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**EFFECTS OF COMBINATION AND MASSAGE
COMBINATION IN EYES, HEAD, NECK AND
SHOULDER ON EYE COORDINATION IN
COMPUTER VISION SYNDROME**

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ABSTRACT

This study examines the effectiveness of a combination of acupressure and massage in the eyes, head, neck and shoulders of *computer vision computer syndrome* user, which is one type of complementary treatment used to maintain eye health. The purpose of this study is to; 1) Test the effect of acupressure on eye coordination computer use, 2) Test the effects of a combination of acupressure and massage to the level eye coordination computer users To achieve these objectives, implemented method of *quasi-experimental* design with *nonequivalent control group design*, the two groups with the initial test and final test . The instrument is *Concentration Grid Test* used to assess the degree of eye coordination. The sample consisted of 20 intervention group respondents and 20 control group respondents who had previously been screened. The results of the study proved that the intervention groups of acupressure and massage the eyes, head, neck and shoulders can improve eye coordination ($p = 0.00 < 0.05$). In the control group that received acupressure treatment also improved eye coordination with a range of test scores of 2.17-4.43, $p < 0.05$. Improved eye coordination in the intervention group was higher than the group control with a mean difference of 0.33 ($p = 0.01 < 0.05$). The conclusion that can be taken, that acupressure and massage can improve the coordination eye of computer users.

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Suggestions delivered, namely acupressure and massage can be used as a complementary treatment of computer users and digital screens.

INTRODUCTION

The eye is one of the vital organs which is very important for humans. Humans using their eyes can get 80% of information (<http://www.jamsostek.co.id/>). As information technology develops, the process of looking for information is made even easier with the advent of the internet.

Seeing the many benefits that can be obtained, almost all of human life can not be separated from the internet. This makes the situation of near vision become more frequent and alternates from seeing work on a horizontal surface to a vertical surface. Excessive interactions between the human eye and the monitor screen can cause eye fatigue or *computer vision syndrome* (CVS).

A number of studies have shown that the impact of CVS significantly affects work productivity and reduces quality of life (Akinbinu TR, Mashalla YJ, 2013). Visual stress can cause eye, body fatigue and reduce work efficiency, so that it has an impact economic (Khalaj M, Ebrahimi M, Shojai P, Bagherzadeh R, 2015).

Acupressure is an effective complementary therapy both for prevention and for the treatment of various kinds of health disorders such as headaches, pain, flu, arthritis, allergies, asthma, nerve disorders, menstrual pain, sinus problems, toothaches and others. Acupressure point stimulation can also increase energy and healthy feelings, reduce stress, and alleviate sexual dysfunction.

Massage is the manipulation of soft tissue structures that can soothe and reduce psychological stress by increasing endogenous morphine hormones such as endorphin's, encephalitis and dysmorphia, while reducing stress hormone levels such as the hormones cortisol, nor epinephrine and dopamine (Best, TM et al, 2008 quoted by Dessiany Suyitno, 2015).

DESIGN

This research is a study *quasi-experimental* with a *nonequivalent control group design* namely two groups with a preliminary test and a final test (Sugiyono, 2010).

Instrument for measuring eye coordination, using *Concentration Grid Test* (CGT). As for the steps to do this test are: 1) This test has 10 x 10 boxes which each box contains two digit numbers ranging from 00 to 99, 2) To do this test the sample only needs to connect the smallest to the largest number by giving a check mark or a cross for each number found. 3) Assessment is determined by the number of numbers they find sequentially, with the following criteria: a) very less, if the answers are true 1-5, b) less, if the answers are right 5-10, c) enough, if the answers are correct 11-15, d) good, if the right answer is 16-20, e) very good, if the answer is correct > 21

METHODS

1. The preparation phase, includes: literature study, making a research proposal, making a protocol research, licensing, determining the respondent
2. The research phase, including: screening to obtain samples according to inclusion criteria, giving initial tests (pretest), giving treatment in the form of acupressure and massage in the intervention group and massage in the control group, giving the final test (post-test)
3. The final stages of the study, including: processing data, analyzing data, making conclusions, recommendations

ANALYSIS DATA

Data that has been collected, previously done editing, coding, entry data and cleaning. Then the data normality test is done with the test Kolmogorov Smirnov. To determine changes in eye coordination before and after acupressure and massage in the intervention group using the test using the *Wilcoxon Signed Ranks Test*, while for the control group that was given acupressure using *the t test* (different), as well as for differences in changes in eye coordination in the intervention and control groups using the *test group t* (different).

RESULTS

1. **Data on eye coordination before and after treatment in the intervention and control groups**

Table 1. Distribution of data before and after treatment in the intervention group and control group.

Variable	Group	Measurement	Mean	SD	Min-Max	95% CI Min Max
Coordination Eye	Intervention	Before	7.60	1.88	5-11	6.62 8.338
		After	12.75	2.88	8-16	11.40 14.10
	Control	Before	7.90	2.63	4-14	6.67 9.13
		After	11.20	3.19	6-17	9.71 12.69

Table 1. There were significant changes in the average eye coordination before and after treatment in the intervention group. The average of the intervention group before acupressure and massage was 7.60 with a standard deviation of 1.88 and after acupressure and massage averaged 12.75 with a standard deviation of 2.88. In the group there was a mean change before

acupressure from 7.90 with a standard deviation of 2.63 to 11.20 with a standard deviation of 3.19 after acupressure.

2. Changes in eye coordination before and after acupressure and massage in the group intervention

Table 2. Changes in eye coordination before and after acupressure and massage in the group intervention.

Before-After	n	Mean-Rank	Z	P value
Positive	20	0.00 10.50	3.93	0.00
Negative	0			
Same	0			
Total	20			

Table 2. There was a change in the eye coordination of all respondents (20) between before acupressure and massage. Further analysis there were significant changes in eye coordination before and after acupressure and massage in the intervention group ($p < 0.05$; $\alpha 0.05$)

3. Changes in eye coordination before and after acupressure in the control group

Table 3. Changes in eye coordination before and after acupressure in the control group.

Treatment	n	Mean	SD	Differences Mean	95% CI	t	df	p value
Before	20	7.90	2.63	0.54	2.17-4.43	6.13	19	0.00
After	20	11.20	3.19					

Table 3. In the control group there were changes in the average eye coordination before acupressure 7.90 with a standard deviation of 2.63 and after receiving acupressure with an average of 11.20 and a standard deviation of 3.19. The estimated results are believed to be 95% that the average difference in eye coordination in the control group is in the range of 2.17-4.43. Further

analysis there were differences in the average coordination before and after acupressure ($p < 0.05$; $\alpha 0.05$).

4. Comparison of changes in eye coordination between the intervention group and the control group after receiving treatment.

Table 4. Comparison of the change-eye coordination between the intervention and control groups after getting treatment.

Group	n	Mean	SD	Mean Difference	95% CI	t	df	p value
Intervention	20	5.25	2.17	0.33	0.48 to 3.42	to 2.69	38	0.01
Control	20	3.30	2.40					

Table 4. there are differences in the mean eye coordination between the intervention group 5.25 with a standard deviation of 2.17 and the control group 3.30 with a standard deviation of 2.40. The average difference between the two groups was 0.33, with an estimated 95% estimated difference in the range of 0.48-3.42. Further analysis there were significant mean differences between the intervention group and the control group where the intervention group experienced better eye coordination than the control group ($p < 0.05$; $\alpha 0.05$).

DISCUSSION

1. Eye coordination before and after the treatment in the intervention group and the control

a. Intervention Group

The results of the study found that there was a significant change in eye coordination before and after treatment in the intervention group. The average of the intervention group before acupressure and massage was 7.60 with a standard deviation of 1.88 and after acupressure and massage averaged 12.75 with a standard deviation of 2.88. This means that there is a change in eye coordination after treatment in the form of acupressure and massage.

Coordination is a person's ability to integrate various different objects into effective patterns of movement (Syafudin, 2011) cited by Dessiany Suyitno (2015). In addition, coordination ability can only be improved through training (Mac Kenzie B (2008) cited by Dessiany Suyitno (2015).

Acupressure with massage is intended to restore the balance in the body, by providing stimulation so that the flow of life energy can flow smoothly. Acupressure therapy can also harmonize the flow of *qi* and blood that can relax spasms and relieve pain in certain body parts by stimulating *endorphin release*. In.

This study, acupressure at the eye's meridian points (EX-HN 3, EX-HN 4, EX-HN 5, BL 2, SJ 23, and ST 2), head, neck and shoulders, so as to facilitate blood flow and harmonize the flow *qi* between the eyes, head

and neck (GV 20, GB 20, GB 21) and shoulders (LI 15, SJ 14). This will improve eye coordination in using the computer.

Massage is a manipulation of soft tissue structures that can soothe and reduce psychological stress by increasing endogenous morphine hormones such as endorphin's, encephalins and dinorphins, while reducing stress hormone levels such as the hormones cortisol, nor-epinephrine and dopamine (Best, TM et al, 2008 quoted by Dessiany Suyitno, 2015). In addition, the administration of massage to the eye, head, neck and shoulder area can artificially stimulate venous pumping and lymphatic mechanisms to accelerate recovery through accelerated circulation in a state of complete rest (relaxation). The combination of techniques massage *effleurage*, *petrissage*, *vibration*, *tapotement*, and *friction* will accelerate blood flow, remove products metabolite, relieve local swelling, and improve cellular nutrition, stimulate nerve endings, reduce muscle tone and increase muscle exchange in muscle mass. This will improve eye coordination and at the same time restore concentration when using a computer.

Massage is a manipulation of soft tissue structures that can soothe and reduce psychological stress by increasing endogenous morphine hormones such as endorphin's, encephalins and dinorphins, while reducing stress hormone levels such as the hormones cortisol, nor-epinephrine and dopamine (Best, TM et al, 2008 quoted by Dessiany Suyitno, 2015). In addition, the administration of massage to the eye, head, neck and shoulder area can artificially stimulate venous pumping and lymphatic mechanisms to accelerate recovery through accelerated circulation in a state of complete rest (relaxation). The combination of techniques massage *effleurage*, *petrissage*, *vibration*, *tapotement*, and *friction* will accelerate blood flow, remove products metabolite, relieve local swelling, and improve cellular nutrition, stimulate nerve endings, reduce muscle tone and increase muscle exchange in muscle mass. This will improve eye coordination and at the same time restore concentration when using a computer.

b. Control Group

In the control group there was a mean change before acupressure from 7.90 with a standard deviation of 2.63 to 11.20 with a standard deviation of 3.19. This means there is a change in eye coordination after treatment in the form of massage.

Acupressure with massage is intended to restore the balance that is in the body, by providing stimulation so that the flow of life energy can flow smoothly. Acupressure therapy can also harmonize the flow of *qi* and blood which can relax spasms and relieve the pain of certain body parts because it stimulates the release of *endorphin's*.

In this study, acupressure at the meridian points of the eyes (EX-HN 3, EX-HN 4, EX-HN 5, BL 2, SJ 23, and ST 2), head, neck and shoulders, so that will accelerate blood flow and harmonize the flow *qi* between the eyes, head and neck (GV 20, GB 20, GB 21) and shoulders (LI 15, SJ 14). This will improve eye coordination in using the computer.

2. Differences in Change in Eye Coordination in the Intervention and Control Groups The

Results of the study found differences in the average eye coordination between the intervention group 5.25 with a standard deviation of 2.17 and the control group 3.30 with a standard deviation of 2.40. The average difference between the two groups was 0.33, with an estimated 95% estimated difference in the range of 0.48-3.42. Further analysis there was a significant mean difference between the intervention group and the control group and the intervention group experienced better eye coordination improvement than the control group ($p < 0.05$; $\alpha 0.05$).

Based on these findings the researchers concluded that acupressure and massage at the eye, head, neck and shoulder region can improve eye coordination. However, the combination between acupressure and massage in the intervention group proved to have improved eye coordination better than the control group that only received massage.

Acupressure at the meridian points of the eye (EX-HN 3, EX-HN 4, EX-HN 5, BL 2, SJ 23, and ST 2), head, neck and shoulders, so as to smooth blood flow and harmonize the flow of *qi* between the eyes, head and neck (GV 20, GB 20, GB 21) and shoulders (LI 15, SJ 14). Massages with *effleurage*, *petrissage*, *vibration*, *tapotement*, and *friction* will accelerate blood flow, remove products metabolic, relieve local swelling, and improve cellular nutrition, stimulate nerve endings,

reduce muscle tone and increase the exchange of substances in muscle mass.

CONCLUSIONS

Based on the results of research and discussion, the following conclusions can be made:

1. Acupressure of the eyes, head, neck and shoulders can improve eye coordination in *computer vision syndrome*
2. Eye, head, neck and shoulder can improve eye coordination in *computer vision syndrome* The
3. combination of acupressure and massage improve eye coordination better than massage alone in *computer vision syndrome*

Suggestions

Suggestions that researchers can submit are:

1. Computer users and digital screens that are routine and for a long time, can use acupressure and massage the eyes, head, neck and shoulders as Complementary therapies that are useful for preventing *computer vision Syndrome*
2. Acupressure and massage can be used as a reference for the development of nursing complementary in nursing education

REFERENCES

1. Akinbinu TR, Mashalla YJ, (2013). *Knowledge of computer vision syndrome among computer users in the workplace in Abuja, Nigeria*. J Physio Pathophysiol. 2013; 4 (4): 58–63.
2. Ali Satya Graha and Bambang Priyonoadi. (2009). *Frirage Massage Therapy Upper Limb (Management of Injuries to the)*. Yogyakarta: Faculty of Sport Science Yogyakarta State University.
3. *American Optometric Association. Computer vision syndrome* [Internet]. [cited 2017 Nov 22]. Available from: <http://www.aoa.org/patients-and-public/caring-for-your-vision/protecting-your-vision/computer-vision-syndrome?sso=y>.
4. Andriono GA. *Disability due to work accidents and occupational diseases in the eye* [homepage on the Internet]. No date [cited 2017 Oct 19]. Available from: http://www.jamsostek.co.id/content_file/eye.pdf.
5. Bambang Priyonoadi. (2001). *Sports Massage Theory*. Yogyakarta: FIK UNY.

6. Dahlan, M. Sopiudin. (2008). Evidence-based medicine series, *Steps to make research proposals in the field of medicine and health*. Jakarta: CV. Sagung Seto.
7. Dessiany Suyitno. (2015). Massage effect Kepala Sectional, neck and shoulders against changes in eye coordination On PPLP Athletes Table Tennis Central Java, Faculty of sport, Semarang.
8. Fauzi ,(2007), *Disease Due to Work For Computer*. <http://digilib.unila.ac.id/files/disk1UNNES>.
9. Indonesian Doctors Association, *Seminar Computer and Work Safety*, [http:// worldwide health.com/health-article-What-isCVS-Computer-Vision-Syndrome-and-is-there-asolution.html](http://worldwidehealth.com/health-article-What-isCVS-Computer-Vision-Syndrome-and-is-there-asolution.html). accessed May 25, 2017.
10. Ministry of Health Republic of Indonesia. 2014. *Guide independent acupressure for workers in the workplace*. Jakarta: Indonesia.
11. Khalaj M, Ebrahimi M, Shojai P, Bagherzadeh R, (2005). *Computer vision syndrome in eleven to eighteen-year-old students in Qazvin*. Bio tech Heal Sci. 2015; 2 (3): e28234.
12. Santanu Adikara Tatang. (2008). *Acupressure Treatment for Health*. ACK Indonesia's Management Board.
13. Sastroasmoro S; Ismael S, (2002). *Fundamentals of Clinical Research Methodology*. Issue 2. Jakarta: Sagung Seto.
