrual cycles. Emerging evidence suggests that lifestyle factors associated with prolonged screen exposure—such as increased stress, sedentary behavior, and disrupted sleep—can negatively impact hormonal regulation, potentially leading to menstrual irregularities. Early health intervention can be the implication of the same. In order to promote improved physical and mental health, create a balanced lifestyle, and improve general well-being, the public can be educated on screen time management, sleep hygiene, and healthier digital habits.

Access this article online**Website:**

www.cijmr.com

DOI:

10.58999/cijmr.v4i01.215

Keywords:

Screen time, Mobile, health, Menstrual cycle.

Introduction

Sleep profoundly affects almost all organ systems in the human body, including the endocrine system.¹ The pineal gland, for instance, plays a key role in regulating the light-dark cycle through the secretion of melatonin. Beyond regulating circadian rhythms, melatonin contributes to cell protection, neuroprotection, and reproductive health.² Hormones such as luteinizing hormone (LH), progesterone, and estrogen are also intricately tied to the sleep-wake cycle. Disruptions in this balance can result in irregular menstruation, including missed or delayed periods.^{3,4} With the advent of smartphones and laptops, nighttime usage of these devices has significantly increased. Most people use mobile phones at night, which can result in sleep disturbances. A study revealed that nighttime screen use can disrupt sleep and circadian rhythms, potentially impacting menstrual cycles.⁵ The same study found that avoiding smartphone use at least 30 minutes before bedtime can improve both sleep quality and duration. Researchers are increasingly concerned

about the connection between study-related excessive screen time and menstrual disturbances in young adult women. Due to academic demands, online learning, and leisure activities, young adult women—particularly students—often spend prolonged periods in front of screens. Excessive screen use can impair physiological functions, including menstrual cycle regulation. Blue light emitted by smartphone screens can worsen premenstrual syndrome (PMS) symptoms and stress, leading to disrupted sleep patterns and menstrual irregularities.⁶ Additionally, He Jw et al. demonstrated that reducing mobile phone use before bedtime decreases sleep latency and pre-sleep arousal while enhancing sleep duration and working memory.⁷

Researchers have observed potential confounding factors, such as stress, physical activity, and diet, that may influence the relationship between screen time and menstrual health. Excessive screen use can disrupt physiological functions, including the regulation of menstrual cycles. Emerging evidence suggests that lifestyle factors associated with prolonged screen exposure—such as increased stress, sedentary behavior, and disrupted sleep—can negatively impact hormonal regulation, potentially leading to menstrual irregularities. However, the connection between screen time and menstrual disturbances remains an area of ongoing study. Additionally, the sedentary lifestyle often

¹Department of Physiology, NRI Institute of Medical Sciences, Visakhapatnam, Andhra Pradesh, India.

²Department of Physiology, Saveetha Medical College and Hospital, Saveetha University, SIMATS, P.O Thandalam, Chennai, Tamil Nadu, India.

³Department of Physiology, SMIMS, Gangtok, Sikkim, India.

⁴Department of Physiology, Assam Medical College, Dibrugarh, Assam, India.

⁵R.D. Gardi Medical College, Ujjain, Madhya Pradesh, India.

Correspondence to: Sai Sailesh Kumar Goothy, Department of Physiology, NRI Institute of Medical Sciences, Visakhapatnam, Andhra Pradesh. E-mail: dr.goothy@gmail.com

Submitted: 14/01/2025

Revision: 10/02/2025

Accepted: 25/02/2025

Published: 20/04/2025

This is an open access journal, and articles are distributed under the terms of the Creative Commons Attribution-NonCommercial-ShareAlike 4.0 License, which allows others to remix, tweak, and build upon the work non-commercially, as long as appropriate credit is given and the new creations are licensed under the identical terms.

How to cite this article: Goothy SSK, Jabir PK, Kumar S, Sharma V, Mahadik VK. Excess Screen Time and Its Effects on Menstrual Cycle: The Need of the Hour. Central India Journal of Medical Research. 2025;4(1):16-17.

linked to extended screen use may exacerbate menstrual disturbances. Prolonged sitting and insufficient physical activity are known to impair metabolic functions, such as insulin sensitivity, and disrupt overall hormonal balance. Regular physical activity, a key factor in maintaining a healthy menstrual cycle, supports reproductive health and promotes balanced hormone levels. In contrast, a lack of physical activity combined with excessive screen time can intensify hormonal imbalances, further increasing the likelihood of menstrual irregularities.⁸

Excessive screen usage can lead to increased stress levels in addition to circadian disturbances. The mental strain brought on by screen time, particularly social media and digital communications, frequently exacerbates the demands of job and school for many young adult women. The body's main stress hormone, cortisol, is elevated when stress levels are high. It has been demonstrated that high cortisol levels interfere with the hypothalamic-pituitary-gonadal (HPG) axis, a vital system that regulates reproductive hormones. Anovulation (lack of ovulation), irregular periods, and more serious disorders like polycystic ovarian syndrome (PCOS), which is already associated with hormonal imbalances, can all be consequences of disruption of this hormonal system.⁹ It has to be remembered that menstrual cycle irregularity has been reported to be associated with serious health outcomes such as breast cancer, type 2 diabetes mellitus, cardiovascular disease, osteoporosis and infertility.¹⁰ Health awareness should be given regarding the harmful effects of excessive screen time and especially its effect on the female reproductive system and menstrual cycle. Early health intervention can be the implication of the same. In order to promote improved physical and mental health, create a balanced lifestyle, and improve general well-being, the public can be educated on screen time management, sleep hygiene, and healthier digital habits.

References

1. Zschocke J, Bartsch RP, Glos M, Penzel T, Mikolajczyk R, Kantelhardt JW. Long-and short-term fluctuations compared for several organ systems across sleep stages. *Frontiers in Network Physiology*. 2022 Sep 9;2:937130.)
2. Arendt J, Aulinas A. Physiology of the Pineal Gland and Melatonin. 2022 Oct 30. In: Feingold KR, Anawalt B, Blackman MR, Boyce A, Chrousos G, Corpas E, de Herder WW, Dhatariya K, Dungan K, Hofland J, Kalra S, Kaltsas G, Kapoor N, Koch C, Kopp P, Korbonits M, Kovacs CS, Kuohung W, Laferrère B, Levy M, McGee EA, McLachlan R, New M, Purnell J, Sahay R, Shah AS, Singer F, Sperling MA, Stratakis CA, Trencé DL, Wilson DP, editors. *Endotext* [Internet]. South Dartmouth (MA): MDText.com, Inc.; 2000-. PMID: 31841296.
3. Cajochen C, Munch M, Knoblauch V, et al. High sensitivity of human melatonin, alertness, and cognitive performance to short wavelengths of light. *J Clin Endocrinol Metab*. 2005;90(3):1311-1316.
4. Rea MS, Figueiro MG, Bullough JD. Light as a primary factor in the control of human circadian rhythms. *Int J Circumpolar Health*. 2003;62(S1):40-44.
5. Severinsen ER, Andersen TO, Dissing AS, Jensen AK, Sejling C, Freiesleben NC, Nielsen HS, Rod NH. Night-time smartphone use, sleep duration, sleep quality, and menstrual disturbances in young adult women: A population-based study with high-resolution tracking data. *Sleep Adv*. 2023 Feb 20;4(1):zpad013. doi: 10.1093/sleepadvances/zpad013.
6. Matsuura Y, Morita T, Sekimoto M, Maeda A, Yasui T. Differences in Physical and Psychological Condition, Sleeping Status and Menstruation-Related Symptoms before and after Smartphones Use in Young Female Students in Japan. *Health*. 2020 Apr 27;12(04):407.
7. He JW, Tu ZH, Xiao L, Su T, Tang YX. Effect of restricting bedtime mobile phone use on sleep, arousal, mood, and working memory: A randomized pilot trial. *PLoS One*. 2020 Feb 10;15(2):e0228756. doi: 10.1371/journal.pone.0228756.
8. Slattery ML, Curtin K, Schaffer D, et al. Physical activity, energy intake, and dietary patterns as predictors of menstrual cycle characteristics. *Med Sci Sports Exerc*. 2006;38(4):673-681.
9. Banaszewska B, Komorowski J, Wojciechowska J, et al. Stress and its influence on hormonal status and menstrual cycle regulation. *Ginekol Pol*. 2015;86(11):821-825.
10. Kaplan JR, Manuck SB. Ovarian dysfunction, stress, and disease: a primate continuum. *ILAR journal*. 2004 Jan 1;45(2):89-115.