The Benefits of Massage on Subjective Physiological Complaints in the Second Semester Students of IKOR FIK Universitas Negeri Manado

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Abstract: From the fact of field observation both physical education teachers and coaches do not understand the importance of the implementation of massage for warming up and cooling down dynamically, in one activity or sport and exercise activities at that time. Moreover, athletes were massaged at the rest period or the next round. They found massage to be a beneficial role for the recovery and physical condition, injury prevention. This formulation of the research problem is whether the benefits of massaging on the lack of physiological complaint in the second-semester students of IKOR FIK. The method in this study is a quasi-experimental design with one group pretest-posttest design. Data analysis techniques used to test the hypothesis in this study is the Wilcoxon signed-rank test. Based on data collection and data processing, it can be concluded that massaging can be benefits to the decline of subjective, physiological complaints in the second-semester students of IKOR FIK Universitas Negeri Manado.

1 INTRODUCTION

Massaging is one of the most effective ways to assist in the athlete coaching process. Massaging is a massage activity with hands on the surface of the body to help facilitate the circulation of blood and fluids (Delaxtrat, 2013). Its implementation is by the form of massage, polishing, anxiety and beating on blood surface of skin and muscle correctly. However, massage can cause excitement in the nerve ducts located in the entire body tissue to cause a reaction, resulting in muscle and joint movement, and help the process of metabolism in the body. More than that, massage is useful for the maintenance of the body and reduce fatigue only and naturally in sports.

Massaging is an effort that is used as an active break during exercise in volleyball, basketball and other sports (Zadkhosh, Joseph, 2018). Even massaging is done to stimulate the body to produce heat naturally needed for athletes who do not warm up enough in avoiding injury. In the implementation of massaging, it needs to be considered in particular areas as a massage area. So that massage is done useful and brings a positive effect for the body (Giovanelli, 2018). Massaging is only performed on specific body parts such as a javelin thrower that allows the thrower not to continue his work due to illness. So massage should only be done in times of need (Langitan, 2012). According to Hardianto (1993), "massage can prevent injury by applying an electric appliance, the water sprays or by the manipulation with hand massage". The benefits of massaging for body tissue consist of four parts are: first, the benefits of massaging to the neural network; second, the benefits of massaging to skin tissue; third, the benefits of massaging to muscle tissue, and finally, the benefits of massaging to the circulatory system (Jung, 2000).

Furthermore, according to (Rahim, 1988) massaging may be used for: a) hygienic massage, b) therapeutic massage (c) massage in joint injury and massage in the treatment of muscle and tendon injury. In reality, both physical education teachers and trainers still do not understand the importance of the implementation of massage as a substitute for dynamic warning and dynamic calling down, in one activity or sport or exercise activities atthat time—moreover, an athlete who is playing a game or a race. Trainers do not perform massage while at rest to enter in the next set or round their role; the role is beneficial for the recovery of the condition and physical, injury prevention. Based on the above facts, researchers feel interested in examining the benefits of massaging to

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the lack of subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA.

This problem is as follows: is there the benefits of massaging to the lack of subjective, physiological complaints on the students FIK UNIMA. So the purpose of the study is to find out whether there is a contribution massaging to the lack of physiological complaints in the second-semester students of IKOR FIK UNIMA.

2 METHODS

The method used in this research is quasi-experimental by highlighting the effect of the implementation of massaging to the lack of subjective, physiological complaints with the design of one group pre-test post-test only design. The implementation of research in FIK UNIMA and the implementation time is done for two months. The population in this study is the second-semester students of IKOR FIK UNIMA, while the sample of this study amounted to 15 people taken by random of the existing population (Notoadmodjo, 2002).

The experimental method is activities planned and carried out by researchers to collect data that is related to the hypothesis. For a more specific experimental research design (Table 1), the authors used a randomized pre-test and post-test control group research model (Wijaya, 2000).

Table 1: Research design.

Group	Pre-test	Treatment	Post-test
T1	01	X	02
T2	01		02

Information:

T1: The experimental group is given treatment
T2: Control group that is not given treatment

01ex: Initial test of the experimental group given treatment

01c: Final test of the control group that was not given treatment

X: Treat the experimental group
02ex: Final test of the experimental group given treatment

02c: Final test of the control group that is not given treatment

The instrument in this study was carried out with questionnaire entries or using Nordic Body Map questionnaire (Mautang, 2002).

With the implementation as follows: a person is given a 12-minute running treatment on the track, and then data on complaints of muscle aches are collected using Nordic Body Map. After three days, the person was told to run for 12 minutes and given a massage and fill in complaints about muscle aches.

Data analysis techniques in this study, namely before being analyzed is a prerequisite test that is by testing normality and homogeneity, using t-test based on observations with a significance level $\alpha = 0.05$ single group pattern in equation (1).

$$t = Sd \frac{\overline{X}_1 - \overline{X}_2}{S\sqrt{\frac{1}{n_1} + \frac{1}{n_2}}} \quad (1)$$

Information:

: The average experimental group $\overline{X}_1$: Average control group
Sd: Combined standard deviation value

n1: Number of sample experimental groups
$\overline{X}_2$; Number of sample control groups

According to Sudjana (1986), test homogeneity uses the F test equation (2).

$$F = \frac{Major\ variants}{Minor\ variants} \quad (2)$$

The test statistic used is the Liliefors test by calculating the Zi, F (zi), and deviation F (zi) -S (zi) values. Where is the value: Zi: Liliefors test; X: Subjective, physiological complaints $\overline{X}$: Average value; and Sd: Standard deviation.

3 RESULTS AND DISCUSSION

The hypothesis tested to the truth in this research is the benefits of massaging to subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA.

As the acceptance and rejection criteria of the above hypothesis are as follows:

- Accept H0 if T ≥ Tα
- Reject H0 if T < Tα

The test is done with a significant level of 0.01 with degrees of free n: 15 so that the critical value is obtained = 20. The critical value is used as a comparison tool to the value of T, the comparison between T and Tα (critical value) indicates that the observational value of T is smaller of T table is 0 <20 then H0 is rejected, and HA is accepted. It means that there are the benefits of massaging physiological sympathy to the second-semester students of IKOR FIK UNIMA.

The measurement results on the subjective, physiological complaint experiment group of the second-semester students of IKOR FIK UNIMA can be seen in table 2.

Table 2: Results of the subjective, physiological complaints experiment group.

No	Pre-test	Post-test
1.	50	58
2.	49	56
3.	46	54
4.	48	58
5.	41	49
6.	47	56
7.	42	51
8.	55	63
9.	43	52
10.	52	62

∑ *Pre-test* (O_1) = 473; $\overline{X}$ = 47,3 Sd = 4,4733
∑ *Post-test* (O_2) = 559; $\overline{X}$ = 55,9 Sd = 4,5570

Furthermore, the results of subjective, physiological complaints in the control group are shown in Table 3.

Table 3: Results of the subjective, physiological complaints control group.

No	Pres-test	Post-test
1.	44	48
2.	43	45
3.	48	51
4.	50	53
5.	49	52
6.	46	48
7.	52	55
8.	44	47
9.	41	44
10.	47	49

∑ *Pre-test* (O_1) = 464; $\overline{X}$ = 46,4 Sd = 3,4384
∑ *Post-test* (O_2) = 492; $\overline{X}$ = 49,2 Sd = 3,5213

Furthermore, the results of individual, physiological complaints difference both in the pre-test and post-test experimental groups and the difference in subjective, physiological complaints both in the pre-test and post-test control groups are showed in table 4.

Table 4: Difference in subjective, physiological complaints experiment and control group.

No	Experiment (X_1)	Control (X_2)
1.	8	4
2.	7	2
3.	8	3
4.	10	3
5.	8	3
6.	9	2
7.	9	3
8.	8	3
9.	9	3
10.	10	2

The results of the analysis of the normality of the data using the Liliefors test statistic showed that the samples drawn from both groups, both the experimental group and the control group came from the population with a normal distribution (Table 4). Likewise in the homogeneity test where the two sample groups showed homogeneous or equal variance, this means that the two sample groups before receiving different treatments have the same initial ability so that if there is or occurs a change solely because of the treatment factor, in this case, is the treatment with the benefits of massage.

Based on the results of the data presentation, it can be seen that the conditions before or pre-test and post-test conditions of the two groups showed differences in the numbers obtained in the complaints of objective physiology in the second-semester students of IKOR FIK UNIMA (table 5). These results show that the conditions before or pre-test of the two groups did not show significant differences, but the conditions after or post-test the two groups showed a significant difference, where for the post-test scores the experimental group gained more than the acquisition of numbers in control. These scores show that massaging contribution given for two months with a frequency of three times week training can have a significant effect, especially for increasing subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA.

Table 5: The results of the difference between pre-test and post-test Experimental group and control group.

Experiment	Control
(X_1)	(X_2)
$n_1 = 10$	$n_2 = 10$
$\sum X_1 = 86$	$\sum X_2 = 28$
$X_1 = 8,6$	$X_2 = 2,8$
$Sd_1 = 0,9661$	$Sd_2 = 0,6324$
$Sd_1^2 = 0,9333$	$Sd_2^2 = 0,9324$

Information:
n: Number of Samples

$\sum X$: Total Value in Both Groups
$\overline{X}$: Average value Sd: Standard Deviation
Sd2: Nature Standard Deviation (variance)

Liliefors test is one of the normality tests used to test whether the sample comes from a population that is typically distributed (tables 6 and 7).

Table 6: Calculation of group normality test experiment.

Xi	Zi	F(zi)	S(zi)	F(zi)-S(zi)
41	1,41	0,0792	0,1	0,0207
42	-1,18	0,119	0,2	0,081
43	-0,96	0,1685	0,3	0,1315
46	-0,29	0,3859	0,4	0,0141
47	-0,07	0,4721	0,5	0,0279
48	-0,16	0,5636	0,6	0,0464
49	0,38	0,648	0,7	0,052
50	0,6	0,7257	0,8	0,0743
52	1,05	0,8931	0,9	0,0069
55	1,72	0,9573	1	0,0427

The results showed that the calculation of the t-test statistical analysis results Tob = 7.17> Ttab = 2.110. Therefore, Ho is rejected, and Ha is accepted which states that the average subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA in the experimental group were given by contribution massaging has a more significant increase than the average subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA in the control group (Mohamadyari, 2018).

This study shows that there are the benefits of the contribution of massaging to subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA.

Table 7: Group Normality Testing Control.

Xi	Zi	F(zi)	S(zi)	F(zi)-S(zi)
41	-1,57	0,0582	0,1	0,0418
43	-0,98	0,1635	0,2	0,0365
44	-0,69	0,2451	0,3	0,1549
44	-0,69	0,2451	0,4	0,1549
46	-0,11	0,4562	0,5	0,0438
47	0,17	0,5675	0,6	0,0325
48	0,46	0,6772	0,7	0,0228
49	0,75	0,7734	0,8	0,0266
50	1,07	0,8577	0,9	0,0423
52	1,62	0,9474	1	0,0526

4 CONCLUSIONS

Based on the results of research that has been proven testing of data based on the variables measured, it can be concluded that there is the benefits of massaging on subjective, physiological complaints in the second-semester students of IKOR FIK UNIMA.

REFERENCES

Delaxtrat A., Calleja-González J, Hippocrate A and Clarke N D., 2013. *J. Sports Sci*.

Giovanelli, N., Vaccari, F., Floreani, M., Rejc, E., Copetti, J., Garra, M.,Biasutti, L., and Lazzer, S., 2018. *Hum. Kinetics.*

Hardianto, W., 1993. *Cedera Olahraga*. Penerbit Buku Kedokteran Jakarta.

Joseph, L.H., Hancharoenkul, B., Sitilertpisan, P., Pirunsan, U., and Paungmali, A., 2018. *Asian J, Sports Med.* In Press.

Jung, C. H., 2000. *Masase olahraga untuk masyarakat umum.* Penerbit Universitas Negeri Malang.

Langitan, F. W., 2017. *Makalah perkuliahan sport massage* FIK Unima Tondano.

Mautang, T., 2002. *Efektifitas dan efisiensi kinerja serta keluhan subyektif pegawai Negeri Sipil Kantor Bupati Minahasa*. FIK UNIMA.

Mohamadyari, S., Shojaedin, S. S., and Barati, A. H., 2018. *Med. Sci. J. Gorgan Univ*

Notoadmodjo, S., 2002. *Metodologi Penelitian Kesehatan.* Rineka Cipta, Jakarta.

Rahim, A. S., 1988. *Masase Olahraga: Teori Metode Dan Praktek,* Jakarta.

Sudjana, 1986. *Metode statistik*. Tarsito.

Wiyaja, I.R., 2000. *Statistika non parametrik*. Penerbit Alfabeta Bandung

Zadkhosh, S., M, Ariaee, E and Zandi, H. G., 2018 *J. Phy.Edu. Health Sport* 5.