



## Research Article

### AN OPEN LABELLED RANDOMISED CLINICAL TRIAL ON EFFICACY OF *HARITAKI MODAKA* AND *ABHIJEET TAILA* IN THE MANAGEMENT OF COMPUTER VISION SYNDROME

Akanksha Thakur<sup>1\*</sup>, Manjusha Rajagopala<sup>2</sup>, Narayan Bavalatti<sup>3</sup>, Pankaj Kundal<sup>4</sup>

\*1P.G. Scholar, <sup>2</sup>HOD, <sup>3</sup>Associate Professor, <sup>4</sup>Assistant Professor, Department of Shalakya, All India Institute of Ayurveda, New Delhi, India.

#### ABSTRACT

Computer Vision Syndrome is the new nomenclature to the visual, ocular, and systemic symptoms arising due to the long time and improper working on the computer. Computer Vision Syndrome is a repetitive strain disorder as defined by the American Optometric. With progressive increase in the usage of computers, the term Repeated Stress Injury has found a place in contemporary medical science. The ocular complaints experienced by computer users typically include eyestrain, eye fatigue, burning sensations, irritation, redness, blurred vision, and dry eyes, among others. This group of symptoms is called Asthenopia. The incidence of Computer Vision Syndrome is as high as 50% to 90% among the employees of computer occupation. The causes for the inefficiencies and the visual symptoms are a combination of individual visual problems and poor office ergonomics. **Material & Methods:** In this clinical study on CVS, 60 patients were registered from Shalakya tantra OPD, and all of them completed the treatment. In Group A, 30 patients were prescribed *Abhijeet Taila* for *Pratimarsha Nasya* and in Group B, 30 patients were prescribed *Haritaki Modak* tablets internally and *Abhijeet Taila* for *Pratimarsha Nasya*. **Results:** In total, 20% and 33.33% patients got completely cured in Group A and B respectively. **Discussion:** Both the drugs were effective in managing the condition, but it was observed they were more effective when given together. Multi-centric studies with larger sample size on the same drugs should be carried out to evaluate the effect of the drugs and, also so that the observations can be noted well and can be better suggested.

**KEYWORDS:** Computer Vision Syndrome, *Abhijeet Taila*, *Haritaki Modak*, ergonomics, Repeated Stress Injury.

#### INTRODUCTION

The modernisation has eventually resulted in both advantages and disadvantages. The invention of computers which is transforming as an unavoidable gadget in the present era is also one such product of modernization. Though computers have increased the work efficacy, speed communications and have opened access to information like never before. But as the technology's power grows, so too the dangers that come with it. With changing work environments and progressive increase in the usage of computers, we encounter a newly emerged lifestyle disorder named "Computer Vision Syndrome".

It is estimated that nearly 60 million people suffer from CVS globally, and that a million new cases occur each year<sup>[1]</sup>. Vision-related problems are the most frequently reported health-related problems, occurring in over 70% of computer workers<sup>[2]</sup>. Furthermore, about 76% of computer professionals in India reported musculoskeletal pain and discomfort in various epidemiological studies<sup>[3][4]</sup>.

The prevalence rate of CVS varies in different studies but its prevalence rate seems higher when analyzed altogether.

CVS is a group of symptoms which occur due to extended viewing of the VDT, when the demands of the task exceed the abilities of the viewer. Symptoms comprising CVS are dry and irritated eyes, eye strain/fatigue, blurred vision, red eyes, burning eyes, excessive tear secretion, double vision, headache, light or glare sensitivity, contact lens discomfort, slowness in changing focus, changes in colour perception, and neck, shoulder and backache. These symptoms of CVS are due to ocular (ocular-surface abnormalities or accommodative spasms) and/or extra ocular (ergonomic) aetiologies. These symptoms of CVS are due to ocular (ocular-surface abnormalities or accommodative spasms) and/or extra ocular (ergonomic) aetiologies.

The current understanding upholds meticulous work environment as a precaution and use of artificial tear or contact lens wetting solutions to suffice the symptoms. But with these treatments, the patients of CVS get only symptomatic relief.<sup>[5]</sup> Computer Vision Syndrome is a modern ailment but it can be effectively managed on the basis of Ayurvedic principles. On critical analysis of *Doshas*, this disease is known to be a *Vata-Pitta* disorder. For maintaining good vision, therapeutic measures like *Kriya Kalpa*, *Shamana*, *Chakshushya* and *Rasayana Aushadhis* etc, which improves the homeostasis and ocular strength can be used. So, to find a better solution and to evaluate efficacy of *Haritaki Modaka* and *Abhijeet Taila* for the management of Computer Vision Syndrome, this study was designed.

### Drug Selection

CVS according to our present-day knowledge seems to be a group of *Vata-Pitta* dominant ocular symptoms. So, we needed such drugs which can pacify *Vata Pitta Dosh* as well as they provide nourishment to eyes. So, the drugs *Haritaki Yoga* and *Abhijeet Taila* were selected. *Haritaki Yoga*<sup>[6]</sup> contains *Haritaki*, *Mridwika* and *Sita* in equal parts. *Abhijeet Taila*<sup>[7]</sup> contains *Amalaki*, *Yashtimadhu* and *Murchhita Tila Taila*. Both these ocular drugs act on the *Chakshurendriya* thereby, strengthening the *Indriyas* and correcting the pathology from the root. There have been no studies conducted showing the effect of *Nasya* on Computer Vision Syndrome till date. So, *Pratimarsha Nasya* was selected as the treatment modality in this lifestyle-based disorder. *Pratimarsha Nasya* is mentioned as a *Dinacharya* regime by Acharyas and also it has better compliance.

Both the drugs were procured from the GMP certified company and were analyzed from PLIM Ghaziabad before dispensing for assessing the authenticity of the drug.

### AIMS AND OBJECTIVES

The aim of present research was to evaluate the efficacy of *Haritaki Yoga (Modak)* and *Abhijeet Taila (Pratimarsha Nasya)* in signs and symptoms of Computer Vision Syndrome.

### MATERIALS AND METHODS

#### Study Design

In this clinical study, 60 patients from the Out-Patient Department of *Shalaky Tantra* of AIIA who were suffering from CVS and fulfilling the criteria of inclusion for the present study, were registered and divided randomly into two groups. An elaborative research proforma was specially designed for the purpose of incorporating all aspects of the disease on Ayurvedic and modern parlance. Selected patients were randomly divided into two

groups with the following drug schedule in a particular group:

**Group A:** Ergonomics counseling along with *Abhijeet Taila Pratimarsha Nasya*, 2 drops in each nostril in evening at fixed time daily for 21 days and;

**Group B:** Ergonomics counseling along with *Haritaki Yoga* 6gms orally with luke warm water at bedtime and *Abhijeet Taila* for *Pratimarsha Nasya* 2 drops in each nostril in evening at fixed time daily for 21 days.

### Diagnostic Criteria

To evaluate the *Chakshushya* activity of both the drugs, whole importance was given to the subjective complaints as no particular objective findings have been mentioned or available for diagnosis of this disease so far. So, in this present study, routine haematological investigations, routine eye examination including visual acuity, slit lamp examination, Schirmer's and TBUT were carried out before commencing the treatment to exclude any other ocular pathology.

### Inclusion Criteria

1. Patients between 16 - 40 years of age
2. Patient having minimum three symptoms of Computer Vision Syndrome.
3. Minimum three hours' exposure to any type of Video Display Terminals like desktop, laptop or both daily.

### Exclusion Criteria

1. Patients not willing to participate in the study.
2. Patients having other systemic disease or metabolic disorders such as hypertension, diabetes mellitus and thyroid and any other illness necessitating long terms drug treatment.
3. Patients having any pathological conditions such as optic atrophy, diabetic retinopathy and hypertensive retinopathy.
4. History of any surgical intervention to eye.
5. Persistent contact lens users.
6. Patient with history of Migraine
7. Pregnant and lactating females

### Criteria for Assessment

A specialized scoring pattern for assessment of chief complaints of CVS examination was prepared by giving scores to various presentations of CVS. The obtained data on the basis of observations were subjected to statistical analysis. Student's paired "t" test was carried out for all subjective parameters (clinical features). The results were interpreted at the level of  $P < 0.001$  as highly significant,  $P < 0.01$  as moderately significant,  $P < 0.05$  as significant and  $P > 0.05$  as insignificant.

**OBSERVATIONS AND RESULTS****General Observations on Nidanas**

Among the general causative factors for *Netra Rogas* available in our classics, the number of listed out factors are more than 30 and among them only 6-7 are commonly observed in the patients of CVS. The maximum number i.e. 34 (56.66%) patients were short tempered, *Shoka* (grief) was observed in 51.66% patients and 51 (85%) patients were complaining of headache and 49 (81.66%) patients complaints of eyestrain.

**Some other general observations**

In the present study, the maximum patients (35%) were between 25 and 31 years of age and male (55%) predominance was observed. The maximum patients (61.66%) were graduates and majority of the cases (66.66%) were service persons, followed by 33.33% students. Majority of patients were having *Vata-Pitta* dominant *Prakriti*. Majority of the patients, i.e., 51.66% reported to work for a maximum of 07-10 hours/day on computer. The results on chief complaints are shown in Table 1,2.

**Table 1: Effect of therapy on chief complaints in patients of Computer vision syndrome in Group A**

S.No.	Symptoms	Group A		Remarks	
		No.of patients	% relief	p Value	
1.	Eye strain	30	57.77%	p<0.01	Highly significant
2.	Headache	26	46.66%	p<0.01	Highly significant
3.	Blurring of vision	23	50%	p<0.01	Highly significant
4.	Burning sensation in eyes	24	32.77%	p<0.01	Highly significant
5.	Red eyes	11	32.77%	p<0.01	Highly significant
6.	Irritation	20	45.40%	p<0.01	Highly significant
7.	Excessive secretion	12	26.66%	p=0.0003	Significant
8.	Double vision	04	13.33%	p=0.05	Significant
9.	Light or glare sensitivity	04	6.66%	p=0.03	Significant
10.	Slowness in changing of focus	03	10%	p=0.10	Not significant
12.	Fatigue in neck, shoulder and back	07	17.22%	p=0.008	Significant

**Table 2: Effect of therapy on chief complaints in patients of Computer vision syndrome in Group B**

S.No.	Symptoms	Group B		Remarks	
		No.of patients	% relief	p Value	
1.	Eye strain	30	76.11%	p<0.01	Highly significant
2.	Headache	25	62.77%	p<0.01	Highly significant
3.	Blurring of vision	27	78.33%	p<0.01	Highly significant
4.	Burning sensation in eyes	25	51.11%	p=0.0006	Significant
5.	Red eyes	13	43.88%	p=0.0006	Significant
6.	Irritation	21	61.66%	p<0.001	Highly significant
7.	Excessive secretion	10	33.33%	p=0.002	Significant
8.	Double vision	06	18.33%	p=0.022	Significant
9.	Light or glare sensitivity	04	13.33%	p=0.050	Significant
10.	Slowness in changing of focus	04	13.33%	p=0.057	Significant
12.	Fatigue in neck, shoulder and back	10	28.88%	p=0.002	Significant

When computed statistically Group A with Group B by using unpaired student t' test, Group B patients showed significant improvement ( $P < 0.01$ ) in the symptoms, blurred vision.

It was found that there was significant improvement seen in tests like Schirmer's and TBUT which is shown in Table 3 - 6.

**Table 3: Effect of therapy on Schirmer's in patients of Computer vision syndrome in Group A**

Parameter	Group A		Remarks
	% of relief	P	
SCHIRMERS			
RIGHT	3.21%	$P < 0.01$	Highly significant
LEFT	3.97%	$P < 0.01$	Highly significant

**Table 4: Effect of therapy on Schirmer's in patients of Computer vision syndrome in Group B**

Parameter	Group B		Remarks
	% of relief	P	
SCHIRMERS			
RIGHT	4.69%	$P < 0.01$	Highly significant
LEFT	5.60%	$P < 0.01$	Highly significant

There was significant improvement seen in both group A and group B. But group B with *Abhijeet Taila Pratimarsha Nasya* and *Haritaki Modak* have shown better results.

**Table 5: Effect of therapy on TBUT in patients of Computer vision syndrome Group A**

Parameter	Group A		Remarks
	% of relief	P	
TBUT			
RIGHT	4.88%	0.003	Significant
LEFT	6.95%	$P < 0.01$	Highly Significant

**Table 6: Effect of therapy on TBUT in patients of Computer vision syndrome Group B**

Parameter	Group B		Remarks
	% of relief	P	
TBUT			
RIGHT	5.57%	$P < 0.01$	Highly Significant
LEFT	6.99%	0.0002	Significant

There was significant improvement seen in both group A and group B. But group B with *Abhijeet Taila Pratimarsha Nasya* and *Haritaki Modak* have shown better results.

#### Total Effect of Therapy

In Group A, moderate improvement was observed in maximum, i.e., 40% patients, marked improvement in 23.33% patients, mild improvement in 10% patients, 20% got cured and 7.66% remained unchanged.

In Group B, moderate improvement was observed in maximum, i.e., 23.33% patients, marked improvement in 16.66% patients, mild improvement in 23.33% patients, 33.33% got cured and 3.33% remained unchanged.

#### DISCUSSION

Total 60 number of patients were enrolled and all of them completed the trial. Maximum

patients were between the age group of 25-31 years. This may be due to increases exposure of youngsters to VDTs and also as most software professionals work under highly competitive and stressful environment. These occupation leads to occupational hazards like low blink rate due to VDT use, long working hours, suppression of urges, exposure to direct air of AC (*Pravata Sevana*) etc which are major causative factor for CVS in present study.

These professions demand long working hours on computer which involves constantly straining their eyes during working due to continuous exposure to monitor, or to bright contrast, or by viewing objects from a distance of less than 6 inches or by working in improper way, with poor visual hygiene and improper office ergonomics. All the *Nidanas* like *Shoka*, grief etc, increases the stress factor in the individual. Also, the competitive

environment and tiring work tasks effects the visual status of the individual.

It is found during this clinical study the patients of the CVS came with dry eye sensation and red eye sensation in eyes as presenting complaints. It was observed that Schirmer's and TBUT of those patients had markedly reduced. In normal reading the eyes look downward causing the lids cover the part of the cornea minimizing the evaporation of tear. While on the computer work computer user view it in a horizontal gaze causing wider opening of palpebral fissure that's leads to increased evaporation through exposed area<sup>[8]</sup>. It can be said that due to constant staring on computer screen without blinking for long time leads to evaporation of lipid layer that makes the tear film unstable which causes vitiation of *Pitta Dosh* and produce dry eyes sensation and redness in eyes.

Findings of both the groups suggest that selected drugs are effective, but better results were observed in group B where both the drugs were given to participants. This can be because administration of *Pratimarsha Nasya* alone is not sufficient to manage the disease. Hence, administration of *Chakshushya*, *Rasayana* and *Vata Pitta Shamaka* drugs both in oral and nasal drop form effectively managed the condition.

#### Probable Mode of Action

In Ayurvedic text the action of drug is based upon the *Rasapanchaka* (pharmacodynamics) of the drug. *Haritaki Yoga* contains *Haritaki*, *Mridwika* and *Sita* in equal parts and all these drugs are having *Rasayana*, *Chakshushya* and *Tridhosha Shamana* properties. *Haritaki* is having *Vata Anulomana* property due to which it helps in relieving the spasm of eye. *Draksha* is having purgative and laxative property that helped in relieving constipation, a common complaint which was observed in cases of Computer Vision Syndrome due to their sedentary lifestyles.<sup>[9]</sup> All the contents of *Haritaki Yoga* are *Madhura rasa*, *Madhura Vipaka* and *Sheeta Virya*, due to which it mainly acts as *Vata Pitta Shamaka* and *Netraprasadaka*.

*Abhijeet Taila* by virtue of its *Vyavayi* and *Vikasi Guna*, it enters the minute channels and provides nourishment at cellular level. It contains drugs like *Amalaki* and *Yashtimadhu* which provides nourishment and strengthens the eye as a whole due to their *Chakshushya*, *Rasayana* and *Balya* properties. *Nasya* cleanses the minute channels so, daily application of *Pratimarsha Nasya* will prevent the accumulation of vitiated *Kapha* in the minute channels of the eye. In the *Phalaprapti* of *Pratimarshya Nasya*, Acharya Vagbhata has mentioned *Klama-nasha* i.e., it reduces the fatigue

and eye strain, produced by continuous work on computer. It improves the vision hence, can be useful in relieving the symptoms like blurred vision, difficulty in focusing, double vision, and eye strain<sup>[10]</sup> when practiced daily.

Thus, both the drugs help to increase the ocular strength, which in turn increases the organ's capacity to overcome its pathological condition.

#### CONCLUSION

Computer has become an integral part of office equipment's. Because computer use is such a high visual demanding task, vision problems and symptoms have become very common at today's workplace. The symptoms can vary but mostly include eye strain, headache, dry and irritated eyes, light sensitivity and double vision. The causes for these symptoms are a combination of individual problems, poor workplace conditions and improper work habits.

Computer users are invariably exposed to the risk of developing CVS leading to marked deterioration in performance owing to the severity and persistence of disorders. So, abstinence from cause is the ideal solution but it is far from practicality in the case of CVS.

Introducing *Pratimarsha Nasya* is a healthy habit that everyone should inculcate into his/her life. It provides nourishment to all the senses especially visual sense. It has better compliance, less time consuming and without any complications.

Multi-centric studies with larger sample size on the same drugs should be carried out to reevaluate the effect of the drugs and, also so that the observations can be noted well and can be better suggested.

#### REFERENCES

1. Shrivastava SR, Bobhate ps. Computer related health problems among software professionals in Mumbai: a cross-sectional study. International journal of health and allied sciences. 2012;1:74
2. Shrivastava SR, Bobhate ps. Computer related health problems among software professionals in Mumbai: a cross-sectional study. International journal of health and allied sciences. 2012;1:74
3. Talwar, R., Kapoor, R., Puri, K., Bansal, K., & Singh, s. (2009). A study of visual and musculoskeletal health disorders among computer professionals in NCR Delhi. Indian journal of community medicine: official publication of Indian association of preventive & social medicine, 34(4), 326–328. <https://doi.org/10.4103/0970-0218.583928>
4. Shrivastava SR, Bobhate ps. Computer related health problems among software professionals in

- Mumbai: a cross-sectional study. International journal of health and allied sciences. 2012;1:74
5. Available from: <http://www.springerlink.com/content/k55681310736n273/> [last cited on 2009 Oct 16].
  6. Ashtang Hridayam of Srimad Vagbhata Uttarasthana edited with Dr. Brahmanand Tripathi, Timira Pratishedhadhyaya 13/19 pg no. 967 Chaukhamba publications, Delhi
  7. Chakradutta of Shri Chakrapani Dutta edited with professor Ramnath Dwivedi, Chaukhamba Sanskrit Bhawan, Varanasi, Netraroga chikitsa prakaran, 59/189,190 pg. no. 3669
  8. Wimala Sundera, Computer vision syndrome, Galle medical journal Vol. 11(1) 2006 Pg. 25-29
  9. Dr.Nidhi Garg, Dr.Akhil Jain, Therapeutic and Medicinal Uses of Draksha - A Review, International Journal of Science and Research (IJSR), Volume 6 Issue 3, March 2017, 2365 - 2369
  10. Dr.Brahmanand Tripathi, Ashtanga Hridayam, Chaukhamba Sanskrit Pratishtan, Reprint in 2015, Sutra Sthana, verse no.20/4, pg. no. 244

**Cite this article as:**

Akanksha Thakur, Manjusha Rajagopala, Narayan Bavalatti, Pankaj Kundal. An open labelled randomised clinical trial on efficacy of Haritaki Modaka and Abhijeet Taila in the management of Computer vision syndrome. International Journal of Ayurveda and Pharma Research. 2020;8(8):15-20.

**Source of support: Nil, Conflict of interest: None Declared**

**\*Address for correspondence**

**Dr Akanksha Thakur**

PG Scholar Final Year,  
Department of Shalakya,  
All India Institute of Ayurveda, New  
Delhi, India.

Contact no: 8700794589

Email:

[dr.akanksha.thakur@gmail.com](mailto:dr.akanksha.thakur@gmail.com)

Disclaimer: IJAPR is solely owned by Mahadev Publications - dedicated to publish quality research, while every effort has been taken to verify the accuracy of the content published in our Journal. IJAPR cannot accept any responsibility or liability for the articles content which are published. The views expressed in articles by our contributing authors are not necessarily those of IJAPR editor or editorial board members.

