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Effect of trataka kriya session on the visual perception of elderly people

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Abstract
Background: Visual perception is the ability to interpret the surrounding environment by gathering information that is contained in visible light. The resulting perception is also known as eyesight, sight, or vision (visual, optical, or ocular). Visual perception is constructive in nature; that is a coherent whole is generated from ambiguous fragments that are encountered in dynamic visual scenes. Creating this coherent whole from fragmented sensory inputs requires one to detect, identify, distinguish and organize sensory input.
Aims: The main purpose of this study is to find the effect of Trataka Kriya session on Visual Perception of Elderly people.
Setting and Design: Thirty Elderly People **(**30) were taken as the subjects for the study. The age of the subjects ranged from above 60 years. The design used for the study was pre-post design. Stratified sampling technique was used for the subject's selection.
Methods: the current study was performed on the Visual Perception of Elderly People; pre and post data for the study were assessed on the scoring and norms of the tests conducted. It includes OMKAR Chanting, Trataka Kriya and Relaxation done by closing eyes until the inflammation feeling in eyes ends were used as the components of the session for a period of 6 Weeks.
Statistical Analysis Used: Dependent *t*-test was used for comparing the means of pre and post data between both the groups.
Results: Though there was not significant level of change in level of Visual Perception, yet there was a little improvement observed in case of Visual Perception after the end of session for 6 week.
Conclusions: The results conclude that the Session for a longer duration may have highly significant level of change in the level of Visual Perception of Elderly People.

Keywords: Visual Perception and Trataka Kriya Session

Introduction

Yoga, as practiced and taught in India, entered the Western world in the 19th century with the translation of basic yogic texts. Following attendance at the World Parliament of Religions in Chicago in 1893, Swami Vivekananda introduced yoga to the U.S. He lectured widely on the practice, founded the Vedanta Society, and authored many books. In the 20th century numerous versions of yoga were developed and taught.

Many people in the U S today claim to practice yoga primarily for its health benefits, without consciously adopting, Hindu religious perspective that under the practice and usually become apparent in more advanced stages of instruction. Elementary courses focus on physical exercises consisting of various postures and breathing techniques. The set of physical exercises taught in these classes is called "hatha yoga."

Researchers have taken sincere effort to find out the relationship of different physiological factors and performance in sports and games. The study of physical fitness has an important and valuable place in modern society due to its close relation to every area of life. Yoga is a method by which one can remove ignorance and attain union with the supreme self.

The beauty of Yoga is that it is accessible to everyone, as the session can be adapted to each person's level of fitness or state of health. For those who love Yoga, it becomes a way of life. In Indian religions, yoga (from Sanskrit word meaning "yoking" or "joining") is "the means or techniques for transforming consciousness and attaining liberation (Moksha) from karma1 and rebirth (Samara)." Whether your path is physical, mental, and spiritual or a combination, yoga is for everyone.

Yoga is probably the best known form of Yoga which includes asana (body postures). The word Yoga automatically calls to mind Sage "Patanjali" the founder and father of Yoga. Yoga has essentially to do with the mind and its modifications. It deals with the training of the mind to achieve oneness with the Universe. Incidental to this objective are the acquisition of siddhis or powers. Yoga is to set man free from the cage of matter. Mind is the highest form of matter and man freed from this dragnet of Chitta or Ahankara (mind or ego) becomes a pure being.

In recent years, yoga has been steadily gaining popularity as a means to get and stay fit and healthy and achieve more balance and harmony in an often-busy world. There are too many misconceptions clouding the science of Yoga. People perceive it to be some kind of black or white magic, sorcery, physical or mental debauchery through which miraculous feats can be performed.

Yoga can make them aware of their bodies and further make them realize the need of physical and emotional well being. Yoga controls one of sense resulting in an integrated personality and behavior can be mould properly leading to balanced personalities. Yoga has complete massage for humanity it has message for the human body. It has a message for the human mind and it has also a message for human soul. Yoga as the science of consciousness, the science of creativity, the science of personality development, the science of self, and the science of body and mind. Actually its meaning, definition and explanation may differ from person to person in view of varied nature of an individual's feelings and experiences.

Trataka - also called Yogic gazing - is a practice where the gaze is fixed on an object for some time and then that object is visualized clearly with the eyes closed, as an inner image at the eyebrow center. At the physical level it is said to strengthen the eye muscles by exercising them to focus upon a point. Practicing Trataka on an object such as the candle flame is said to provide a unique 'blaming' effect to the eyes which help in eye health and in the alleviation of certain eye disorders.

At the pre-meditative level, it is necessary to stall eyeball movement for great benefits and experiences. As we are aware, eyeballs are constantly in motion even while sleeping in the form of REM (Rapid Eye Movement). The aim is to minimize and eventually stall even this minutest of movement. Trataka is a wonderful practice in Yoga to achieve this, as it helps in overcoming this by focusing on a point and then visualizing its after-image with the eyes closed.

Many of the hurdles in our personal lives and even on the path to meditation have to do with our inability to disconnect with the external world at will. In yogic terminology, this would mean the inability to withdraw our senses from the sense objects. Trataka, through the focus on one object, helps to make this disconnect more easily and prepares us to do so at will. This is relevant to almost everyone, but specifically vital for the meditation aspirant.

Our visual perception depends heavily on three factors: light, its interaction with surface and human visual system that observes the light. According to the theory of optics, light consists of small packets of energy called photons that behave like particles in some respects and like waves in certain respects. The wavelength of the photons is important for color sensation, but for all other purpose we will be concerned with the particle properties of light.

Visual perception is defined as the process of acquiring knowledge about our environmental objects and events by extracting information from the light they emit or reflect. Note that visual perception involves acquisition of knowledge. This means that it is a cognitive activity and is not merely an optical process. This is the different between human vision and cameras.

It is clear that the study of visual perception and action in sport is related to the athlete's need to perceive the spatio-temporal structure of environmental information in order to successfully perform actions. This is not to deny that other forms of sensory information are important, it is just that visual information is the source upon which we rely most Cutting points out that decomposing the word 'information' signifies that it means 'to instill form within'. Visual perception may be understood, therefore, as the process of picking up environmental information which instills form (of objects, surfaces, events, patterns) within perceive.

Visual perception that may result from differences in high level visual processes such as complex feature integration required for the perception of complex objects, the present study was designed to address a more basic aspect of visual function.

Our visual perception is influenced by a broad number of factors ranging from variations in our ability to see information (e.g., due to visual impairments), to variations in how we interpret such information (e.g. due to cultural exposure, age, or gender). Because of this, people rarely "see" the same user interface. Instead, they perceive their very own interpretation of a user interface, and this might be quite different from what the designer intended to express, or what conventional usability guidelines would suggest. This workshop is aimed at defining common ground between the different strands of visual perception research in order to promote synergy and a shared understanding of how people perceive today's designs, and how their perception might differ. To accomplish this, we will begin the process of combining the broad range of visual perception knowledge to create a holistic approach to understanding users' visual perception. Our long-term plan is that the resulting combined pool of knowledge will be used to provide design guidelines for generating interfaces better suited to the individual visual perception abilities of the users.

Hypothesis

There may be a significance change in the level of Visual Perception of Elderly People after providing 6 week Trataka Kriya session.

Methodology

Subjects and Sampling

Thirty (30) elderly people were selected (15 Experimental and 15 Control Group) from Mauli Old Age Home and Seva Sushruksha Kendra, Kundan Nagar, Dhankawadi, Pune, behind Gaurav Medical Hall (Maharashtra state). The age group of the subjects ranged from above 60 years.

Stratified sampling technique was used for the selection of the subjects.

Research Design

Experimental Group and Control Group were used for conducting the present study.

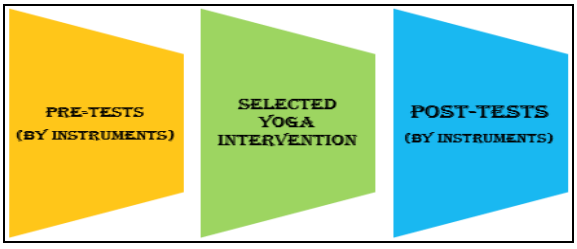

Fig 1

Tools Used

As it was an Experimental study researcher used tools for obtaining the data from the elderly people of Pune city in relation to visual perception of elderly people. The following tools were used for this study:

Visual Perception-'Muller Lyer Illusion Test'

Procedure

Pre-Intervention test

Pre-test was conducted on both groups before starting the Trataka Kriya session and the test was conducted through the instruments on both groups.

Trataka Kriya session

The Trataka Kriya session was of six weeks with five days a week except Saturday and Sunday. The subjects were divided into two groups i.e. Control Group (N=15) and Experimental Group (N=15). And the detailed information's about the session has given below.

Note: - Timing of session starts from 8:00 AM and ends after relaxing them by meditation or shukhasana. The total duration of each session was 40 Minutes. Trataka Kriya has been kept every day of every week because it is evidenced that Trataka Kriya has its impact on the improvement of eye sight, vision and visual perception problems in case of an individual, different age group people and old age people.

Post-Training test

After six weeks of Trataka Kriya session the post training test was conducted. And the test was conducted through instruments on both groups.

Analysis and Interpretation of Data

The data collected on 30 subjects before and after six week Trataka Kriya session for Visual Perception of elderly people was analyzed by comparing the means of Pre and Post Tests of Control group and Experimental group and was again statistically analyzed by applying the Dependent-'t' test to check the difference among selected variable and also to check the level of significance. Therefore separate tables and graphs have been drawn for each item as follows:

Section-1

This section of the chapter deal with the description statistical analysis and Dependent-'t' test applied on data collected from selected subjects during Pre-Test of visual perception of elderly people of experimental and control groups.

Table 1: Visual Perception of Elderly People during Pre-Test of Experimental and Control Group, Age above 60 years Descriptive Statistics

Visual Perception	N	Mean	SD	SEM	DF	MD	Cal. t.
Experimental Group	15	4.42	2.19	0.57			
Control Group	15	3.31	1.93	0.49	28	1.11	0.11

Tabulated-'t' value required to be significant at 0.05 level of confidence with 28 degree of freedom was 1.701
Level of Significance = 0.05
Tabulated-'t' 0.05(28) = 1.701

Table No.1 revels that there is no significant difference between means of Pre-tests of visual perception of experimental and control group. Because means of Pre-test of visual perception of experimental group is 4.42 is slightly higher than means of Pre-test of and visual perception of control group is 3.31 and the mean difference is 1.11. To check significant difference between means of Pre-test of visual perception of experimental and control group, the data was again analyzed by applying dependent-'t' test. Therefore, after applying dependent-'t' test it was found that there was no significant difference between Pre-test of visual perception of Experimental and Control Group because value of calculated-'t' is 0.11 which is less than value of tabulated-'t' is 1.701 at 0.05 level of confidence.

Graphical Representation of Visual Perception of Elderly People during Pre-Test of Experimental and Control Group, Age above 60 Years Visual Perception- (Pre-Test)

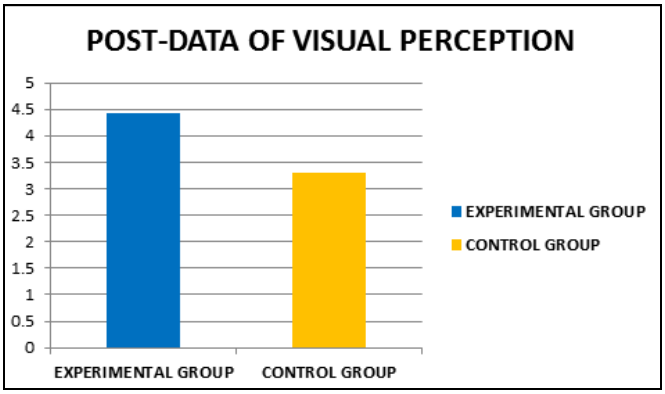

Fig 2: Mean of Experimental Group: 4.42 and Control Group: 3.31 of Visual-Perception

Section-2

This section of the chapter deal with the description statistical analysis and Dependent-'t' test applied on data collected from selected subjects during Post-Test of visual perception of elderly people of experimental and control groups.

Table 2: Visual Perception of Elderly People during Post-Test of Experimental and Control Group, Age above 60 years Descriptive Statistics

Visual Perception	N	Mean	SD	SEM	DF	MD	Cal. t.
Experimental Group	15	6.57	1.85	0.48			
Control Group	15	5.36	1.00	0.26	28	1.21	0.12

Tabulated-'t' value required to be significant at 0.05 level of confidence with 28 degree of freedom was 1.701
Level of Significance = 0.05
Tabulated-'t' 0.05(28) = 1.701

Table No.2 revels that there is a little improvement observed but not significantly between means of Post-test of visual perception of experimental and control group. Because mean of Post-test of visual perception of experimental group is 6.57 is lower than mean of Post-test of visual perception of control group 5.36 and then mean difference is 1.21. To check significant difference between means of Post-test of visual

perception of experimental and control group, the data was again analyzed by applying-dependent-'t' test. Therefore after applying dependent-'t' test it was found that is little improvement observed but not significantly because value of calculated-'t' is 0.12 which is less than tabulated-'t' is 1.701 at 0.05 level of confidence, which shows that there is little improvement observed but not significantly on Experimental rather than on control Group after the Trataka Kriya session.

Graphical Representation of Visual Perception of Elderly People during Post-Test of Experimental and Control Group, Age above 60 Years Visual Perception- (Post-Test)

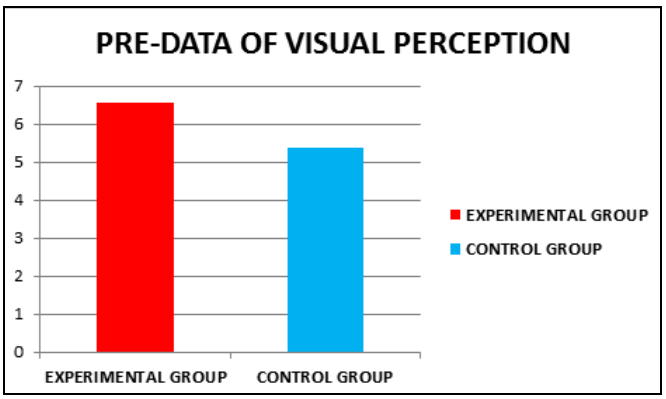

Fig 3: Mean of Experimental Group: 6.57 and Control Group: 5.36 of Visual-Perception

Discussion and Conclusion

The results of the study indicate that though there was no statistically significant difference in the level of visual perception after Trataka Kriya session at 0.05 level of confidence, yet the little improvement occurs in case of visual perception but not at a significant level to draw a assertive conclusion because the improvement was little and this happens due to the short term duration of period. The results conclude that if the Trataka Kriya session continuous for long term duration of period (such as- 3months and 6 months) then there may be a significant change in the level of visual perception of Elderly People.

Tobias Kalisch *et al.* (2012) [9] found out vision and haptics are the key modalities by which humans perceive objects and interact with their environment in a target-oriented manner. Both modalities share higher-order neural resources and the mechanisms required for object exploration. Compared to vision, the understanding of haptics information processing is still rudimentary. Although it is known that haptics performance, similar to many other skills, decreases in old age, the underlying mechanisms are not clear. It is yet to be determined to what extent this decrease is related to the age-related loss of tactile acuity or cognitive capacity. We investigated the haptics performance of 81 older adults by means of a cross-modal object recognition test. Additionally, we assessed the subjects' tactile acuity with an apparatus-based two-point discrimination paradigm, and their cognitive performance by means of the non-verbal Raven-Standard-Progressive matrices test. As expected, there was a significant age-related decline in performance on all 3 tests. With the exception of tactile acuity, this decline was found to be more distinct in female subjects. Correlation analyses revealed a strong relationship between haptics and cognitive performance for all subjects. Tactile performance, on the contrary, was only significantly correlated with male subjects' haptics performance. Haptic object recognition is a demanding task in old age, especially when it comes to the exploration of complex, unfamiliar objects. Our data support a disproportionately higher impact of cognition on haptics performance as compared to the impact of tactile acuity. Our findings are in agreement with studies reporting an increase in co-variation between individual sensory performance and general cognitive functioning in old age.

Joanne E Heming and Lenora N Brown (2005) were conducted to examine the tactile and visual temporal processing in adults with early loss of hearing. The tactile task consisted of punctuate stimulations that were delivered to one or both hands by a mechanical tactile stimulator. Pairs of light emitting diodes were presented on a display for visual stimulation. Responses consisted of YES or NO judgments as to whether the onset of the pairs of stimuli was perceived simultaneously or non-simultaneously. Tactile and visual temporal thresholds were significantly higher for the deaf group when compared to controls. In contrast to controls, tactile and visual temporal thresholds for the deaf group did not differ when presentation locations were examined. Overall findings of this study support the notion that temporal processing is compromised following early deafness regardless of the spatial location in which the stimuli are presented.

Chih-Hui Chang *et al.* (2007) [3] were investigated the effects of age and experience on length perception. A total of 46 participants were asked to wield and estimate the length of unseen rods by adjusting a movable board to equal their estimate of the reachable distance of the rod. The results demonstrated that (a) participants used the haptics subsystem of dynamic touch to perceive dissimilarities in object length and (b) experience playing racquet sports was more influential than the effect of age in perceptual judgments regarding object length. The results are discussed in the context of the ecological approach to haptics perception.

Mallick T and Kulkarni R (2010) [12] study were done to found out the change in the critical flicker fusion (CFF) after a yogic visual concentration practice (Trataka). Thirty (30) subjects participated in a study where they were evaluated for the CFF immediately before and after the practice. The subjects also participated in a comparable control session. The subjects were 30 volunteers in the age range 25-40. Fifteen (15) of the volunteers were male. The mean age was 31.33 ± 4.67. The CFF showed a statistically significant increase from 37.35 ± 2.84 to 38.66 ± 2.91 after the yoga practice of Trataka. The control session did not produce a statistically significant change in the CFF. An increase in the CFF is seen immediately after the yogic concentration practice called Trataka.

Telles S *et al.* (1997) [15] were conducted to evaluate the degree of optical illusion was assessed using standard Muller-Layer lines in two groups (yoga and control) of thirty subjects each. All subjects were between eighteen and forty two years

of age. The difference between the reading at which the lines were actually equal and the reading at which the subject felt them to be equal, was noted as the degree of illusion ("di"). Each subject was assessed at the beginning and end of a month. During the month the yoga group received training in yoga, while the control group carried on with their usual routine. At the end of the month the yoga group showed a significant (two factor ANOVA, Tukey test, $P < .001$) decreases in the "di" (86%), whereas the control group showed no change. The improvement following yoga could be attributed to the combination of focusing and defocusing involved in yoga practice, as these factors are known to influence the "di". Previous results which mentioned a 79% decrease in "di" with focusing alone provided a comparison.

George J Andersen (2012) [4] the study was investigate to evaluate the age-related declines in vision can have a major impact on the health and well-being of an older population. A review of research on aging and vision indicate that these declines occur at multiple levels of the visual system including optics, sensory processing, and perceptual processing, and are not likely to due to a systemic change in brain function (e.g., generalized slowing; common cause hypothesis) as a result of normal aging. In addition, declines in sensory and perceptual processing are not due to low-level explanations such as the amount of light that reaches the retina. Declines in visual performance are due to a variety of distinct factors that include spatial integration and difficulty in processing visual information in the presence of noise. Neuro-physiological studies suggest that processing declines may be due in part to changes in cortical inhibition mediated by changes in the level of neurotransmitters associated with inhibition. Despite the widespread declines in function with normal aging recent research suggests that perceptual learning can be used to dramatically improve visual function for older individuals. This research suggests a high degree of plasticity of the visual system among older populations and suggests that perceptual learning is an important tool for the recovery of age-related declines in vision.

Thus, the current research concludes that there was little improvement observed but the continuous practice or long term duration of Trataka Kriya session may have significant change in the level of Visual Perception of Elderly People.

References

1. Berg Anker John, Weldon John. Encyclopedia of New Age Beliefs. 1996, 593-610. "file:///C:/Users/user/Downloads/Yoga.pdf" (16/09/2016)
2. Bootsma RJ. The timing of rapid interceptive actions: Perception-action coupling in the control and acquisition of skill, PhD thesis, Amsterdam: Free University Press. 1989; 41(A):489-500.
3. Chang Chih-Hui, Wade Michael G, Stoffregen Thomas A, Ho Huei-Ying. Length Perception by Dynamic Touch: The Effects of Aging and Experience, Oxford Journals of Medicine & Health & Social Sciences the Journals of Gerontology: Series B. 2007; 63(3):165-P170.
4. George Andersen J. Aging and Vision: Changes in Function and Performance from Optics to Perception, Wiley Interdiscip Rev Cogn Sci. 2012; 3(3):403-410.
5. Gopinathan GG, Kartar Singh Dhiman, Manjusha R. A clinical study to evaluate the efficacy of Trataka Yoga Kriya and eye exercises (non-pharmacological methods) in the management of Timira (Ammetropia and Presbyopia), An International Quarterly Journal of Research in Ayurveda. 2012; 33(4):543-546.
6. Goel Arun. Trataka-A Meditation Practice for Everyone", Health and Yoga. 2012. "http://www.healthandyoga.com/html/news/meditation/trataka.aspx" (25/2/2017).
7. Iyangar BKS. Pranayama, Oriental Longman. 2010, 5.
8. Khodaskar NA. Yoga Swasthya Kungi. 2006, 11.
9. Kalisch Tobias, Kattenstroth Jan-Christoph, Kowalewski Rebecca, Off Tegenth Martin, Dinseb R Hubert. Cognitive and Tactile Factors Affecting Human Haptic Performance in Later Life. 2012; 7(1):30420. "http://dx.doi.org/10.1371/journal.pone.0030420"(23/09/2016).
10. Melton Gordon J. Yoga, New Age Encyclopedia. 1990, 501-507. "file:///C:/Users/user/Downloads/Yoga.pdf" (16/09/2016)
11. Misra JPN. Preksha Yoga, New Delhi: B. Jain Pub (P) Ltd. 1999, 2.
12. Mallick T, Kulkarni R. The effect of trataka, a yogic visual concentration practice, on critical flicker fusion, J Altern Complement Med. 2010; 16(12):1265-7.
13. Scott Brad. Exercise or Religious Practice, YOGA, The Watchman Expositor. 2001; 18(2):13.
14. Sterzer P, Kleinschmidt A, Rees G. The neural bases of Multistable perception, Trends Cogn Sci. 2009; 13:310-318.
15. Telles S, Nagarathna R, Vani PR, Nagendra HR. A combination of focusing and defocusing through yoga reduces optical illusion more than focusing alone, Indian J Physiol. Pharmacology. 1997; 41(2):179-82.
16. Ungerleider LG, Mishkin M. Two cortical visual systems. In: Ingle D J, Goodale M A, Mansfield R J W, editors, Analysis of visual behavior. Cambridge: MIT Press. 1982, 549-86.