

**ONE DAY SEMINAR ON**  
**DIGITAL WELLBEING & CYBER SECURITY”**  
**AT**  
**THE INSTITUTION OF ENGINEERS (INDIA)**  
**UP STATE CENTRE, LUCKNOW**

**DATE: 11TH APRIL, 2026**

Presented by: Er. Rajesh Srivastava, FIE  
Member-IEI UPSSC-MC



## INTRODUCTION & USAGE

Defining screen time and global dependencies

## RECOMMENDED GUIDELINES

Age-specific recommendations & benefits

## HEALTH RISKS OVERVIEW

Physical strain, sleep disruption, and more

## PREVENTION & SOLUTIONS

Prevention & Solutions

## RECENT RESEARCH FINDINGS

Evidence-based data and studies from 2015-2025

## EN TIME?

the total duration  
g with digital  
work and leisure.

## CES

## ONES

COMPUTERS

E-READERS

ONSOLES

TEVISIONS

## INCREASING USAGE

Global dependency growing  
fundamentally transforming  
routines. This surge is p  
by:

- 5G connectivity enabling  
speed access
- The normalisation of  
trends
- Highly engaging and  
digital content

pushing daily digital dependency to unprecedented heights.

## HYBRID LIFESTYLES

The COVID-19 pandemic normals have blurred work and home environments, making constant connectivity a baseline expectation and productivity.

## ALGORITHMIC ENGAGEMENT

Social media platforms use advanced AI-driven personalization to create infinite scrolling behavior and continuous dopamine loops.



## STREAMING

On-demand entertainment and immersive virtual experiences are becoming accessible digital environments extending into large-scale applications.



## UBIQUITOUS

The widespread adoption of smart infrastructure and uninterrupted, high-speed digital ecosystems are creating a new normal.

# Distribution of our 7+ hours of daily digital interaction across



## Work & Education (4-6 Hours)

Focuses on virtual meetings, learning platforms  
Requires intentional detox to avoid cognitive



## Social Media (2-3 Hours)

Driven by addictive algorithms, dominating  
speed digital content consumption.



## Gaming & Entertainment (1-2 Hours)

Immersive streaming and mobile gaming pro  
often extending into late-night hours.



## Communication (~1 Hour)

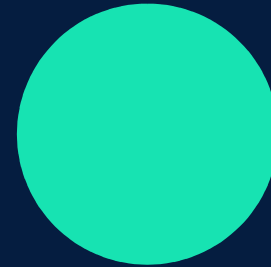
Dedicated to personal messaging and email  
drives real-time global collaboration.

| Age Group  | Recommended Limit | Rationale                                                                                                                                                       |
|------------|-------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 0-2 Years  | 0 Hours           | Zero sedentary screen time is recommended for young children to support healthy brain development and physical growth.                                          |
| 3-5 Years  | Max 1 Hour        | Maximum of 1 hour of high-quality screen time per day, less is better for supporting cognitive and physical development through active play.                    |
| 6-17 Years | Max 2 Hours       | No more than 2 hours of recreational screen time daily to prevent excessive use, support mental health, and encourage physical activity and social interaction. |
| 18+ Years  | 2-4 Hours         | Limit recreational screen time to 2-4 hours per day to prevent interference with work, sleep, and social relationships.                                         |

and effectively, digital technology provides profound advantages

## ACCESS TO INFORMATION

Digital resources provide instant access to vast digital databases, enabling lifelong learning and rapid professional development.

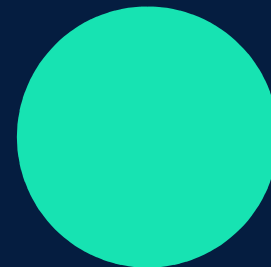


## ONLINE LEARNING

Digital platforms facilitate online class education, breaking down geographical barriers and allowing for self-paced mastery.

## GLOBAL COMMUNICATION

Video and text bridge geographic distances, maintaining family bonds and enabling real-time global collaboration.



## SKILL DEVELOPMENT

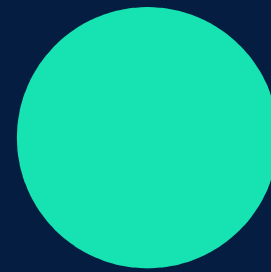
Interactive tutorials and courses facilitate rapid mastery of new skills and industry trends.

dependency has introduced significant physical and psychological health concerns. Excessive screen time is a primary driver of modern sedentary lifestyles, leading to a range of health concerns.

Spending more than 4 hours of recreational screen time daily is linked to various health symptoms in adults.

## PHYSICAL HEALTH ISSUES

Excessive screen use leads to eye strain, "Text Neck," decreased physical activity, and increased risks of cardiovascular health problems due to prolonged sedentary periods.



## SLEEP DISRUPTION

Blue light from screens suppresses melatonin production, disrupting sleep patterns and leading to chronic daytime fatigue and exhaustion.

## MENTAL HEALTH PROBLEMS

Excessive screen time is linked to increased anxiety and depression, shortened attention spans, and constant digital notification interruptions.

# Common symptoms of Computer Vision Syndrome

## RED EYES

Reduced blink rates during screen use cause rapid tear evaporation, leading to persistent irritation, a gritty sensation, and redness.

## BLURRED VISION

Prolonged near-focusing overworks eye muscles, causing temporary loss of clarity and difficulty transitioning focus between digital screens and the real world.

## HEADACHES

Prolonged visual triggers and intense glare create significant cognitive load.



g the physiological triggers behind digital ocular discomfort

## EXCESSIVE LIGHT EXPOSURE

High-energy visible light penetrates deep into the eye, potentially damaging retinal cells and disrupting the natural sleep-wake cycle through the suppression of melatonin production.

## REDUCED BLINKING RATE

Users blink up to 66% less while staring at screens. This prevents the eyes from being properly lubricated, causing rapid tear evaporation, persistent irritation, and significant surface dryness.

## PROLONGED CONTINUOUS USAGE

Staring on near-field objects for continuous hours causes ciliary muscle

g the physiological impact of high-energy visible light.

## **DAMAGE RISK**

Energy blue light waves penetrate deep into the eye, potentially damaging retinal cells and contributing to long-term visual impairment and irreversible ocular damage.

## **OCULAR FATIGUE**

Prolonged exposure to bright, artificial light overworks the ocular system, leading to heavy eyelids, mental exhaustion, and persistent tension headaches.

## **SLEEP DISRUPTION**

Artificial light strongly inhibits melatonin production, tricking the brain into thinking it's daytime. This disrupts the body's natural circadian rhythm, leading to insomnia and poor sleep quality.

Impact of screen use before bedtime on restorative rest

## RELAXING CONTENT

Engaging with digital content keeps the brain in a high-alert state, making it difficult to transition into a peaceful and restful mindset.

## MELATONIN SUPPRESSION

Artificial light mimics daylight, tricking the brain into halting melatonin production and fundamentally delaying the internal sleep clock.

## SLEEP QUALITY

Disrupted circadian rhythms lead to shallow, fragmented sleep, preventing

REM sleep and deep sleep.

## Sleep Timing

ng pushes back the  
ock, resulting in a  
sleep onset and a  
le.



## Insomnia

High-energy blue  
stimulating conten  
brain state, makin  
stay asleep.

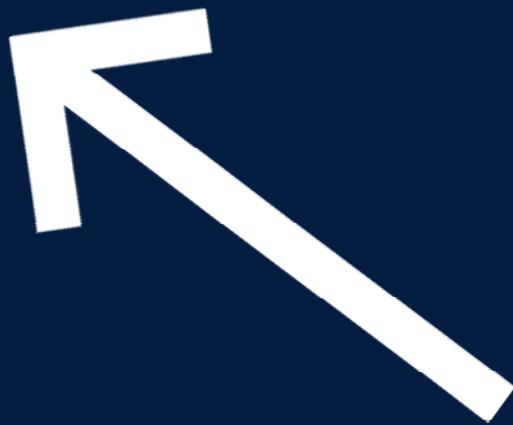


**Circadian  
Disruption**



## Daytime Fatigue

Poor nocturnal rest leads to persistent morning  
grogginess, reduced alertness, and a reliance on caft  
to function



Screen time replaces movement and impacts physical health

## SEDENTARY LIFESTYLE

Screen time often anchors users to chairs for hours, replacing active lifestyles with prolonged periods of physical stillness and inactivity.

## REDUCED EXERCISE

Screen dependency frequently displaces scheduled physical activity, as entertainment consumes the time and energy once reserved for exercise.

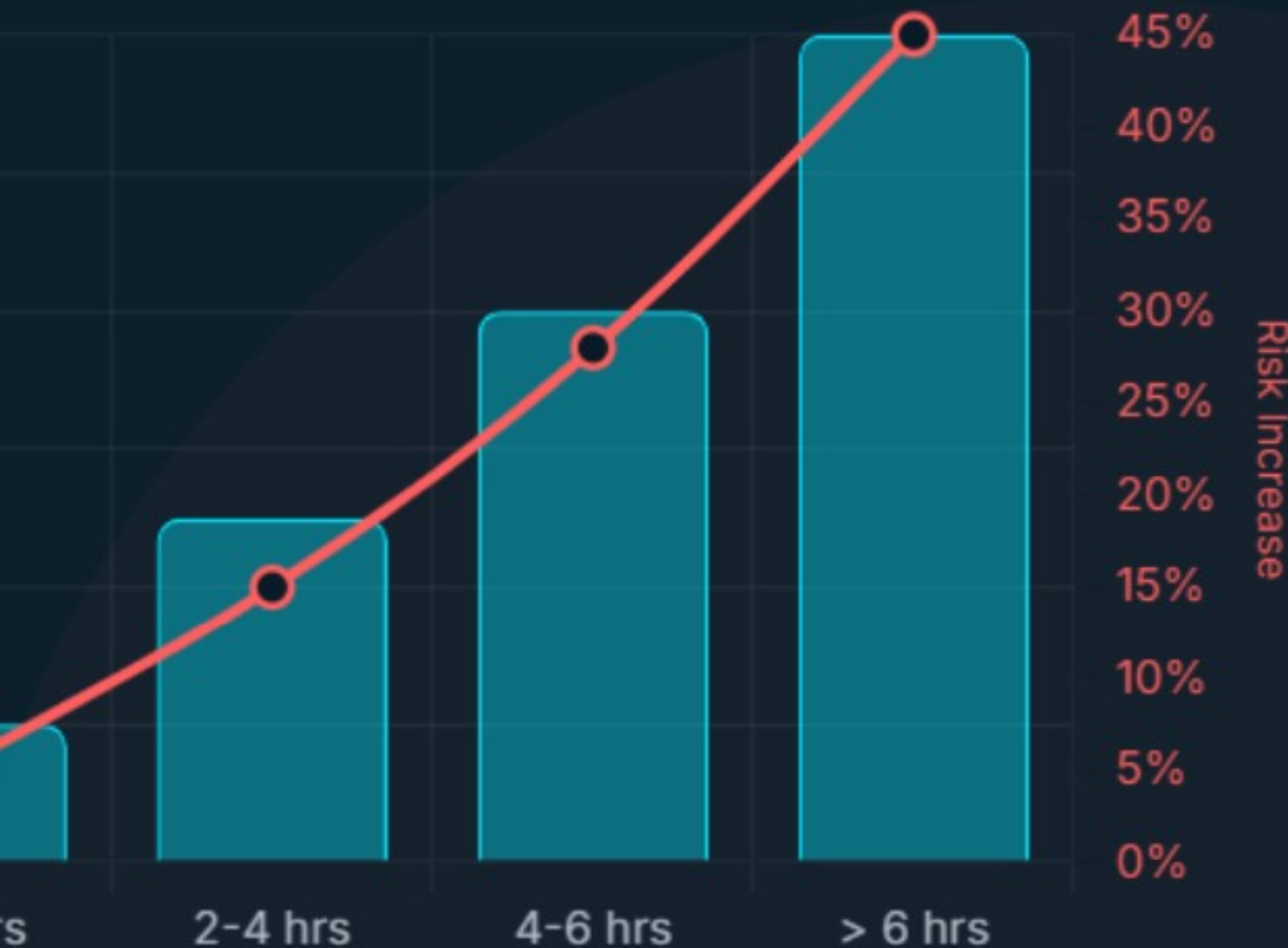
## WEIGHT GAIN RISK

Sedentary movement combined with mindless "screen-snacking" slows metabolism, significantly increasing the likelihood of obesity and related health issues.



# Time vs. Obesity Risk Correlation

or escalation relative to daily exposure hours



oll of prolonged non-ergonomic screen use on our muscul

## (TEXT NECK)

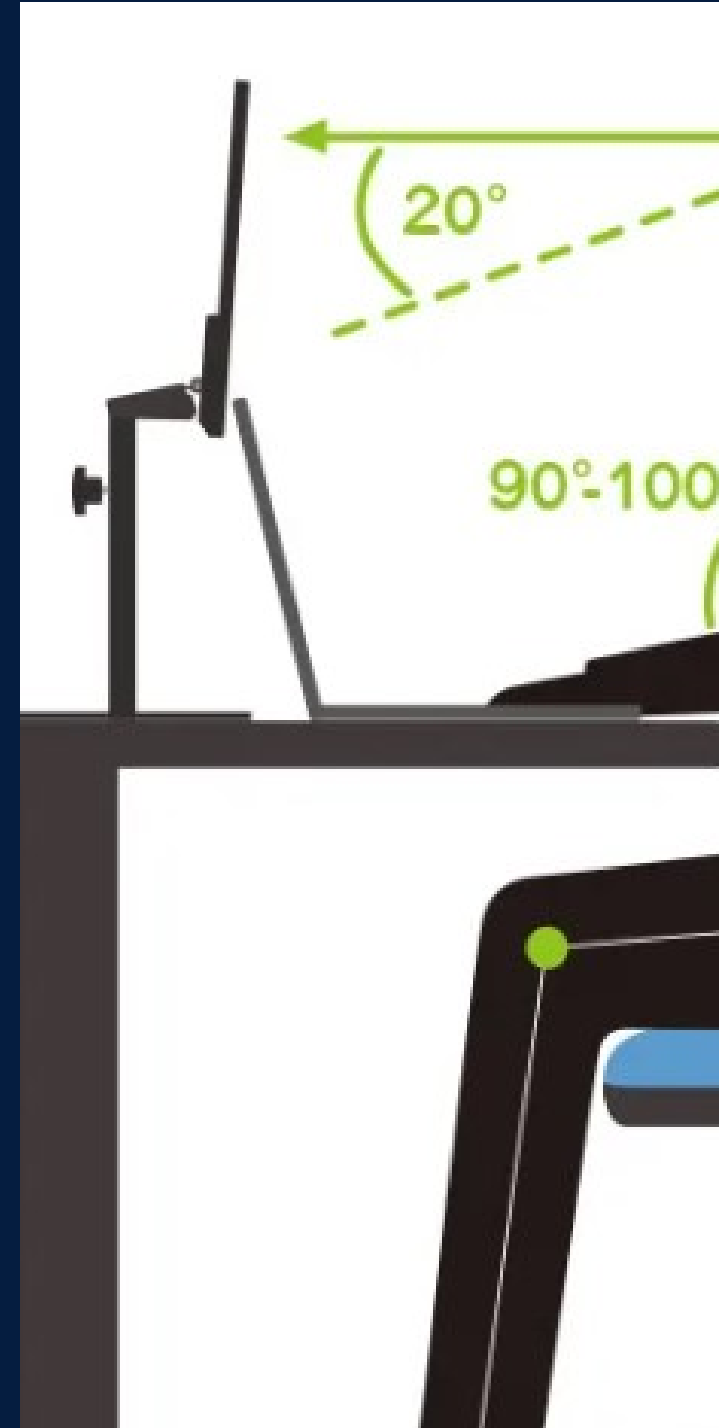
d-leaning to view screens places immense,  
re on cervical vertebrae and muscles.

## CK PAIN

ergonomic chairs during long sessions  
train in the lower lumbar region.

## AL ALIGNMENT

ing permanently alters posture, leading to  
s and long-term musculoskeletal



oll of prolonged screen use on our muscles, joints, and ten

## AIN

ing and awkward mouse angles cause inflammation in the  
median nerve compression.

## ER STIFFNESS

c positions during screen use leads to muscle tightening and  
nge of motion.

## IVE STRAIN INJURIES

small-motion tasks like scrolling trigger chronic tissue damage  
nt pain in the joints.

ical impact of digital dependency and constant connectiv

tifications and social comparison trigger a persistent state of  
d FOMO (fear of missing out).

## SION

screen use, especially passive scrolling, is often linked to  
adequacy and increased social isolation.

-on" digital culture leads to information overload, making it  
e brain to truly decompress.

Psychological toll of curated realities and algorithmic feedback loops

## ON CULTURE

Exposure to curated "highlight reels" creates unrealistic standards and deep-seated feelings of inadequacy.

## ESTEEM

Reliance on digital validation through likes and comments erodes an individual's internal self-worth.

## TENDENCIES

Constant feedback loops trigger dopamine surges, leading to compulsive checking and disconnecting, causing compulsive



influx of digital stimuli rewires neural pathways, impacting and regulate emotions.

## **REDUCED CONCENTRATION**

Multitasking and rapid content switching weaken the brain's ability to focus deeply on single tasks and maintain sustained attention.

## **REDUCED ATTENTION SPAN**

Instant gratification trains the brain to expect instant updates, making it difficult to engage with slower-paced, complex activities increasingly.

## **NEUROCHEMICAL IMBALANCE**

Constant digital rewards trigger excessive dopamine release, desensitizing the brain and leading to irritability, anxiety, or constant behavioral cravings.

al concerns arising from excessive early exposure to digital

## ILESTONES

n time replaces physical play and crucial  
, potentially slowing critical speech,  
otor skill development in early childhood.

## AL ISSUES

from fast-paced digital content can lead to  
ity, emotional outbursts, and difficulty with  
nd impulse control.

## TTENTION SPAN

re visual changes condition the developing  
stant gratification, making focused



## The Develop

Early childhood is a critical  
pathway formation. Ex  
can literally wire the  
prioritizing rapid context  
focu

excessive screen time impacts learning, focus, and educational outcomes.

## ATTENTION

Distractions and the lure of entertainment apps frequently pull students away from deep study sessions and meaningful academic engagement.

## REDUCED FOCUS

Multitasking between digital tabs fragments the ability to concentrate on complex academic concepts and negatively impacts learning retention.

## DECREASED PRODUCTIVITY

Excessive non-educational screen use leads to rushed assignments, increased academic stress, and diminished overall learning quality.

Occupation alters human connection and empathy

## TO-FACE INTERACTION

ation reduces meaningful in-person  
eakening the emotional nuances of human  
mpathy.

## LATION

al gatherings with virtual presence can  
liness despite being technically  
ne.

## CONNECT & "PHUBBING"

e use during shared time creates  
(e snubbing) habits, eroding bonds and



the physical and psychological indicators of excessive digital

**DEPENDENCY**

**REDUCED PRODUCT**

**ME CONTROL**

**SOCIAL WITHDRAW**

**ATIGUE**

**EMOTIONAL VOLAT**

Measures to safeguard physical and mental health in a digital

**SCREEN TIME**

**SCREEN FILTERS**

**Y HABITS**

**REGULAR BREAKS**

# Effective strategy to prevent digital eye strain and visual fatigue

20

es

to pause digital  
es a necessary,  
om near-focus.

20



**Feet Away**

Shift your focus toward a distant object  
to relax the internal ciliary eye muscles  
and naturally refocus your vision.

20

Maintain  
enough for  
decompress

proper physical alignment to prevent chronic musculoskeletal

## SCREENS

so the top third of the screen is at or  
level to prevent "Text Neck" and constant

## ERGONOMIC FURNITURE

adequate lumbar support and keep feet  
on a footrest to maintain natural spinal

## SEATING POSITIONING

close enough that elbows rest comfortably  
angle preventing excessive shoulder



unplug, reset the mind, and reduce chronic digital overstimulation

## FREE TIME

Specific hours to unplugging helps the mind escape chronic digital overstimulation and

## ACTIVITIES

Time spent in nature encourages physical movement and provides a mental sensory break from artificial light.

## SOCIAL MEDIA

Limiting social media breaks addictive scrolling cycles, improves focus and mental well-being



# Responsibility in managing digital consumption

Parental involvement is vital. Monitor usage, encourage physical activity, and outdoor play, and set clear screen time boundaries for healthy development.

Teachers play a key role in integrating technology into the curriculum, scheduling tech breaks, and teaching digital citizenship to manage cognitive load in class.

## ES

Employers should support ergonomic setups, mandate digital wellness training, and respect boundaries outside work hours.

# "Bedtime and Sleep Duration and Quality Among Youths" - 2024

## ANALYZED

s: Analyzed 79 youths aged 11-14.9 years in New Zealand.  
ectively measured screen use both before bed and once in b  
cked sleep duration and sleep quality using precise accelerom

## OBSERVATIONS

n the 2 hours before bed was surprisingly not strongly tied to t  
fter getting into bed was directly linked to significantly shorter  
activities (such as gaming and multitasking) proved to be the m

S://JAMANETWORK.COM/JOURNALS/JAMAPEDIATRICS/ARTICLE

screen time reduction and its effect on mental health indicators: a  
2025

## ANALYZED

s: Analyzed 111 students aged 18-29 years.

ervention group reduced smartphone use to a maximum of 2 hours per day. The study tracked indicators like stress, well-being, depressive symptoms, and

## OBSERVATIONS

Improvements were observed across multiple metrics: depressive symptoms, and overall well-being.

Results strongly suggest a causal relationship rather than merely a correlation between reduced screen time and improved mental health.

Significant benefits were achieved rapidly within a 3-week intervention period.

d obesity prevalence in adolescents: an isotemporal substitution

## ANALYZED

s: Analyzed 5,180 Korean adolescents.

reen time, smartphone/TV use, and various non-screen activities  
checked the prevalence of obesity within the demographic.

## RVATIONS

smartphone use was strongly associated with a higher prevalence  
reen time with physical activity significantly reduced obesity  
reen time with sufficient sleep was also associated with a low

digital eye strain and its associated factors among school children

## ANALYZED

Study: Analyzed 492 schoolchildren aged 11-18 in Palestine.

Evaluated detailed device-use behaviors, postures, and screen time.

Assessed the prevalence and severity of digital eye strain (DES).

## OBSERVATIONS

44.1% of the surveyed students experienced digital eye strain.

Risk factors included bedtime smartphone use and using devices

in bed, close viewing distance, and high screen brightness were strongly

associated.

# Between Recreational Screen Time and Brain Health in Middle-Aged Adults: A Prospective Cohort Study"-2024

## WHAT WAS ANALYZED

Study Design: Analyzed 407,792 UK Biobank participants.

Comparison: Evaluated TV vs. computer use and risks for dementia, stroke, and

Additional Data: Included an MRI subset for detailed neuroimaging analysis of brain

## KEY OBSERVATIONS

High Screen Time: ≥5 hours/day was strongly associated with higher risks of dem

Brain Health: High TV use correlated with lower gray matter and hippocampal brain vol

Computer Use: recreational computer use did not show this same harmful pa

ON AND PROACTIVE HABITS ARE ESSENTIAL FOR A HE

EDIGITAL USE

ZE WARNING SIGNS

NT THE 20-20-20 RULE

ZE PHYSICAL ACTIVITY & SLEEP

CHILDREN'S DEVELOPMENT

PROFESSIONAL HELP

“

*"Technology is a useful s  
dangerous master."*

— CH

**THANK YOU**

**SHIVASTAVA**

594190

va1963@gmail.com