



PREVENTIVE ASPECTS OF DIGITAL EYE STRAIN - AN EMERGING PUBLIC HEALTH THREAT IN COVID ERA, WITH SPECIAL REFERENCE TO ASATMYENDRIYARTHA SAMYOGA

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ABSTRACT

Chakshurindriya is the sense organ responsible for the perception of vision. It is the most important *Indriya* out of all the *gyanendriya*. Eyes are the morphological landmarks of *Chakshurindriya*. A blind person though he is wealthy, day and night are equal, and the entire world seems to be useless. Moreover, if a person is endowed with all other sensory faculties, strength and beautiful appearance but without eyesight, he will be as feeble as an insect. Mandatory e-learning has emerged as a method for current teaching and learning in schools and universities with the impact of the COVID-19. The digital screen demands high visual strain which can lead to vision problems and related issues. Digital eye strain also referred to as computer vision syndrome describes a group of eye and vision-related problems that results from prolonged computer, tablet, E-reader and cell phone use. DES or CVS can be considered as an *Aindriyaka vyadhi* due to *atiyoga* and *mithya yoga* of *Chakshurindriya* with its objects. Ayurvedic science promotes many safe and effective techniques for maintaining visual health, these approaches can be practised in everyday life to prevent lifestyle-related ocular disorders.

Keywords: Digital eye strain, Asatmyendriyarthā samyoga, Aindriyaka vyadhi

INTRODUCTION

The present scenario obliged the Whole world to shift everything including studies jobs etc. into a digital platform. Mandatory e-learning has emerged as a method for current teaching and learning in schools and universities with the impact of the COVID-19 (1). So, children must spend most of the time in front of mobile screens or laptops. The digital screen demands high visual strain which can lead to vision and related issues. Hence digital eye strain is an emerging public health threat. even though digital-related eye strain affects all ages, the age group that is most at risk is children (2). Digital eye strain also referred to as computer vision syndrome describes a group of eye and vision-related problems that results from prolonged computer, tablet, e-reader and cell phone use (3). The main ocular symptoms reported are eye-strain, irritation, burning sensation, redness, blurred vision and double vision (4). For a blind person though he is wealthy day and night are equal and the entire world seems to be useless. Moreover, if a person is endowed with all other sensory faculties, strength and beautiful appearance but without eyesight, he will be as feeble as an insect (5). Ayurvedic science promotes many safe and effective techniques for maintaining visual health, these approaches can be practised in everyday life to prevent lifestyle-related ocular disorders. *Shalakya tantra* is one among eight clinical specialties of Ayurveda specially designed for ENT care and management.

AIM AND OBJECTIVES

1. To study the role of the computer, e-reader, and cell phones in developing digital eyestrain or CVS during the COVID era.
2. To explore the preventive aspects of ocular diseases in Ayurveda with the special reference to digital eyestrain.

MATERIALS AND METHODS

CHAKSHURINDRIYA

Chakshurindriya is the sense organ responsible for the perception of vision. It is the most important *Indriya* out of all the *gyanendriya*. Eyes are the mor-

phological landmarks of *Chakshurindriya*. Rupa or light is the object and *Agni* is the predominant *Mahabhoota* of *Chakshurindriya*. In ayurveda visual process has been described as the function of *vata* and *Pitta* doshas. *Vata* is the key factor for *akashapatavam* (6) and *pitta* for *Darshana* (7). Especially *Alochaka pitta*. The objects from the external world and their shape size colour are caught by the *netra* and the concerned *gyana* is transduced by *prana vayu* and transduction is completed by *alochak pitta* (8). Acharya Bhela has mentioned two types of *alocaka pitta*, *chakshu vaiseshika* and *Budhivaiseshika*. The former helps in visual perception and later helps in interpretation and recollection of memory regarding an object (9).

ASATMYENDRIYARTHA SAMYOGA

The criteria for the perception of knowledge are *sannikarsha* (Conjunction) between *Atma- indriya-mana-artha*, that is the *samyoga* of sense organs with their respective *indriya arthas* results in attaining proper knowledge(10). *Asatmyendriyarthā samyoga* (improper contact of sense organs with their objects) is one among the *trividha roga ayatana*, the basic causes of all diseases. It has three states namely *hinayoga atiyoga and mithya yoga*. Negligible contact or absence of contact of the sense organs with their objects, excessive contact of these organs with their objects comprises *atiyoga* and wrong utilization. In the case of *Chakshurindriya* excessive gazing at the highly luminous substance would constitute *atiyoga*, not looking at anything at all would be amount to its non-utilization. similarly, its wrong utilization would be to see things too close or too far away or things that are awful or terrifying surprising contemptuous frightful deformed and alarming (11). When a disease is caused by wrong utilization, excessive utilization and non-utilization of sense faculties they are called *Aindriyaka vyadhi* (12). DES or CVS can be considered as an *Aindriyaka vyadhi* due to *atiyoga* and *mithya yoga* of *Chakshurindriya* with its objects.

PATHOPHYSIOLOGY OF DIGITAL EYE STRAIN (13)

The focusing mechanism of human eyes are not similar for printed text and visual display units but give a response in different ways. Reading materials on printed texts and computer has many differences in terms of viewing distance, gaze angles, blinking rate, the appearance of text and demand of accommodation as well as in widening of a palpebral fissure during reading. Each printed letter are made up of a well-defined character throughout its surface. Whereas VDT letters are made up of pixels which are the results of the electronic beam striking the phosphor-coated rear surface of the screen, 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. Instead, the focusing system lags behind the computer screen due to the vertical position of gaze which is the preferred position by computer users relative to reading a printed text. This point is called the dark focus. Hence the eyes are constantly relaxing for restoring point of accommodation or dark focus and struggling to gain focus on the pixels characters frequently. This frequent focusing and refocusing of the eye by the ciliary body creates fatigue to the eye and causes accommodative symptoms related to computer vision therefore visual work in the computer is demanding and includes frequent eye movements (ocular motility) accommodation (continues focusing) and vergence (alignment demands) all of which involve continuous relaxation and contraction of the eye muscle. Also, electronic or digital devices emit blue lights. Which is high energy visible light having a short wavelength. This deep penetration may result in ocular damage.

DISCUSSION

PREVENTION OF DIGITAL EYE STRAIN

Ayurveda system of medicine gives more emphasis on preventive aspects of diseases. Sense organs are the basic tool for attaining knowledge. Among these *Chakshurindriya* is considered to be the most important one. Nowadays protection of ocular health

became crucial as the incidence of eye diseases are increasing day by day due to various lifestyle changes. To prevent these kinds of ophthalmic diseases and to maintain ocular health few methods of treatments are explained in Ayurveda.

Avoiding the causes of disease and mitigation of involved *dosha* is prevention in general.

Susrutha acharya has mentioned some preventive measures as, (14)

- Avoid exposure to water immediately after exposure to sun or heat.
- Avoid practices of watching very far objects and observing very minute objects.
- Follow timely sleeping habits
- Avoidance of indulging in anger sorrow, fear, and exertion.
- Suppression of natural urges like controlling tears should not be practised.

Acharya Vagbhata opines those all-out efforts should be made by men to protect the eyes throughout life. use of *triphala*, bloodletting, *shuddhi* (purificatory therapy), withdrawing the mind from sensual action, use of collyrium, Nasal medications, *Pada pooja*, *Ghritha panam* etc. (15)

1. *Netra prakshalana* (16)

Eyes should be washed daily with Lodhra or Amlaki swarasa in the early morning.

2. *Pada abhyanga* (17) Asper Ayurveda in the centre of both soles are situated *siras* (veins etc), which are greatly connected to the eyes. These transmit the effects of medicines applied over the feet in the form of bathing, massage, etc to the eyes. Hence every person should always make use of footwear, massaging with the oil and washing of feet's.

3. *Anjana* (18): Application of collyrium in eyes are essential for the maintenance of positive health. Collyrium of antimony is to be applied regularly as it is just soothing to the eye, it clears all doshas from the eyes and makes *Drushti* shiny like a moon. Use of collyrium removes burning sensation, itching, dirt and pain of the eyes. Also bestows brightness and prevent eye diseases.

4. *Nasya* (19): It is a method of installation of medicines through the nasal route to nourish the organs above the clavicle. Due to the anatomical communication the medicines Applied through the nasal cavity reaches and strengthens the cavernous sinus which is the seat of all the centres of the eye, ear, nose and tongue so one who practices nasal therapy in time his or her eyes, nose and ears are not affected by any morbidity.
5. *Nidra* (20)
Nidra is one among the *triyupasthambha* (Tripods of life which maintain the life) Normally 6-8 hours of sleep is necessary for an adult. Sound sleep is essential for both mind and body, especially for the eyes. Susrutha Acharya has mentioned *swapna viparyaya* (faulty sleep) as a *nidana* for eye diseases.
6. *Abhyanga and Siro abhyanga* (21): Vagbhata acharya told that application of oil on *sira, sra-vana, pada* are *drishti prasadana*.
7. *Triphala rasayana*: Intake of *triphala choorna* with honey will protect the eyes.
8. *Vegadharana* (22): Suppression of natural urges, particularly Bashpagraha (suppression of tears) can lead to various eye diseases. Charak Acharya also opines that suppression of *nidra vega* results in eye diseases.
9. *Yoga* (23): Purifying procedures like *Netikriya and Trataka* help to promote clear eye vision and prevent *dosa sanchaya*.

In general, the following measures can be taken to prevent digital eye strain.

- 20-20-20 Rule: While using a digital screen take a break off only 20 seconds every 20 minutes and try to look at distant objects at least 20 feet away. This helps in relaxing the internal eye muscles and decreases the accommodation stress.
- Blink often: Try to blink often while watching any digital device. Blink at least 18 times per minute.
- Cold pad: apply cold pad to the eyes by closing the eyes for some time.
- Water splashing cold water to the eyes help to relax eye strain.

- Palming: sit comfortably with eyes covered with palms, fingers crossed by taking support on forehead and elbows resting on a pillow.
- Exercise: stretch neck and shoulders frequently during work.
- Shifting: moving eyes from one point to another.

CONCLUSION

Eye diseases have been increased at alarming rates nowadays due to the digitalisation of the world especially by the impact of covid 19. Excessive and wrong use of *chakshurindriya* is the primary cause of digital eye strain. As eyes are the most important sense organ, one should take all the efforts to protect them. Emphasizing daily regimen and a few lifestyle changes can result in optimum visual health like various *Ayurvedic netra kriya kalpas* like *netra prakshalana* and *dinacharya* like *pada abhyanga, nasya* etc. These all *kriya kalpas*, their uses and method of application are well explained in *Samhita*. By implementing these measures in day-to-day life one can prevent such ocular diseases to a great extent. In this way during this period when it is being essential to be digitally active one can maintain ocular health.

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