The Effect of Static Exercise Therapy and Efficiency Massage Focus on Back Latizimus Dorsi and Trapezius to Reduce Pain and Movement Disorders in Athletes

Arif Setiawan [1*], Priyanto [1], Zainul Aziz [2]

[1] Universitas Negeri Semarang

[2] STKIP Kie Raha Ternate

Corresponding author: arifsetiawan@mail.unnes.ac.id

Abstract: Athletes who experience back injuries are characterized by back pain and movement disturbances in the lower back that require treatment. Objective: The purpose of this study was to determine the effect of static exercise therapy and massage efficiency techniques. This research method is a quasi-pre-experimental study with the one group pretest-posttest design model. The sample in this study was 30 people with a purposive sampling technique. The research instrument used to measure pain levels was in the form of a visual scale (VAS), and the oswerty disability index functioned. Administering massage effraction manipulation treatment on the back and focusing on the lumbar area on all back muscles which was carried out by masseur with a duration of 15 minutes for 1 treatment and continued with static exercise therapy for 1 week independently then providing feedback to fill in the oswerty disability index. The data analysis technique used is in the form of descriptive analysis, normality test using the Shapiro Wilk test and paired t-test to determine whether there is a difference between before and after treatment. The results showed that the average pain before and after treatment was decreased. so that it can be concluded that static exercise therapy and the massage effraction method focus on the lumbar can significantly reduce the perception of back pain. Movement function before and after treatment experienced an increase in significant changes. The conclusion of this study is that static exercise therapy methods and the lumbar focus effraction massage method can reduce the perception of back pain and can significantly improve the function of lower back motion. It can be concluded that the massage effraction method focuses on the lumbar and static exercise therapy that is carried out independently can reduce pain and improve the movement function of people with back pain.
Keywords: static exercise; massage effriction; back pain; movement disorders

INTRODUCTION

People who have a hobby of sports or athletes in certain circumstances experience back injuries. The injury experienced was characterized by pain in the area of the latizimus dorsi and trapezius muscles. back pain is a condition of the skeletal muscles in the vertebrae or musculoskeletal which is often treated in the field and is a cause of sports injuries from athletes handled by masseurs. The impacts that occur in a sustainable manner are related to limitations due to impaired movement in physical movement and productivity due to injuries suffered. It is

estimated that 70-95% of adults experience this condition at least once in their lifetime with a point prevalence of around 25% and a 1-year prevalence of around 50% (Ambardini, 2016).

Back pain is a problem resulting from a multi-dimensional injury as an athlete's condition which is described clinically as a problem in the muscles, pain and decreased range of motion of the joints located below the 12th thoracic to above the gluteal folds with or without pain radiating to the legs. The tissues that are the source of the complaint are the zygapophyseal joints, discs, ligaments, nerve roots, dura, muscles and fascia. Other contributing factors are psychological, social, patho-anatomical and neurophysiological aspects (Mahfud et al., 2018).

Related to the complexity of the causative factors, treatment in the form of treatment and independent static exercise exercises must be carried out integrally within an effective and efficient framework by considering all factors that can be applied in the context of clinical practice such as the International Classification of Functioning, Disability and Health model (ICF) developed by the World Health Organization's (WHO) (Walters & De C Williams, 2019). To determine better clinical decision-making, the factors considered are not only related to body structure and function related to LBP pathology, but also activities and participation that are influenced by internal (personal) or external (environmental) contextual factors that lead to improving intervention outcomes (Petrofsky et al., 2017).

With a variety of structures and causative factors, this will affect activities of daily life which impact leads to decreased mobility or disability. In the long term, it will not only have a local impact on anatomical structures and physiological functions, but also on other things in the context of personal life and socialization with the family and community environment. Assessment of the results of interventions in patients is very important to evaluate and monitor the response to treatment, and then intervention modifications can be made (Dong, 2016). Before an assessment is carried out, the measurements used must be valid, reliable, and have the best responsiveness to clinical changes. This must be fulfilled so that it can be determined whether the measurement is appropriately applied for research purposes (Doeven et al., 2018).

Assessment of signs and symptoms is very important to the planning and evaluation. So in order to evaluate the results of disability measurements, a measurement tool that meets international standards is needed. The measuring instrument must meet psychometric elements and be able to adapt to local socio-cultural characteristics (Dupuy et al., 2018).

METHOD

The research method used is a quasi-experimental by providing treatment to athletes who have suffered back injuries with massage treatment with the effraction technique and accompanying them with stressing exercise therapy to maintain muscle elasticity by doing pre post by measuring the level of flexibility of the back muscles and measuring the reduction in pain with a visual analog scale. prospectively compared cohorts of patients separated in the pre-intervention phase (1st usual maintenance massage) and the post-intervention phase and independent stretching exercises made a guidebook in the evaluation. Treatment of injuries to classify patients into groups with low, moderate, or high risk.

The primary outcome was change in disability over 1 month as assessed by the Roland-Morris Disability Questionnaire. The process results in capturing changes in back pain and movement disorders in risk-adjusted referrals for physical therapy. The cost-utility analysis estimates the quality-adjusted life-year increase from stretching exercises and massage treatment. The analysis is intended to assist the recovery process of back injuries.

RESULTS

The effect of massage on the latissimus dorsi and trapezius muscles and static exercises to maintain elasticity against back pain in athletes can be seen from the results of the pre-test and post-test carried out by massage with the effraction technique for back pain. The results of the normality test with Shapiro Wilk showed that the data were not normally distributed because the significant value was <0.05. The normality test results for the data before the back massage were significant 0.036 <0.05, therefore data analysis can be carried out with the non-parametric test, namely Wilcoxon.

DISCUSSION

The results showed that 32 respondents with back pain in athletes who came to the sports injury massage site before doing back massage in the latisimus dorsi and trapezius areas and were given static exercise treatment had an average pain of 5.42, which was included in the category of mild to moderate pain during the pre-test by disrupting the comfort of movement, so that the pain felt by these athletes interferes with daily activities. This is in accordance with the statement explained that athletes often feel back pain even if it is only mild pain resulting in mild discomfort to disturbing pain during exercise. If the pain that is felt does not decrease, it can also affect the

condition of the athlete himself, pain like this can affect the athlete's psychology. The athletes will feel anxious because of the back pain they experience, so that it will affect the pattern of fulfilling the training target (Jane et al., 2009). The training process that athletes perform has a profound effect on the human body, especially the musculoskeletal system. Hormonal changes will shape the muscles in terms of physical conditions, shifting the center of gravity causes stiffness of the spinal muscles, namely the latissimus dorzi and trapezius, especially the lumbar area, and anterior tilt of the pelvis. In addition, vascular changes can lead to impaired metabolic supply in the low back. The most common musculoskeletal complaint in athletes is pain, especially in the latissimus dorsi and trapezius muscles or the waist area and pelvic pain. Masseur can analyze back pain through anamnesis, clinical examination, provocative test maneuvers (Casagrande et al., 2015). The pain felt by athletes is the physiology of athletes experienced by most athletes, especially those who train continuously. Back pain is caused, among other things, by pressure on the back muscles, weak abdominal muscles, relaxation of the ligaments (bands of connective tissue that connect bones or support internal organs) and hip joints, additional weight, hormones and body posture (Pravikasari & Analisa, 2014). Back pain in the latissimus dorsi and trapezius muscles can be reduced in the scale of pain with various treatments, one of which is giving massage efriction treatment.

The results of the study revealed that of the 32 back pain respondents in athletes who had back pain after back massage had an average pain of 2.18. This shows that the back massage given to athletes makes them feel comfortable so that athletes experience a decrease in pain, so the hope is that it will no longer interfere with the training program. Athletes will usually feel pain and aches in the back area due to the high uncontrolled training load. An exercise program that is too long in the training center will especially cause boredom and will bring up complaints of back pain that is experienced more often, the intensity of pain is also increasing and even interferes with the activities of carrying out the training program, because of this discomfort athletes need massage to reduce the back pain they experience. The effraction massage treatment is given a focus on the latissimus dorsi and trapesiuz muscles. Effriction massage techniques in all areas are carried out using techniques with deep muscle pressure, a combination of massage between pressing, rotating, rubbing and also rubbing must be done slowly and under control. This will not interfere (Berry et al., 2017). This suggests that back efficiency massage can be an alternative to reducing back pain in addition to other methods such as muscle elasticity exercises (Murtaqib, 2013).

The exercises carried out are to train the flexibility of the supporting muscles related to the pelvic muscles, waist and back muscles with several flexibility training programs. Exercises performed to increase the target of muscle elasticity are more optimal by statically stretching the muscles. Correct massage can reduce the perception of pain and help reduce muscle tension. Action back massage with slow strokes (slow-stroke back massage, SSBM). The technique for performing SSBM is done by gently and rhythmically stroking the client's skin, at a speed of 60 strokes per minute. This technique lasts for 20 minutes (Widyastuti, 2005).

Mobility of the sacroiliac, sacrococcygeal and pubic joints as a center of support in activities and causes discomfort in the lower back, especially during prolonged exercise which results in pain in these ligaments. One of the main effects of massage is to reduce pain in the pelvic region, and in some cases "sciatica" which is often associated with pelvic muscle tension. In addition, the effect of massage on the parasympathetic nervous system is that it can stimulate the body's natural production of endorphins where this hormone is a pain reliever hormone that can reduce back pain experienced by athletes(J & S., 2018). The study also showed that there were 8 respondents who had the same pre-test and post-test massage pain on the back of the latissimus dorsi and trapezius muscles. This was due to several factors that affected pain, such as age, fatigue and previous safety, where in this study the ages, occupations and parity of the respondents were different. - different. This is in accordance with the theory which states that factors that influence pain include age, gender, culture, meaning of pain, anxiety attention, fatigue, previous experiences, coping styles and social or family support (Archard, 2007). The results of this study indicate that back effraction massage is very good for athletes who experience back pain. So that athletes feel more comfortable with their bodies.

CONCLUSION

The conclusion of this study is that there is an effect of massage efficiency on the latissimus dorsi and trapezius muscles on back pain and movement disorders. After being given treatment, exercises are given to maintain elasticity with static exercises with several movements aimed at the supporting muscles of the pelvis, waist and in the sciatica area.

Conflict of Interest

This research was conducted with various procedures, namely with consent sheets for selected samples to be given treatment in the form of effect massage and static exercises, so that this research did not violate the researcher's code of ethics.

Acknowledgment

Thank you to the state university of Semarang for the support in this research and this scientific work has never been published anywhere.

REFERENCES

Ambardini, B. S. N. D. R. L. (2016). Tingkat Pengetahuan Atlet Tentang Cedera Ankle Dan. *Jurnal Medikora*, *15*(1), 23–38.

Berry, H. P., Covington, C. E., Dahl, L. J., Katz, A. J., & Miaskowski, C. (2017). Pain current Understanding Of Assesment,Management,And Treatment. In *Biochemical Pharmacology* (Vol. 133, Issue 703). https://doi.org/10.1016/s0006-2952(17)30206-x

Doeven, S. H., Brink, M. S., Kosse, S. J., & Lemmink, K. a. P. M. (2018). Postmatch recovery of physical performance and biochemical markers in team ball sports: A systematic review. *BMJ Open Sport and Exercise Medicine*, *4*(1), 1–10. https://doi.org/10.1136/bmjsem-2017-000264

Dong, J. G. (2016). The role of heart rate variability in sports physiology (Review). *Experimental and Therapeutic Medicine*, *11*(5), 1531–1536. https://doi.org/10.3892/etm.2016.3104

Dupuy, O., Douzi, W., Theurot, D., Bosquet, L., & Dugué, B. (2018). An evidence-based approach for choosing post-exercise recovery techniques to reduce markers of muscle damage, Soreness, fatigue, and inflammation: A systematic review with meta-analysis. *Frontiers in Physiology*, *9*(APR), 1–15. https://doi.org/10.3389/fphys.2018.00403

J, C. M. Q., & S., van R. (2018). The International Association for the Study of Pain definition of pain: as valid in 2018 as in 1979, but in need of regularly updated footnotes. *Pain Reports*, *3*, e643. http://www.ncbi.nlm.nih.gov/pubmed/29756089

Jane, S. W., Wilkie, D. J., Gallucci, B. B., Beaton, R. D., & Huang, H. Y. (2009). Effects of a Full-Body Massage on Pain Intensity, Anxiety, and Physiological Relaxation in Taiwanese Patients withMetastatic Bone Pain: A Pilot Study. *Journal of Pain and Symptom Management*, *37*(4), 754–763. https://doi.org/10.1016/j.jpainsymman.2008.04.021

Mahfud, A.-, Raharjo, S., & Surendra, S. (2018). Pengaruh Exercise Therapy Menggunakan Provoking Ankle Strategy Dan Coordination Therapy Terhadap Tingkat Kelincahan Pemain Futsal Di Kota Malang Pasca Cedera Sprain Ankle. *JP.JOK (Jurnal Pendidikan Jasmani, Olahraga Dan Kesehatan)*, *2*(1), 1–12. https://doi.org/10.33503/jpjok.v2i1.183

Murtaqib. (2013). Pengaruh Latihan range of Motion (ROM) Aktif terhadap Perubahan Rentang Gerak Sendi pada Penderita Stroke di Kecamatan Tanggul Kabupaten Jember. *Ikesma*, *9*(2), 106–115.

Petrofsky, J., Berk, L., Bains, G., Khowailed, I. A., Lee, H., & Laymon, M. (2017). The Efficacy of Sustained Heat Treatment on Delayed-Onset Muscle Soreness. *Clinical Journal of Sport Medicine*, *27*(4), 329–337. https://doi.org/10.1097/JSM.0000000000000375

Walters, E. T., & De C Williams, A. C. (2019). Evolution of mechanisms and behaviour important for pain. *Philosophical Transactions of the Royal Society B: Biological Sciences*, *374*(1785). https://doi.org/10.1098/rstb.2019.0275