

DIGITAL ADDICTION: AN AGADTANTRA PERSPECTIVE ON BEHAVIORAL TOXICITY AND NEURO-REGENERATION.

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ABSTRACT

The 21st century has witnessed the emergence of a non-chemical but highly potent toxin: digital stimuli. Digital addiction, characterized by compulsive interaction with screens, is traditionally viewed as a psychological habit. However, through the prospective of Agadtantra (Ayurvedic Toxicology), it can be categorized as a form of Gara Visha (artificial, cumulative poisoning). This article explores the toxicological impact of digital over exposure on mental health, citing the depletion of Ojas and the blockage of Manovaha Srotas. By synthesizing modern neuro-pathophysiology-specifically dopamine receptor down regulation- with Ayurvedic concepts of Vata and Rajas aggravation, we propose a holistic detoxification and management protocol.

Keywords: Digital Addiction, Mental Health, Agadtantra, Gara Visha, Dushi Visha, Manovaha Srotas, Dopamine

How to cite this article: Koshle S, Inchulkar SR, Bhagat S, Kaushik Y, Kispotta RR, Kashyap D, Tiwari PR, Kumar S., Digital Addiction: An Agadtantra Perspective on Behavioral Toxicity and Neuro-Regeneration. Int J Drug Deliv Technol. 2026;16(77s): 296-300; DOI: 10.25258/ijddt.16.77s.34

INTRODUCTION

Agadtantra is the specialized branch of Ayurveda that deals with the study of toxins (Visha). Historically, this branch focused on environmental, animal, and chemical poisons. However, the classical definition of Visha includes any substance or frequency that causes "Vishada" (depression/despair) and disrupts biological equilibrium [1]. In the modern world, digital platforms are designed to trigger frequent, intense neurochemical responses. When these responses are triggered excessively, the digital stimulus ceases to be a tool and becomes a Behavioral Toxin[2]. This article reframes digital addiction as a toxicological crisis of the mind, where the "dosage" of screen time exceeds the brain's metabolic capacity to process information. This leads to the accumulation of "Mental Ama" (unprocessed impressions),

[3] manifesting as widespread mental health disorders like anxiety, attention deficits, and chronic depression.[4]

Digital Addiction :-

Definition: Digital Addiction is defined as an impulse-control disorder involving the obsessive use of digital devices (smartphones, computers, gaming consoles) despite serious negative consequences to physical, mental, and social well-being [5].

From the perspective of Agadtantra, it is defined as Sanga (attachment) to a non-biological stimulus that eventually acts as a Behavioral Toxin[6]. It is the critical point where the 'dosage' of sensory data exceeds the metabolic capacity of the mind, transforming into a poison for the Manas (mind) and disrupting the stability of the Mano-vaha Srotas [7]

Types of Digital Addiction - Toxicology categorizes poisons by their source; similarly, digital addiction is categorized by the specific "digital substance" or behavioral loop being consumed: [5]

- **Social Media Addiction:** Characterized by the compulsive checking of platforms (Instagram, TikTok). From an Ayurvedic perspective, This is a *Pitta-Rajasic* addiction driven by social validation, comparison and competition, which overheats the *Sadhak Pitta* (the sub-dosha governing emotional processing)[8].
- **Internet Gaming Disorder (IGD):** This involves high-intensity stimulation that targets the brain's reward circuitry, often leading to dopamine exhaustion[9]. It is a *Vata-Pitta* dominant toxicity, where the 'speed' of gaming vitiates *Vata* and the 'aggression' of competition aggravates *Pitta*[4].
- **Information Overload (Infomania):** The compulsive need to constantly consume news, research or data. This creates *Manasika Ama* (mental undigested waste), as the mind's *Agni* (digestive fire) is unable to process the volume of incoming stimuli, leading to cognitive 'clogging'[7].
- **Cyber-Relationship Addiction:** The preference for virtual connections over real-life *Prana*-rich interactions. This results in the depletion of *Ojas* (vitality) as the individual substitutes authentic human energy with the 'dry' and erratic qualities of digital communication.[1]

Causes and Etiology: The Toxic Roots

The etiology of digital addiction reflects a complex interplay between neurobiological engineering and psychological vulnerability. In *Agadtantra*, understanding the *Nidana* (cause) is essential to neutralize the *Visha* (toxin).

1. Modern Causes (Neuro-Toxicological)

Variable Rewards: The 'infinite scroll' and notification features mimic the mechanism of a slot machine. By using variable ratio reinforcement schedules, these platforms ensure the brain never knows when the next dopamine hit will arrive, leading to chronic reward-seeking behavior and eventual receptor downregulation [2,9].

Escapism: Digital media is often utilized as a 'digital narcotic' to numb physical discomfort or emotional pain. This behavior activates the same neural pathways as opioid use, providing a temporary relief that masks underlying physiological imbalances [2,6].

Design for Dependency: Modern applications are engineered using 'persuasive technology.' These designs are specifically crafted to bypass the logical Prefrontal Cortex (the seat of *Dhee* or intellect) and directly target the reptilian brain (the seat of primal impulses), fostering a state of autonomic dependency [6,9].

Ayurvedic Causes (Nidana)

- **Pragya-aparadh (Intellectual Error):** This is the "crime against wisdom." It occurs when an individual knowingly chooses a harmful behavior—such as scrolling through a screen late at night—at the expense of vital sleep or health. It is a failure of *Dhee* (intellect), *Dhriti* (courage/retention), and *Smriti* (memory) [7,8].
- **Asatmya-Indriyarthas-Sannikarsha:** This refers to the incompatible or unwholesome contact of the senses (*Indriyas*) with their objects. Digital addiction is a form of *Atiyoga* (over-utilization) where the eyes and ears are bombarded with artificial light and high-frequency sound, leading to a breakdown in the sensory-nervous processing channels (*Mano-vaha Srotas*) [3,7].
- **Alpa-Sattva (Weak Mental Strength):** Ayurveda categorizes the mind into three *Gunas*: *Sattva* (purity/balance), *Rajas* (activity/agitation), and *Tamas* (inertia). Individuals with *Alpa-Sattva* (low mental resilience) possess less resistance to the "toxic" pull of *Rajasic* digital stimuli. This lack of mental stability allows the behavioral toxin to settle deeply into the psyche [10].

Symptoms: The clinical manifestation of digital addiction resembles the effects of a latent poison (*Dushi Visha*) which gradually compromises the mental and physical health of the individual. These symptoms are divided into *Manasika* (mental) and *Sharirika* (physical) toxic signs.

Mental & Behavioral Symptoms (*Manasika Lakshanas*) [3]

- *Chittodvega* (Anxiety): Feeling restless when the phone is not reachable (Nomophobia).
- *Krodha & Irshya* (Anger & Envy): Irritability when interrupted and jealousy from social comparison.
- *Smriti Bhransha* (Memory Decay): "Digital Amnesia"—the inability to remember information because of reliance on Google.
- *Avasada* (Depression): The heavy, lethargic state following screen withdrawal, indicative of *Tamo-Guna* rise.

Physical Symptoms (*Sharirika Lakshanas*) [6]

- *Drishti-Dusti* (Vision Impairment): Dry eyes and blurred vision from blue light toxicity.
- *Stambha* (Stiffness): "Text-neck" and cervical stiffness due to *Vata* stagnation in the neck and shoulders.
- *Nidra-Nasha* (Insomnia): Disruption of the circadian rhythm (*Kala*), leading to the inability to enter deep sleep.

Mechanism :-

The Modern Toxicological Perspective Modern science treats digital addiction similarly to substance abuse due to the shared neural pathways.

The Mechanism of Neurotoxicity :- The primary "toxin" in digital media is the Variable Ratio Schedule of Reinforcement. Platforms like Instagram or TikTok offer unpredictable rewards (likes, scrolls, notifications), which cause a surge in dopamine levels within the Nucleus Accumbens [11].

Impact on Cognitive Structures Prefrontal Cortex (PFC): Chronic digital overstimulation leads to a reduction in the density of grey matter in the PFC. In toxicology, the thinning of neural tissues is a hallmark of toxic exposure. This results in the loss of executive function and impulse control [12].

Hippocampal Damage: High-speed digital consumption maintains the body in a state of hyper-arousal, leading to chronically high levels of Cortisol. High cortisol is neurotoxic to the hippocampus, explaining why many digital addicts suffer from memory issues and emotional instability [13].

According to Ayurveda Digital Addiction

In *Agadtantra*, toxins are classified based on their origin and potency. Digital addiction can be understood through three specific toxicological concepts:

Gara Visha (The Accumulated Toxin) - *Gara Visha* is described as an artificial poison created by the combination of non-poisonous substances that accumulate over time. Digital stimuli (light, sound, and information) are not poisonous in small amounts. However, when consumed for 8–10 hours daily, they undergo a "bio-accumulation" in the *Manovaha Srotas* (mental channels), eventually becoming toxic and causing systemic mental dysfunction [14].

Dushi Visha (The Latent Toxin) - A toxin that is not eliminated from the body but remains latent in the tissues is called *Dushi Visha*. Digital addiction often leaves a "digital footprint" on the nervous system. Even after a user stops using a device, the craving and the underlying anxiety remain, indicating that the toxin has settled into the *Majja Dhatu* (nervous tissue) [15].

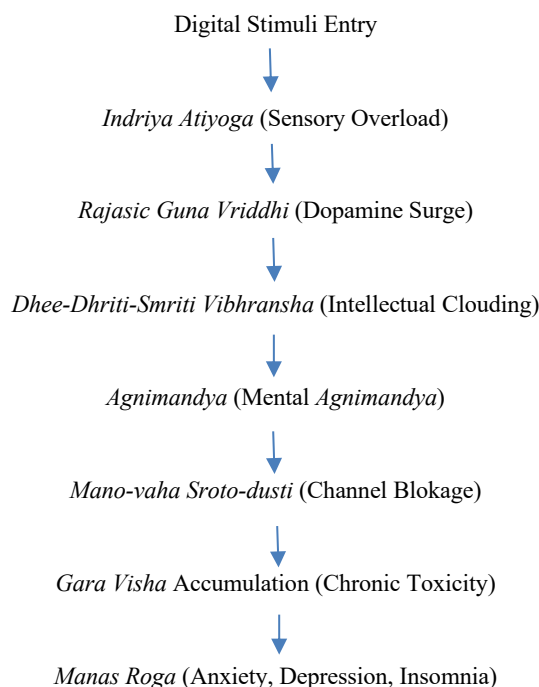
Indriya Atiyoga (Sensory Overload) - *Ayurveda* defines the cause of all diseases as the improper use of senses. The *Atiyoga* (over-utilization) of the eyes (*Chakshu*) and ears (*Shrotra*) with high-frequency digital light and sound leads to the exhaustion of *Prana Vata* and the depletion of *Ojas* (the essence of immunity and mental strength) [16].

Pathophysiology

Comparative Pathophysiology Table [6]

Stage of Progression	Modern	Ayurvedic
Exposure	High-frequency Blue Light/Scrolling	Asatmya Indriyarth Sannikarsha
Stimulation	Dopamine Release (Reward Surge)	Harsha and Rajas Vriddhi
Adaptation	Receptor Down regulation	Srotas Avarodha (Protective Blocking)
Chronic State	Hypodopaminergic state	Tamo-Guna & Manasika Ama
Structural Change	PFC Gray Matter Reduction	Majja Dhatu Kshaya
End Result	Behavioral Addiction & Depression	Gara Visha induced Manas Roga

Flow Chart [16]



The progression of Digital Addiction in *Agadtantra* follows a specific sequence of *Dhatu-Dusti* (tissue corruption) and *Sroto-Avarodha* (channel blockage). [17]

Stage 1: Indriya Atiyoga (Sensory Overload) - The process begins with the excessive contact of sense organs (*Chakshu* and *Shrotra*) with digital screens. This is the "Entry of the Toxin." Result: Immediate stimulation of *Prana Vata* and *Sadhaka Pitta*.

Stage 2: Rajasic Vitiation (Hyper-excitation) -The rapid flickering and high-speed information flow cause a violent surge in *Rajas Guna*. Modern Correlation: Pulsatile Dopamine Spikes. Result: The mind becomes *Chanchala* (unstable) and *Vyakul* (disturbed).

Stage 3: Agni Mandya & Manasika Ama (Mental Toxins) - Just as the stomach cannot digest excessive food, the mind cannot "digest" excessive digital impressions. This leads to *Pragya-aparadh* (failure of intelligence).

Result: Formation of *Manasika Ama* (undigested mental residue/cognitive load).

Stage 4: Srotas Avarodha (Channel Blockage) - The accumulated *Ama* and aggravated *Vata* enter the *Mano-vaha Srotas* (channels of the mind).

Result: The "flow" of consciousness is blocked. The brain's natural cleansing mechanism (Glymphatic system) is hindered.

Stage 5: Tarpaka Kapha Shoshana (Neuro-degeneration) - The "Heat" of digital light and constant *Pitta-driven* competition dries up the *Tarpaka Kapha* (the cerebrospinal fluid and protective

myelin). Modern Correlation: Shrinkage of Grey Matter and PFC atrophy.

Stage 6: Vyadhi Janan (Disease Manifestation) - The final stage where the toxin is fully settled in the *Majja Dhatu* (nervous tissue), leading to clinical mental health disorders.

Result: Anxiety (*Chittodvega*), Depression (*Avasada*), and Loss of Memory (*Smriti Bhransha*).

Treatment: Modern and Ayurvedic Approaches

Modern management

The management of digital behavioral toxicity follows a multi-modal approach aimed at restoring neurochemical balance and cognitive control [5,6].

Digital Detox (Gradual Tapering): Direct withdrawal (Cold Turkey) can cause severe anxiety. Instead, a structured "dosage reduction" or gradual tapering of device usage is recommended to allow the downregulated dopamine receptors to regain sensitivity [2].

CBT (Cognitive Behavioral Therapy): This is the gold standard for treating impulse-control disorders. CBT helps the patient identify the "triggers" (stress, boredom, loneliness) that lead to compulsive scrolling and helps in re-establishing the "Dhee" (intellectual control) over primal urges [5,9].

Pharmacology: In advanced stages where the patient exhibits clinical signs of *Avasada* (Depression) or *Chittodvega* (Severe Anxiety), Selective Serotonin Reuptake Inhibitors (SSRIs) or Anxiolytics are utilized to stabilize the neurochemical environment and prevent further hippocampal damage [6,9].

Ayurvedic Management

The treatment strategy in Agadtantra focuses on "cleansing" the mental channels (*Manovaha Srotas*) and neutralizing the accumulated *Gara Visha* (digital toxins) [7,10].

Shodhana (Detoxification)

Nasya: Medicated oils like *Brahmi Ghrita* are administered through the nasal route. This directly reaches the *Shringataka Marma* (vital brain centers) to clear the toxic blockage [18].

Shirodhara: The continuous pouring of warm medicated oil on the forehead. This reverses the neurotoxic impact of cortisol and calms the aggravated *Vata* [9, 14].

A. Sattvavajaya Chikitsa (Ayurvedic Psychotherapy): This therapy is defined as the "restraint of the mind from unwholesome objects." It serves as the Ayurvedic equivalent of Cognitive Behavioral Therapy (CBT), focusing on strengthening the *Sattva* (purity/stability) of the mind to resist the *Rajasic* (hyper-active) pull of digital applications [8,9]

B. Vishaghna and medhya herbs (anti-toxic nootropics): [4]

Specific herbs are utilized to repair neural tissue and neutralize the "behavioral venom" of digital addiction:

Brahmi (Bacopa monnieri): Acts as a neuro-regenerative agent, repairing the damage to the PFC.

Ashwagandha (Withania somnifera): An adaptogen that protects the brain from "stress toxicity" and restores *Ojas*.

Jatamansi: Specifically targets the *Vata* in the head, reducing digital-induced insomnia [4].

Specific Herbal Biochemistry (Mechanism of Neuro-Repair) - In the context of *Agadtantra*, the herbs used are not just nutrients; they are *Vishaghna* (anti-toxic) and *Medhya* (nootropic). When digital addiction causes neurochemical "poisoning," these herbs work at a molecular level to repair the damage.

Brahmi (Bacopa monnieri) - *Brahmi* is the premier herb for treating *Mano-vaha Sroto-dushti*. Molecular Action: The active compounds, *Bacosides A* and *B*, facilitate the repair of damaged neurons by enhancing kinase activity. This is crucial because digital over stimulation leads to synaptic fatigue. Neuro-Protection: *Bacosides* promote the synthesis of new neurons and restore the depleted levels of Serotonin, which helps counter the "crash" following a dopamine spike. In toxicological terms, it acts as a chelating agent for "mental toxins," clearing the receptors for better signal transmission. [19]

Ashwagandha (Withania somnifera) - *Ashwagandha* acts as an adaptogen that balances the *Vata* induced by digital speed. Cortisol Modulation: Digital addiction triggers the HPA (Hypothalamic-Pituitary-Adrenal) axis, leading to "Cortisol Toxicity." *Ashwagandha* contains *Withanolides* that directly lower serum cortisol levels, protecting the Hippocampus from stress-induced atrophy. GABAergic Activity: It mimics the effect of GABA (a calming neurotransmitter), which is often depleted in addicts, thereby reducing digital-induced tremors, anxiety, and restlessness.[20]

Jatamansi (Nardostachys jatamansi) - *Jatamansi* is specifically mentioned in *Agadtantra* for its *Bhootaghna* (antimicrobial/antipsychotic) and *Manas-shanti* properties. Mechanism: It increases the levels of GABA and 5-HT (Serotonin) in the brain. For a digital addict, this provides the "grounding" effect needed to offset the "light and airy" (*Vata*) nature of screen interaction. It specifically treats the *Visha* effect of insomnia caused by blue light exposure. [21]

DISCUSSION

The critical finding of this study is that *Agadtantra* provides a uniquely comprehensive framework for digital addiction because it treats the condition as both a chemical and an energetic invasion. While modern psychiatry focuses primarily

on the "software" (cognitive-behavioral patterns and thoughts), *Agadtantra* addresses the "hardware"—the physical *Srotas* (channels) and *Dhatu* (tissues) that are structurally compromised by chronic dopamine spikes and sensory overload [8,22]. A central argument in this discussion is that digital addiction follows the path of *Visha Vega* (toxic stages). In the initial stages, the "poison" is localized to the senses (*Indriya*), but as it progresses, it penetrates the *Majja Dhatu* (nervous tissue). This realization allows for stage-specific clinical interventions:

Early Stages: Use of *Nasya* to clear the *Shringataka Marma* and restore sensory clarity [10].

Advanced Burnout: Intensive *Shirodhara* and *Panchakarma* to reset the nervous system and repair the structural atrophy of the brain's grey matter [10,18].

The discussion concludes that in the current era of "Information *Visha*" ancient protocols of detoxification are no longer optional—they are essential for cognitive survival. By acknowledging digital stimuli as a form of *Gara Visha*, we can employ *Vishaghna* (anti-toxic) herbs like *Brahmi* and *Ashwagandha* to protect the "hardware" of the human mind from the corrosive effects of persuasive digital design [4,22].

CONCLUSION

Digital addiction is a modern-day *Gara Visha* that systematically erodes the *Ojas* and disrupts the *Manovaha Srotas*. This article has demonstrated that the pathophysiology of digital addiction mirrors traditional toxicological patterns, from dopamine exhaustion to the stages of *Visha* progression [16]. Through the application of *Agadtantra*, specifically utilizing *Medhya Rasayanas* like *Brahmi* and *Ashwagandha* and procedures like *Shirodhara*, we can neutralize these behavioral toxins and repair the physical "hardware" of the brain [4,10]. The path to mental health in the digital age lies in the restoration of *Sattva* and the disciplined management of sensory "dosage" [8].

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