

## AYURVEDA AND THE MODERN GAZE: MANAGING COMPUTER AND VISUAL DISPLAY TERMINAL (VDT) SYNDROME

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### Abstract-

**Introduction-** In the 21st century, mobile phones and computers have become ubiquitous across all age groups. While they have revolutionized access to information and professional work, prolonged use has led to a rise in vision-related discomfort and systemic effects. This cluster of ocular and extra-ocular symptoms is now identified as *Computer and Visual Display Terminal Syndrome* (CVDTS). **Methods-** In modern medicine, CVDTS is primarily managed using ocular surface lubricants, computer glasses, and encouraging frequent blinking to maintain eye moisture. In Ayurveda, treatments include specialized eye therapies such as *Tarpana*, *Anjana*, *Aschyotana*, *Nasya*, *Parisheka*, and practices like *Trataka*, aimed at reducing eye fatigue and improving overall vision health. **Results-** These therapies, both modern and Ayurvedic, provide relief from symptoms like eye dryness, tiredness, and visual strain. Ayurvedic approaches particularly focus on balancing the *Vata-Pitta* doshas involved in the pathology of CVDTS, especially at the *Chakshurendriya* (visual apparatus). **Discussion-** CVDTS can be correlated with the Ayurvedic condition *Shushkakshipaka*, a subtype of *Sarvakshiroga*, indicating dry eye-related ailments with systemic implications. Integrating both modern and traditional treatment strategies may offer comprehensive management for this lifestyle-induced syndrome.

**Keywords-** *Aschyotana, Chakshurendriya, CVDTS, Nasya, Tarpana, Shushkakshipaka*

**INTRODUCTION** - Visual display terminals have become an integral aspect of modern life. However, the human eye is not naturally adapted to prolonged digital exposure, leading to a condition known as *Computer and Visual Display Terminal Syndrome* (CVDTS), also referred to as *Digital Eye Strain* (DES). CVDTS encompasses a spectrum of ocular, musculoskeletal, and behavioral symptoms resulting from the extended use of devices with digital screens [1].

Continuous screen exposure without adequate breaks can lead to complex ocular and non-ocular problems, including dry eyes, tired or sore eyes, redness, itching, burning sensations, neck pain, lower backache, and associated shoulder discomfort. Clinically, CVDTS is closely related to *Asthenopia*, defined as a subjective sensation of visual fatigue, eye weakness, or eyestrain [2].

During screen use, the eyes frequently move toward the resting point of accommodation (RPA) and must continually refocus to maintain visual clarity, resulting in repetitive strain on ocular muscles. This constant flexing leads to restlessness, burning sensations, and a feeling of eye tiredness.

A critical and systematic review of the etiopathogenesis of CVDTS reveals similarities with a Vata–Pitta dominant pattern of ocular and systemic symptoms described in Ayurveda. *Sushkakshipaka*, classified as a Vataja disorder by Acharya Sushruta and a Vata-Pittaja disorder by Acharya Vagbhata, shows significant overlap with CVDTS manifestations [3,4]. Common Ayurvedic principles for managing such disorders include *Nidana Parivarjana* (elimination of causative factors) and *Vatadi Dosha Shamana* (pacification of aggravated doshas).

According to the American Optometric Association, Computer Vision Syndrome is "a complex of eye and vision problems related to near-vision activities experienced during or related to computer use" [5]. The primary causes of Computer Vision Syndrome include: prolonged use of computers or digital screens, close viewing distance from the screen, poor lighting or glare on the screen, improper sitting posture, uncorrected refractive errors, reduced blink rate, and use of improper corrective lenses. The symptoms commonly observed are eye discomfort such as dryness, watering, itching, or burning, blurred vision, headache, neck and shoulder stiffness or pain, double vision, eye redness, and difficulty keeping the eyes open.

Management strategies include adherence to the "20-20-20" rule — taking a 20-second break to view an object 20 feet away every 20 minutes [6]. Additionally, optimal screen positioning (15 to 20 degrees below eye level), minimizing screen glare, using tear substitutes or lubricants for dry eyes, and wearing computer-specific prescription glasses are recommended to alleviate symptoms.

## **AYURVEDIC APPROACH**

**Etiological Factors (Nidana) of Computer Vision Syndrome in Ayurvedic Context -** *Acharya Charaka* identifies three principal causes (*Nidana*) for disorders of the *Chakshurendriya* (visual apparatus): *Atiyoga* (overuse), *Hinayoga* (underuse), and *Mithyayoga* (improper use). When contextualized within modern digital habits, these factors correspond closely with the etiopathogenesis of *Computer Vision Syndrome* (CVS).

- **Atiyoga (Excessive Use):**
  - a) Prolonged exposure to bright screens or illuminated objects.
  - b) Maintaining a static posture for extended periods during screen use.
- **Hinayoga (Insufficient Use):**
  - a) Continuous visual engagement with very minute or fine objects, limiting the full range of ocular movement and accommodation.
- **Mithyayoga (Improper Use):**
  - a) Viewing objects from an incorrect distance, such as being too close to the screen.
  - b) Adopting ergonomically incorrect sitting postures during prolonged screen time.

**Samprapti (Pathogenesis) of Computer Vision Syndrome: An Ayurvedic Perspective -** Prolonged and continuous use of computers leads to the vitiation of *Vata* and *Pitta* doshas. These aggravated doshas ascend through the *Sira* (channels) to the upper part of the body and localize in various structures of the *Netra* (eye), resulting in symptoms that closely resemble those observed in Computer Vision Syndrome (CVS) [8].

The process begins with *Nidana Sevana*—the continued exposure to causative factors such as extended screen time, improper lighting, and poor posture—which causes *Dosha Vriddhi* (increased dosha levels), predominantly affecting *Vata* and *Pitta*. Continued aggravation results in *Dosha Prakopa* (provocation). The vitiated doshas circulate through the body's *Sira* and *Srotas* (channels), particularly entering the *Urdhwagata Sira* (ascending pathways). Their ascent and localization (*Sthanasamshraya*) in the ocular region give rise to *Poorvaroop Lakshana* (prodromal symptoms) followed by full manifestation of *Netra Roga*, clinically comparable to CVS [9,10].

The underlying cause is *Asatmendriyarth Samyoga*—improper association of the senses with their objects—particularly in the form of:

- *Ati-Darshanam*: prolonged viewing of excessively bright, minute, or very near/distant objects,
- *Mithyayoga*: improper sitting posture or continuous repetitive visual tasks,
- *Kala*: duration of exposure, where longer periods of work increase susceptibility.

### Samprapti Ghataka (Elements of Pathogenesis)

- **Dosha**: *Vata* and *Pitta*
- **Dushya**: *Rasa*, *Rakta*, *Mamsa*, *Medas*
- **Srotas involved**: *Rasavaha Srotas*
- **Srotodushti type**: *Sanga* (obstruction)
- **Rogamarga**: *Madhyama*
- **Adhishtana (locus)**: *Shiras* (head region)
- **Vyakta Sthana (manifestation site)**: *Netra Mandalas* (ocular tissues)

### Clinical Features –

According to Acharya Sushruta [11]:

1. *Kunita Ruksha Vartma* – contraction and dryness of eyelids, often due to photophobia
2. *Darun Ruksha Vartma* – stiff and rough eyelids
3. *Aviladarshanam* – blurred vision
4. *Sudarunam Apratibodhane* – difficulty in opening the eyes
5. *Shushkakshipaka* – dry eyes, characterized by reduced eyelid mobility and visual disturbance due to *Vata-Pitta* vitiation

According to Acharya Vagbhata [12]:

1. *Gharsha* – foreign body sensation
2. *Toda* – pricking pain
3. *Upadeha* – blurring of vision
4. *Ruksha Darun Vartma* – rough, hardened eyelids
5. *Kruchra Nimesha-Unmesha* – difficulty in opening and closing the eyes
6. *Shushkata* – dryness
7. *Shoola* – pain

**Management Approach** - As a general principle in Ayurvedic ophthalmology, the primary line of treatment involves *Nidana Parivarjana* (elimination of causative factors) and *Dosha Shamana* (pacification of vitiated doshas), specifically targeting *Vata* and *Pitta* in the case of CVS [13]. This is achieved through both *Shodhana* (purification) and *Shamana* (palliative) therapies, along with localized interventions (*Sthanika Kriyakalpa*) to restore ocular health.

## MANAGEMENT OF COMPUTER VISION SYNDROME THROUGH AYURVEDA

The Ayurvedic management of Computer Vision Syndrome (CVS) focuses on alleviating *Vata-Pitta* vitiation through both local (ocular) and systemic therapies. The treatment protocol includes *Kriyakalpa* (ocular procedures), *Yogic practices*, and systemic interventions such as *Snehapana*, *Nasya*, and *Rasayana* therapy.

### A) *Kriyakalpa* (Ocular Therapies)

1. ***Netra Tarpana*** - *Netra Tarpana* is a specialized ocular procedure where lukewarm medicated ghee or oil is retained in a dough-made frame around the eyes for a specific duration. It acts both as a preventive and curative measure, relieving eye fatigue and enhancing vision. The use of *Ghrita*, with its *Madhura* and *Sheeta* properties, is ideal for *Vata-Pitta* vitiation. As the eyes are primarily governed by *Majja Dhātu*, *Ghrita* nourishes the tissues and maintains the lipid layer of the tear film, preventing evaporation of its aqueous component and thereby sustaining ocular nutrition and hydration [14].
2. ***Netra Parisheka (Seka)***-This procedure involves gentle and continuous pouring of medicated liquid over closed eyes from a specific height (~8 cm or 4 *Angula*, as per *Sharangadhara Samhita*). It is indicated in the *Ama Avastha* (acute inflammatory phase) of ocular disorders, including redness, lacrimation, foreign body sensation, pain, itching, burning, discharge, photophobia, and swelling [15,16].
3. ***Aschyotana***- *Aschyotana* refers to the instillation of medicated drops from a height of 4 cm (2 *Angula*) into the eye. The formulation travels from the *Kaneenika Sandhi* to the *Shukla Mandala* and exits through the nasal and oral passages, aiding in the elimination of impurities. It is effective in relieving *Ruk* (pain), *Toda* (pricking), *Kandu* (itching), *Gharsha* (foreign body sensation), *Asru* (watering), *Daha* (burning), *Raga* (redness), and *Shopha* (swelling) [17,18].

4. **Anjana (Collyrium Application)** - Application of *Anjana* facilitates the expulsion of vitiated *Doshas* from the *Sira* associated with the eyelids and ocular tissues due to its *Teekshna* (penetrative) property, thereby improving ocular clarity and function [19].

**B) Yoga and Eye Exercises** -Yogic practices play a vital role in reducing visual strain and strengthening the ocular muscles. Techniques like *Trataka* (steady gazing) and *Neti Kriya* (nasal cleansing) are particularly effective. *Trataka* enhances the accommodation reflex, concentration, and visual stamina. Additional practices such as palming, blinking, and cold-water splashing promote relaxation and muscle recovery, helping to maintain long-term ocular health [20].

### C) Systemic Therapies

1. **Sneha Pana (Intake of Medicated Ghee)** - *Snehapana* involves the oral administration of medicated *Ghrita* in accordance with the individual's digestive capacity (*Agni*). Once ingested, *Ghrita* crosses the blood-ocular barrier due to its lipid-soluble nature and affinity for ocular tissues (*Chakshushya* properties). It supports deep tissue nourishment, lubrication, and rejuvenation, correcting doshic imbalances at the systemic and ocular levels [21].
2. **Nasya Karma (Nasal Administration of Medicine)** -*Nasya* entails the instillation of medicated oils or powders through the nostrils, a direct route to the head and sensory organs as referenced by the classical dictum “*Nasa hi Shiraso Dwaram*”.
  - *Pratimarsha Nasya* is particularly effective in relieving fatigue and strain-related symptoms like blurred and double vision, as well as musculoskeletal discomfort in the neck and back [22,23].
  - *Shamana Nasya* targets ocular redness and inflammation [24].
  - *Sneha Nasya* serves as a rejuvenative therapy, enhancing sensory function and promoting visual clarity [25].
3. **Padabhyanga (Foot Massage)** -Regular oil massage of the feet using medicated oils is described as *Chakshushya* (beneficial for the eyes) in classical texts by Acharya Charaka, Sushruta, and Vagbhata. It aids in improving visual acuity and provides a calming effect on the nervous system [26,27].

4. **Oral Medications** -Oral administration of Ayurvedic formulations with *Deepana* (digestive stimulant) and *Pachana* (metabolic enhancer) properties helps eliminate *Srotorodha* (channel obstruction). Formulations like *Mahatriphaladi Ghrita*, *Jeevanti Ghrita*, *Saptamrita Lauh*, *Amalaki Rasayana*, and *Amritadi Kwatha* are commonly used for their *Rasayana* (rejuvenating) and *Chakshushya* (eye-nourishing) actions.[28]

## DISCUSSION

The increasing reliance on digital devices has given rise to a growing need for preventive strategies to manage and mitigate *Computer and Visual Display Terminal Syndrome* (CVDTS), a modern lifestyle disorder characterized by both ocular and extra-ocular symptoms. Extended screen time leads to visual strain, dry eyes, and musculoskeletal complaints, collectively contributing to decreased productivity and reduced quality of life.

Among contemporary recommendations, the 20-20-20 rule—taking a 20-second break every 20 minutes to look at something 20 feet away—has proven effective in reducing visual fatigue. In addition, appropriate screen positioning, ambient lighting control, and the use of anti-reflective lenses are well-established methods for reducing digital eye strain.

Although CVDTS is not explicitly mentioned in classical Ayurvedic literature, it aligns with the concept of *Anukta Vyadhi* (unclassified or modern disorders). Based on clinical features, the condition can be closely correlated with *Shushkakshipaka*, a disorder marked by dryness of the eyes, blurred vision, and ocular discomfort due to *Vata-Pitta* dosha vitiation. The pathophysiology of dry eyes is linked to reduced secretion or increased evaporation of the tear film, which may lead to irritation and visual disturbances.

From an Ayurvedic perspective, management involves both systemic and local approaches, with an emphasis on *Vata-Pitta Shamana* (dosha pacification) and the use of *Snigdha Dravyas* (unctuous substances). Therapies such as *Sthanika Kriyakalpa*—including *Netra Tarpana*, *Parisheka*, *Anjana*, and *Aschyotana*—along with supportive *Rasayana* and rejuvenative treatments, provide symptomatic relief and improve ocular health. These holistic interventions aim not only to alleviate current symptoms but also to prevent recurrence by strengthening the visual system.

## CONCLUSION

The rapid advancement of technology and the resulting occupational and environmental changes have contributed to the emergence of new health challenges, such as *Computer Vision Syndrome* (CVDTS). Regular eye examinations, ergonomic corrections, and adoption of proper viewing habits are critical for the prevention and management of CVDTS symptoms.

Ayurveda offers a holistic and rejuvenative approach for maintaining ocular and systemic health in individuals affected by digital eye strain. Daily practices such as *Netra Prakshalana* (eye irrigation), *Anjana* (application of collyrium), *Nasya* (nasal administration of medicated oils), adequate *Nidra* (sleep), *Padabhyanga* (foot massage), adherence to an appropriate dietary regimen, and the incorporation of specific ocular exercises can significantly contribute to the prevention and management of CVDTS.

Thus, Ayurveda remains a highly effective and complementary medical system for promoting ocular wellness and addressing the evolving health needs of the digital era.

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