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## THE EFFECT OF SPORT MASSAGE ON LACTIC ACID RECOVERY

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**Abstract.** The purpose of this study was to determine the extend of the impact of the sports massage recovery method on the lactate levels of wrestling athletes. The population in this study was West Java PON wrestling athletes with purposive sampling technique with the criteria of having participated in national level championships and male gender with a total of 4 person. The instrument in this study was the Wrestling Match Simulation, Sport Massage is a recovery method protocol with a duration of 20 minutes, Acutend Lactate to measure the athlete's lactate level before and after being given the treatment. The results showed that there was a significant decrease in the athlete's lactate level after being given the treatment.

**Keyword :** sport massage, lactate, wrestling, recovery.

## **INTRODUCTION**

Wrestling is a sport requiring constant dynamic performance during combat (Arslanoğlu, enel, & Aydoğmuş, 2015) Wrestling is a sport that is quite challenging because in competition, athletes are required in the shortest time to recover their bodies after competing. (Chaabene et al., 2017). When physical activity is carried out between 20 - 180 seconds, the process of energy formation (ATP) uses glucosan in the form of glycogen in the muscles which produces lactic acid, and an increase in lactic acid indicates that the breakdown of ATP assisted by aerobic exercise is not able to supply anaerobic exercise to fulfill ATP.(Josef Finsterer, 2012). According to Nurcholis, Pramono, Pd, & Case, (2018) everyone has a different ability to transport metabolic waste from tired muscles. The faster a person is able to transport metabolic waste from tired muscles, the easier it is for a person to avoid fatigue. In recent times, sports massage has become increasingly popular and has begun to be widely used to improve performance, combat fatigue, and facilitate the recovery process (Weerapong, Hume, & Kolt, 2005).

There are benefits in giving massage to the athlete's ability to recover his body to restore fatigue conditions so that they are back in shape or in prime condition.

*Massage* or massage is based on the idea that the heart is the center of growth. Therefore, the way of treatment follows the

circulatory system, especially the arteries, and moves inward from the ends of the body towards the heart.(Purnomo, 2014)

*massage*/Massage is a sensory integration technique that affects the activity of the autonomic nervous system. If someone perceives touch as a relaxing stimulus, a relaxation response will appear (Potter & Perry, 2005)

The benefits of massage on recovery are increasing blood circulation, breaking down lactate that is formed and reducing pain (Bakar et al., 2015), in research (Wiltshire et al., 2010) It was concluded that the effect of massage decreased 25% lactic acid levels after 10 minutes of recovery.

lane. & Wenger., (2004) reported that massage was superior to passive recovery in maintaining performance within 24 hours. However, active recovery and cold water immersion provided greater benefits compared to massage.

Based on the explanation above, this study wanted to determine the effect of Sport Massage on lactate recovery of wrestling athletes after competing simulations.

## **METHOD**

The research method used in this research is experiment, Fraenkel & Wallen, (2012) explained that experimental research is the only research that directly gives treatment to the variables studied. One group pretest posttest design namely in this method there is one group that will get two

measurements, namely pretest (before treatment is given) and post test (after treatment is given). (Fraenkel & Wallen, 2012)

**Table 1.**

Research Design

The One-Group Pretest-Posttest Design		
<i>O</i>	<i>X</i>	<i>O</i>
Pretest	Treatment	Posttest

Participants in this study were PON JABAR wrestling athletes. The sampling technique in this study used the Purposive Sampling Technique. With the criteria of being male, at least having participated in a national level championship and not being injured, there are 4 people.

The data collection instrument this time was using Accutren Lactate to measure blood lactate levels,

The procedure in this study is that the athlete warms up before doing the Wrestling Match Simulation with a time of 3 minutes x 2 as a trigger for the increase in athlete's lactate then a blood sample is taken (Pre-test) then the athlete is given a Sport massage intervention for 20 minutes then blood lactate is taken which will be used as the Post Test value.

The data analysis technique in this study is descriptive analysis of the data, normality and homogeneity tests, then using the Paired Sample T test.

**RESULTS AND DISCUSSION**

**Table 2 Descriptive Statistics**

	N	Min	Max	mean	St. Dev
Before Heating	4	2	2.6	2.225	0.26
Pretest	4	6.1	8.1	7.35	0.86
Posttest	4	2.9	4.8	4.15	0.85

Table above shows the descriptive statistical value where the warm-up athlete's lactate level has a minimum value of 2, a maximum of 2.6 and an average of 2.25. Results The pretest lactate level variable has a score range between 6.1 to 8.1 standard deviation of 0.86 with an average value of 7.35. while the posttest variable has a range of 2.9 to 4.8 standard deviation of 0.85 with an average value of 4.15 this value indicates that there is a significant change between pre-test athletes' lactate levels and posttest athletes' lactate levels.

**Table 3 Paired Sample T test**

Paired Sample Corelation				
	mean	N	Std.deviation	sig 2tailed
Pretest	7.35	4	0.869	0.01
Posttest	4.15	4	0.8583	

Data analysis in this study used the SPSS 22 program and to test the hypothesis using the paired sample T test. Table 1. Shows that the level of sig. 2 tailed of 0.01 indicates that there is a significant change in the decrease

in lactate levels of athletes after being given sports massage treatment.

To answer the hypothesis of the effect of sport massage on blood lactate male athletes, the pretest value was (7.35±0.869) while the post-test value was (4.15±0.8583). there is a significant change from the pretest to posttest scores. Similarly, this treatment was also chosen in a study conducted by (Monedero & Donne, 2000) and (Robertson, Watt, & Galloway, 2004) with the implication that the results of sport massage can affect blood lactate. One of the benefits of sports massage is that it increases blood flow and local circulation to the muscles, also facilitating the removal of waste and inflammatory by-products (Weerapong et al., 2005) Based on this, it can be hypothesized that massage may contribute to mobilizing lactate out of the muscles and into the bloodstream, resulting in lower blood lactate concentrations.

## CONCLUSION

The conclusion of this study is that sport massage has an effect on reducing blood lactate in wrestling athletes. It can be concluded that the Sport massage method in an effort to restore the athlete's condition or recover can be used at rest intervals for wrestling athletes during matches.

It is hoped that the next research can try other methods to relieve fatigue in wrestling athletes and have a larger number of samples

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