Effectiveness of Effriction Massage and Flexibility Training on Recovery of Pain Perception and Back Flexibility in Martial Arts Athletes

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Abstract: The aim of the research carried out was to analyze the effectiveness of effriction massage, namely the effusion and friction massage method and flexibility training therapy on the recovery of pain perception and back flexibility in martial arts athletes. The type of research carried out uses pre-experimental research. The method used is One-group Pretest-posttest Design. The research population was 20 martial arts athletes who came to the sports injury massage (MCO) location. The sampling technique used in this research was Purposive Sampling. The instruments used were the sit and reach box and the visual pain scale or VAS. The analysis technique used is t-test analysis. The results of this research data show that there is effectiveness of effriction massage on the recovery of back pain perception in martial arts athletes with a t-value of 15.05, an average of 6.54 and a confidence interval level of 95% with the lowest value being 3.85 and the highest value being 7. 23. There were significant results regarding the effectiveness of flexibility training in increasing back flexibility in martial arts athletes with a t-value of 5.67, a mean of 2.45 and a 95% confidence interval level with the lowest value being 1.63 and the highest value being 3.48. Based on the data, it can be concluded that the results of the research above show that effriction massage and flexibility training are able to provide changes to the perception of pain and back flexibility in athletes.

Keywords: Effriction Massage, Flexibility Training and Back Flexibility

INTRODUCTION

Increasing sports performance, especially martial arts, is currently undergoing progress from various points of view of science and technology, business management and training programs. All coaches involved in the world of combat sports have a training program. In fact, in the field, not all coaches make the wrong training program plans, so many athletes suffer injuries to muscles, joints, ligaments and bones. All human activities, including sports, are fraught with risk or danger. As sports activities increase, the risks or dangers also increase

(Sukarmin, 2015). The risks or dangers that arise in sports activities, if ignored or not handled seriously and cannot be fully controlled, will cause detrimental consequences for humans, including injury. Injury is injury or damage to body function due to sports or work activities. Sports injuries are injuries to the integumentary, muscular and skeletal systems caused by sports activities. In general, injury is any damage or injury suffered or suffered by someone (Sukarmin, 2015). Thus, sports injuries can be defined as injuries that occur when someone does physical activity, training or sports matches.

Injury is an obstacle for athletes to stop exercising or training for some time and is the most serious risk until someone retires early for sports performance. Martial arts is a sport that is quite famous in the world. This sport attracts the interest of all age groups, various skill levels, both men and women, this is proven by the emergence of clubs from regional to national level. . From tactical training on how to attack and defend, don't forget to support everything plus physical and mental training to create quality players. There is a positive relationship between arm strength, abdominal strength, leg strength, grip strength, flexibility and skill performance in competition (Mahulkar, 2016).

The physical conditioning components required for combat sports require short bursts of movement with sudden changes in direction, which places players at risk of non-contact traumatic injury to joints and muscle tendon units (Pardiwala et al., 2020). showed an injury incidence of 4.1%, with 82.9% back injuries. 128 injuries occurred in the ankle joint which constituted 62% of all documented injuries (Krøner et al., 1990). In martial arts, the risk of injury often occurs when attacking, defending, and tricking in a short time at maximum speed, of course there are still many possibilities for injury, such as ankles, hamstrings, and reduced flexibility in the waist. Most injuries occur in the back, especially in the knees and ankles (Jørgensen & Winge, 1990). Many people complain of decreased pain and flexibility in the back, especially in the hamstring and hip joints. In addition, there were 11 patients with impact injuries due to falls who required hospital treatment due to potential cracks or fractures (Shariff et al., 2009).

Observing the pattern of musculoskeletal injuries experienced by them concluded that the majority of injuries occurred during training (86.6%). The injuries suffered were most commonly around the knee and were related to overuse injuries, without a single attributable traumatic episode. They noted a higher incidence among younger players but no difference between genders. In their retrospective study, they noted that 63% of injuries involved the lower limbs with overuse (36%), strain (30.9%), and sprain (26%) injuries. They recorded a total of 10 serious back pain injuries due to falling techniques. A longitudinal study of injuries among Japanese national level players revealed injury rates per player per 1000 hours ranged from 0.9 to 5.1.

Injury rates during exercise are higher in women than men and increase with age. There was a significant increase in injury rates by age and female gender. Based on the severity of injury, the proportion of injuries was 83.8% mild injury, 4.1% minimal injury, 6.8% moderate injury, and 1.9% severe injury (Miyake et al., 2016). Due to limited knowledge and knowledge, most martial arts athletes do not know about how to handle injuries and post-injury training or post-injury massage and flexibility training therapy. Therefore, researchers want to research more deeply about "Effectiveness of Massage and Flexibility. Back Pain Recovery and Flexibility Exercise Therapy", so that data and the level of influence can be obtained from the results of this research. This research aims to determine the effectiveness of massage therapy and flexibility exercises for relieving pain. and flexibility in the back in martial arts athletes.

METHOD

Experimental research has different characteristics from other research, namely by varying the independent variables (Fraenkel et al., 2012). The location of this research was carried out at a sports injury massage therapy site. The population used in this research were martial arts athletes who came for massage treatment. The total sampling technique is the perfect sampling technique because there is no reason to assume total sampling is deviant (Hadi, 2019). The research design used in this research is pre-experimental with a One Group Pretest-Posttest Design, which consists of one group, without a control group. The research process was carried out in three stages, namely, pretest, treatment, and posttest. The result of the treatment is the difference between the pretest and posttest scores. The One Group Pretest Posttest Design research design can be described as follows:

Information :

A : pretest
B : posttest
A2 : pretest
B2 : posttest
X1 : massage treatment and flexibility training treatment
X2 : recovery of pain perception and back flexibility.

In this research design there are two independent variables and two dependent variables. The independent variable is the implementation of massage and flexibility exercise therapy. The dependent variable is recovery of pain perception and back flexibility.

Partisipan

The population used in this research were all martial arts athletes who were still active. The sampling technique in this research is total sampling.

Instrument

The research instrument in this study was carried out by physical examination and recorded measurement results. Sequence of data collection. The instruments used are a Numerical Pain Scale measuring device, Sit and Reach and a stopwatch used to measure time during exercise. Procedure The research procedure begins with pretest measurements, then massage therapy is given once for 20 minutes. Exercise therapy is given for 20 minutes. Followed by taking a posttest on the research subject. Research instruments are tools and facilities used in the data collection process so that it will be easier and more systematic to process the data. Data Analysis The data that was obtained from the sample during the pre-test and post-test was then analyzed using SPSS version 20 software, namely using the paired sample t test. This test is to test whether there is an influence. The subjects are the same but experience two different measurements or treatments. There is a pre-test and post-test or there are stage 1 and stage 2 measurements.

RESULTS

The results of the univariate analysis were made based on frequency and percentage distribution variables with 35 athlete respondents who complained of lower back pain which limited their movement who visited the Arif Setiawan Sports Injury Massage clinic.

The frequency distribution of pain characteristics in athletes who will carry out movement activities before being given back massage can be seen in the results of table 1 as follows:

Table 1. Frequency distribution of pain characteristics in martial arts athletes in Semarang City

Pain	Frequency	Percentage
Light	5	14,3
Medium	20	57,1
Weight	10	28,6
Total	35	100

The frequency distribution of pain characteristics in martial arts athletes after receiving massage treatment can be seen in table 2. The following:

Table 2.Frequency distribution of pain characteristics in martial arts athletes in Semarang City

Pain	Frequency	Percentage
Medium	23	65,7
Weight	12	34,3
Total	35	100

DISCUSSION

The aim of this study was to determine the level of effectiveness of massage and flexibility training therapy for complaints of back pain and flexibility in martial arts athletes. data were analyzed using parametric statistical analysis (Paired Simple t Test). This research shows the significance value of the data or there is a significant difference between the pretest and posttest. If we look at the average figures, this shows that the treatment carried out was able to provide better changes than before the treatment was given. Based on the research results above, it shows that the treatment given, namely massage and flexibility training, is able to provide changes in back pain and flexibility in martial arts athletes as measured through back flexibility and pain tests. The research results showed that massage and flexibility treatments were able to provide significant changes from before and after treatment. Judging from the results of reducing pain in the back, the massage treatment experienced a better improvement compared to before treatment, with a calculated t value of 14.04, a mean of 4.53 and a 95% confidence interval level with the lowest value being 3.84 and the highest value being 5.22.

This situation also occurs when flexibility decreases, the flexibility training therapy treatment is better than before the treatment was given, with a calculated t value of 5.66, a mean of 2.44 and a 95% confidence interval level with the lowest value being 1.52 and the highest value being 3.37. Complaints that martial arts athletes often experience after carrying out a training program are pain, injury and decreased function, so it is possible that due to pain, the movement of body organs

becomes limited. This situation shows that sports activities have an influence that is sometimes felt by martial arts athletes due to fatigue and injury to certain organs. Complaint assistance is usually provided after carrying out the training process through cooling activities. The variations in cooling carried out by martial arts athletes are very diverse, so they must be adjusted to the needs and conditions as well as the training load being carried out. Studies show that the majority of documented injuries result from patterns of overuse rather than a single episode of acute injury (77.1% in competition and 75.4% in practice). They concluded that overuse injuries are approximately 3 times more common than trauma in badminton (Yuki Warashina et al., 2018).

Similar results reported injury incidence rates in that elite senior athletes had a high incidence rate of recurrent injuries, while elite junior athletes and potential athletes had a higher incidence rate of new injuries (Kaalund et al., 1989). The most common new injury was a strain (64%) and the body parts most frequently injured were the back, shoulders, thighs and knees. More injuries were recorded in training for all player groups. The incidence of lumbar facet joint sprains is also high and ranks second among all types of injuries. Massage treatments and flexibility training are intended to help calm down after sporting activities. The cooling process aims to return the condition of the muscles and organs that work during exercise to their pre-exercise condition. Giving massage is a familiar thing where through massage the recovery process of muscle condition can be done more quickly. Apart from that, providing a relaxation process to the muscles will help return the muscles to their original condition. The perception of pain that is felt is sometimes the result of injury to martial arts athletes. The condition of providing this massage treatment will provide stimulation and help restore muscle conditions that are not in accordance with the initial condition. The results of the massage therapy analysis above can restore muscle complaints. Massage is the use of various forces and movements to manipulate muscles and other soft tissues (Graha & Priyonoadi, 2012). By relaxing the body's soft tissues, more blood and oxygen can reach the affected area and reduce the perception of pain. This is confirmed by other research that massage has the effect of relaxing and stretching muscles and other soft tissues in the body so that it will reduce muscle tension. This is because massage accelerates the emptying and filling of two fluids so that blood circulation becomes smooth and accelerates the disposal of metabolic waste in the muscles. body muscles and helps speed up muscle recovery (Basiran, 2009). In line with this opinion, other opinions emphasize that physiologically massage has been proven to reduce heart rate, increase blood pressure, increase blood and lymph circulation, reduce muscle tension, and increase joint space and reduce pain (Arovah, 2010). This situation is the same as providing flexibility in the training process to help restore the condition of the hamstring and latissimus dorsi muscles. Stretching regularly between activities

will be beneficial for reducing muscle tension, improving blood circulation and the perception of fatigue (Anderson, 2010). In addition, stretching exercises can improve blood circulation and increase cell oxygenation. In this way, stretching exercises can reduce symptoms of lack of cellular oxygen which can cause an increase in lactic acid, causing the perception of pain. Flexibility training is a basic technique used to increase range of motion (ROM), providing post-injury flexibility training therapy necessary to maintain joint and muscle mobility and minimize loss of tissue flexibility and formation of contractures (Arovah, 2010). These two treatments have a maximum contribution to the recovery of the condition of the body's organs after carrying out sports activities. Providing flexibility training basically stimulates the muscles to immediately work as usual. So that the recovery process manipulated by work assignments can be handled well. However, giving a massage is better than practicing flexibility because the massage hits the target directly. This situation is different from flexibility training, which can occur without targeting the affected organs. Apart from that, excessive pain conditions with flexibility exercises will not work optimally because the body's organs are not ready to exercise. This shows that massage is on target and can be done as early as possible after the injury occurs. Sometimes giving flexibility training cannot be given immediately because you have to see the initial condition of the muscles, whether they are ready to be given training or not.

CONCLUSION

Overall in this study it can be concluded that, 1) massage has an effective impact on perceived complaints of back pain in martial arts athletes; 2) flexibility training therapy for back flexibility in martial arts athletes.

Conflict of Interest

The author(s) declare that they have no conflict of interest.

Acknowledgment

A thank you to the agencies and parties who supported this research.

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