



ROLE OF AYURVED OCULAR THERAPIES IN THE MANAGEMENT OF LIFE-STYLE DISORDERS RELATED TO VISUAL DISPLAY TERMINALS

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<https://doi.org/10.46607/iamj0511102023>

(Published Online: October 2023)

Open Access

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Article Received: 08/09/2023 - Peer Reviewed: 25/09/2023 - Accepted for Publication: 10/10/2023.



ABSTRACT

The frequency of lifestyle disorders among Indians has reached alarming proportions in the present era, with the development of the economy and the growing westernization of the way of life. Computers are one of the most astonishing technological achievements and a significant contribution to human life. Our lives have become simpler as a result of the use of these technologies, both at home and at the office. Visual display terminals have become an integral aspect of today's life. A collection of ocular and extra-ocular symptoms known as "visual display terminals syndrome" is brought on by extended usage of computers and other digital devices. Asthenopic symptoms of the eyes, blurred vision, diplopia, dry eyes, sluggish concentrating, and musculoskeletal symptoms including shoulder and neck pain are all connected to it. These symptoms are associated with *Vata-Pittapradhana* and are somewhat comparable to those of *Shushkakshipaka* (~dry eye syndrome), a *Sarvagata Netra Roga* (~diseases afflicting all the parts of the eye.). The *Chakshuendriya'sAtiyoga* (constantly staring at the computer), *Hinayoga* (~working in a dimly lit environment without blinking), and *Mithyayoga* (~seeing very small fonts against a bright light) are all practices of the *Chakshuendriya* (~eye). The amount of time spent in front of a digital device screen, the working distance from the gadget to the eyes, and the frequency of use are some of the various considerations. For the eyes, *Acharya Vagbatta* recommended surface *Dosha shamak* (~pacification) and reju-

venating treatments. Ayurveda offers a comprehensive treatment to stop VDTS's (visual display terminal syndrome) extraocular and ocular issues. Through our text, *Kriyakalpa* therapeutic techniques, such as *Netraparisheka* (~procedure for eye irrigation), *Anjana* (~collyrium), *Nasya* (~nasal installation), *Tarpana* (~eye nourishment), *Padabhyanga* (~foot massage), *Nidra* (~sleep), proper dietary regimen, Numerous eye exercises, and *Yogic* practices are also beneficial to the prevention of VDTS.

Keywords: Vision Display Terminals Syndrome, Computer Vision Syndrome, *Kriyakalp*, *Shushkakshipaka*, *Yogic* Practices.

INTRODUCTION

Electronic gadgets have become part of human life. Most of the gadgets have display terminals and these have serious side effects on our eyes on their regular usage. The highest usage of these terminals is from computers. Computers become part of our everyday lives, and more and more people are experiencing a variety of ocular symptoms related to computer use.¹ Ocular Symptoms of this condition are a collective term of computer vision syndrome (CVS) which include; dry and irritated eyes, eye strain/fatigue, blurred vision, red eyes, burning eyes, excessive tearing, double vision, headache, light/glare sensitivity, slowness in changing focus, and changes in color perception.² Computer vision syndrome, symptoms may be the cause of ocular (ocular-surface abnormalities or accommodative spasms) and/or extraocular etiologies. Spending two or more hours in front of a digital device screen each day has been found to reduce the number of blinks per minute (blink rate). The act of blinking helps to keep the front surface of the eye moist and clears any particles that may be stuck in the eyes. A lower blink rate is found to be linked to dry eye.³ The average person blinks about 15 times each minute, and studies have shown that this number could decrease by 60% to 6 times per minute when a person uses digital devices.⁴ The excessive use of digital devices causes dry eyes. Some different factors include the length of duration spent in front of a digital device screen, the working distance between digital devices to the eyes; and the number of times a digital device is used in a day. The light intensity in the surrounding working environment is also an important factor that contributes to the development of DES (dry eye

syndrome).⁵ Dry eye syndrome is characterized by instability of the tear film that can be due to insufficient amount of tear production or due to poor quality of tear film, which results in increased evaporation of the tears.

The International Dry Eye Workshop (2007) defined dry eye as a “multifactorial disease of the tears and ocular surface that results in symptoms of discomfort, visual disturbance, and tear film instability with potential damage to the ocular surface”. It is accompanied by increased osmolarity of the tear film and inflammation of the ocular surface.^{6,7} DES is associated with a decreased ability to perform certain activities such as reading, driving, and computer-related work, which require visual attention. Patients experience dry eye symptoms constantly and severely, affecting their quality of life.⁸ The prevalence of CVS in the study population was 67.4 %. The prevalence of CVS was significantly greater in females (69.5 %) than in males (65.4 %) ($p < 0.05$). The most commonly reported complaint was headache (45.7 %), followed by dry eyes (31.1 %), whereas the least common complaint was a change in visualizing colors (9.3%) Although 76 eye disorders have been mentioned in the context of *Netra-Rog* (~eye diseases)¹⁰ there is no exact association for CVS. However, several of the clinical characteristics of CVS are related to *Sushkakshipaka* (~Dry eye).

Ayurveda had mentioned *Sushkakshipaka* as a *Sarvagata Netra Rog*.¹¹ In Ayurveda, *Sushkakshipaka* is considered a *Vataja* disease (~due to vitiation of *Vata Dosh*) by Acharya Sushruta and *Vata-Pittaja* disease (~due to vitiation of *Vata* and *Pitta*

Dosha) by Acharya Vagbhata.^{12,13} *Sushkakshipaka* symptoms are similar to those of Computer vision syndrome-like *Darun Rukshavartma*(~rough and dry eyelid), *Vilokane Cha Avil Darshanam* (~blurred vision), and *Sudarunam Yat Prati-bodhane*(~difficulty in opening the lid). Other symptoms like *Gharsh*(~having friction), *Toda* (~pricking), *Bheda*(~piercing pain), *Updehvat*(~discharges), *Ruksha* (~dry), *Darun* (~painful), *Krachhonmilnirmilnam*(~difficulty in opening and closing the eyelid), *Sheeteksha*(~desire for cold), *Shoola*(~pain), *Pakavat*(~Inflamed/Ulcerated) are also associated closely with a presentation of Computer vision syndrome.¹⁴

METHODOLOGY-

The article's objective is to create a possible management pathway for properly managing VDTS with Ayurveda drugs and *Kriyakalp* procedures. Various literature databases like Google Scholar, Pubmed, Scopus, Web of Sciences, and Dhara online were searched for this. Articles related to the subject were studied and a scientific gist of it is explained in the discussion section. The nearest meaning of the Ayurveda terminologies is provided by the standard Namaste Portal.

POSSIBLE ETIOPATHOGENESIS OF VDTS IN AYURVEDA (SAMPRAPTI OF SUSHKAKSHIPAKA)-

Acharya Vagbhata has indicated cooling and rejuvenating therapies for eyes suffering from light, high voltage electric spark & heat exposure.¹⁵ Analysis of *Samprapti* of VDTS based on Ayurvedic concepts, clearly explains the need for *SampraptiVighatan*(~to break pathogenesis) at various levels to manage CVS. The main object of the treatment should be *Shushakshipak Samprapti bhang* (~breaking of pathogenesis) The vitiated *Doshas* will travel via the vessels and ascend higher, causing illness in various parts of the eye, according to Acharya Sushruta.¹⁶ In the context of CVS, the *Chakshuendriya's Atiyoga* (~long periods of intense light, light from a short distance, focusing on close work without changing focus), *Hinayoga* (~working in a dimly lit environment without blinking), and *Mithyayoga* (~seeing very small fonts against a bright light, constantly staring at the computer) vitiated *Vata* and *PittaDoshas*. *Netraabhighata* (~ocular trauma) leads to *Sthanasanshraya*(~stage of localization) of such *Doshas* in the *BahyaPatala*, (~cornea and sclera) and *Shukla Mandala*, (~sclera and conjunctiva) where many of them generate CVS symptoms.¹⁷

Samprapti of CVS

Asatmyaindriyarthasamyog.

(*ChakshurendriyaAtiyoga Heen yoga* and *Mithyayoga*)

(Overexposure to CVDT)

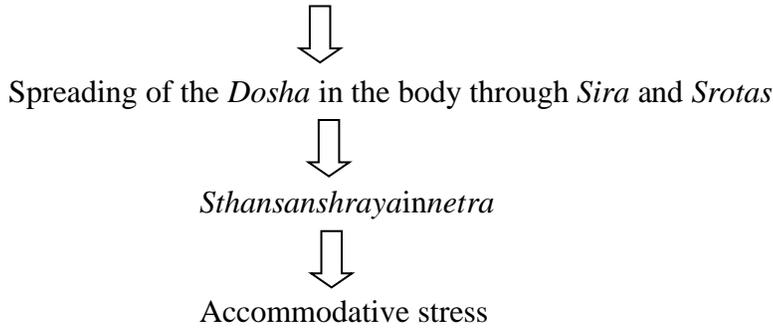


Dosha vridhi and *Dosha dusti*

(*Nidana sevana* continued)



Dosha prakopa with the predominance of *vata* and *pitta Dosha*



Possible etiopathogenesis of VDTS –

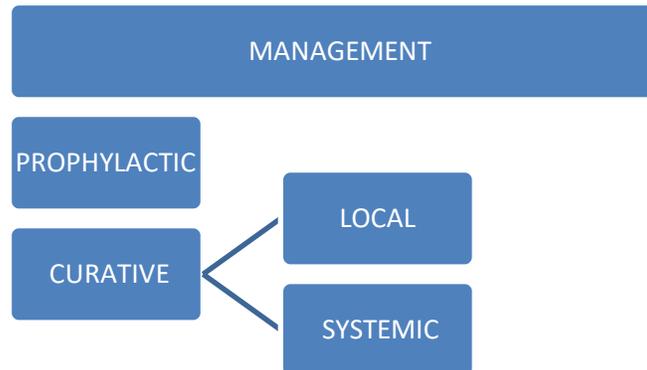
The human eye's focusing mechanism is not similar to printed text and visual display units, giving a response in different ways. There is a much difference in reading materials on printed text and computer, in terms of viewing distance, gaze angles, blinking rate, the appearance of texts, and demand accommodation as well as in widening of a palpebral fissure during reading.¹⁸ Each printed letter is made up of a well-defined character throughout its surface, whereas Visual display letters are made up of pixels.¹⁹ Each pixel is bright at its centre and with decreasing brightness towards the periphery. So that the human eyes cannot sustain focus on the pixel characters. The eyes are constantly relaxing to the resting point of accommodation and gain focus on the pixel character frequently. This frequent focusing and refocusing of the eye by the ciliary body creates fatigue in the eye and causes accommodative symptoms related to VDTS.²⁰ Visual work in a computer is demanding and includes frequent saccadic eye movements (ocu-

lar motility), accommodation (continuous focusing), and vergence (alignment demands), all of which involve continuous relaxation and contraction of the eye muscles.²¹

The treatment concept of VDTS in Ayurvedic aspects can be taken from various references as most of the symptoms of VDTS are *Vata* and *Pitta* dominant so the main line of treatment should be *Vatapittahara*. According to *Achary Vagbhata* in *Ashtang Hridaya*, the main line of treatment in a patient of *Sushkakshipaka* (VDTS) should be *Santarpana*, *SnigdhaAushadhi*, *Parisheka*, *Nasya*, *Akshitarpana*, and *Anjana*.²² According to *Acharya Sushruta* treatment of *Sushkakshipaka* is mainly *vatahara*, and should be given *Ghritapana*, *Akshitarpan*, *Nasya*, *Parisheka*, and *Anjana*.²³ As we know Computer vision syndrome is a *Vata-pitta* vitiated disorder so the drug to be used should be *Snigdha* and *Vatapitashamak* in nature. *Ghrita* is a very good medicine for pacifying *Vatapitadoshas*.²⁴

MANAGEMENT OF SHUSHAKSHIPAKA-

Management of *Shushakshipakac* can be broadly classified into two ways.



1) **Prophylactic** -The three main factors which create visual stress.

- The visual condition of the workers- Lighting is a major contributing factor in visual discomforts including eyestrain, burning or itching eyes, and blurred or double vision.²⁵ According to the American National Standards Institute (ANSI), computer workstations require only an 18–46-foot candle, and an anti-reflection screen can be placed over the monitor.
- The working environment– Chairs should be comfortably padded. Chair height should be adjusted so the feet rest flat on the floor Arms should be adjusted to provide support while typing and wrists shouldn't rest on the keyboard while typing.²⁶
- The working habits of the worker- The 'stare' condition can be counteracted by using a '3-B Approach': Blink Breathe and Break American Optometric Association recommend following the 20-20-20 rule (every 20 min take a break for 20 seconds and looking at something 20 feet away)during work on a computer, proper sleeprevitalizes the mind and body, responsible for all types of wellness, nourishment, strength, etc.²⁷ Proper sleep is necessary for the eyes.

2) **Curative-**

a) **Local** –

- *Netra Parisheka/Seka* (procedure for eye irrigation) is indicated in *Aamavastha* of

Nethrayoga(~Acute ocular inflammatory condition) that too in highly exaggerated phase,²⁸i.e., redness, lacrimation, foreign body sensation, pain, itching, burning sensation, discharge, intolerance to light (photophobia) and swelling i.e., the acute inflammatory phase of the ocular surface.*NetraParisheka/Seka* (~procedure for eye irrigation) is the method of pouring a very fine stream of medicated fluid over the closed eye from a height of 8 cm (4 *Angulas*: Sharangadhara).²⁹ For a specified period.

- *Anjana*(collyrium)- Daily use of *Souviranjana* (~collyrium made up of Antimony sulfide) is beneficial for the eyes. The action of *Anjana* can be attributed to dissolving the accumulated vitiated *Kapha* and draining it out. It dilates the blood vessels, increases the blood flow, and maintains the integrity of *Netrasrotas*.
- *Padabhyanga*acts on *SthanikDoshas* (~local factors) and *Sarvadehik Doshas* (~General factors) also. Regular oil massage in the feet enhances clear vision. *Acharya* Charak and *Maharshi*Vagbhat have described it as *Dristiprasadakara* (~for clear and bright vision).³⁰*Acharya* Sushruta has also described it as *Chakshushya*.^{31,32} Ayurveda explains that the development of *Pada* (foot) and *Netra* (eyes) both have the same origin from *VaikarikaAhamkara* (modified source of creation) and *RajasAhamkara* (passionate source of creation), and

both develop in the same month in intrauterine life.³³ Thus, because of their origin, any therapy on *Pada* can positively affect *Netra*.

- *AkshitarpanTarpana* (~nourishment of eyes) with *Ghritha* which is prepared by *JeevaniyaGanaDravyas*.³⁴ *Tarpana* is more effective due to, the increased tissue contacts duration and bioavailability, therapeutic concentration can be attained.
- *Ashchyotana* with *GhrithaManda* or *Ghritha*, are preparations in which *ghee* is boiled with prescribed *Kashayas* (~decoctions) and *Kalkas*.³⁵ According to Ayurveda the instilled medicine will penetrate *Akshioshasrotas*, *Shirasrotas*, *Ghranasrotas*, and *Mukhasrotas* of *UrdvangaBhaga* and remove the mala present there.

b) Systemic-

- Oral medication has *deepana* and *pachan*-aproperties, so it helps in removing the *Srotoavrodha* present in *Srotovahini* (~minute channels) of the lacrimal gland and promotes secretion of tears to maintain tear film stability.
- *Ghrithapana-Ghritha* is an *Ayurvedic* medicine, in plain form as well as herbal *ghee* form. It's used in many eye diseases to improve eyesight and prevent irritation. It promotes digestion by facilitating motility and provides nourishment by replenishing nutrients and vitamins, helps in healing wounds.³⁶
- *Nasya* (~Nasal installation)- The nose is considered a gateway to the head (*Shira*). *Nasya* nourishes all sense organs including *Netra* by stimulating *SringatakaMarma* (~seat of all the centers of vision, smell, hearing & taste).³⁷

DISCUSSION

Sanchaptyokriyayogo Nidan parivarjanam (~remove the cause) is the main line of treatment in the context of all eye diseases.³⁸ Acharya Vagbhatta has indicated cooling and rejuvenating therapies for eyes suffering from light, high voltage electric spark & heat expo-

sure.³⁹ The above-mentioned management will result in the removal of the above-mentioned symptom in computer users. *Vataghana* and *Pittaghana* properties of the medication are responsible for this effect. According to Ayurvedic texts, most ocular issues are caused by vitiating *Pitta* and *Vata dosha*. The following action can be considered based on the attributes of *Ghritha*: The vitiated *Pitta* and *Vata* are diminished by the presence of *Madhur rasa*, *Sheet virya*, and *Madhur vipaka* in the *ghritha*. According to Charaka (Ch.Sam.Su. 13/14), helps in reducing *Pittaja* and *Vataja* problems strengthening *Dhatu*s, and generally boosting *Ojas*. Sushruta (Su.Sam.Su.46/96-97) claims that it also gives eyesight strength in addition to the other qualities listed (*Chakshushya*). The *Ghritha* reaches the deepest *Dhatu*s levels. Furthermore, *Ghritha* rapidly absorbs the benefits of other medications processed with it while maintaining its own due to its *Sansakaranuvartana* (~able to take goodness of associated medicine) nature. Its lipophilic action facilitates the final delivery of medication inside the cell and improves the transfer of the medication to the target organ. *Sheeta Dravyas* are *Satmya* (Whole some) for *Drishti*. *Ghritha*'s lipophilic nature promotes medication absorption into the eyeball through the corneal surface because the corneal epithelium is permeable to lipid-soluble substances and lipid-soluble substances traverse corneal epithelium regardless of its molecular size. In all of the *Snehan Dravya*, *Ghritha* has the best *Pittaghnyacharacteristics*, which aid in reducing *Pitta* and *Vata Doshas*. It maintains a healthy *Tridosha* balance. The *Rasayana* and *Chakshushya* properties affect both computer users and non-computer users. Therefore *Nasya*, *Tarpana*, *Ashchyotana*, *Ghrithapana*, *Padabhyanga* with *snehadravya* daily can be helpful to prevent ocular symptoms due to computer and visual display terminals uses.

CONCLUSION

The computer is one of the most advanced technologies available today, and they are used by both children and adults. Even though using a computer is such visually demanding work, the eyes are still

structured according to old hunting days and are unable to adjust, resulting in discomfort known as Computer Vision Syndrome, a 21st-century pandemic. Yogic practices are also helpful in the prevention of CVS. Topical medication, computer glasses, and counseling for cautious computer use are the only treatments available in modern medicine for this specific condition. As a result, we require a treatment that produces better and more gratifying results. Local symptoms might be caused by the basic causes of systemic illness, and vice versa. Therefore, Ayurveda provides a complete remedy to prevent the ocular problems and extraocular problems in CVS through simple daily procedures like *Netra prakshalana* (~procedure for eye irrigation), *Anjana* (Collyrium), *Nasya* (Nasal installation), *Nidra* (Sleep), *Pa-dabhyanga* (Foot massage), proper dietary regimen, and various eye exercises.

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Source of Support: Nil

Conflict of Interest: None Declared

How to cite this URL: Shweta Pandey: Role of Ayurved ocular therapies in the management of lifestyle disorders related to visual display terminals.. International Ayurvedic Medical Journal {online} 2023 {cited October2023} Available from: http://www.iamj.in/posts/images/upload/2424_2431.pdf