

# The Effect of Massage Therapy Method, Therapy Duration and Injuries on the Reduction of Pain in Knee Injuries

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## Abstract

The aim of the study was to explain the effect of effriction and frirage massage therapy, with a therapy duration of 10 minutes and 15 minutes in helping to reduce movement pain around the injured joint, the injured joint was the ACL ligament which was injured for 1 month and 2 months but pain in the surrounding muscles. ACL at the time of massage therapy was still felt by injured patients. This study was an experiment by providing 2 types of therapy, namely effriction and frirage therapy. Each therapy is a combination of two massage method to get maximum results in reducing pain during flexion and extension of the thigh muscles. With a factorial design with a sample size of 64 people with the criteria to be the sample, namely purposive sampling with injury for 1 month and 2 months. Physical assessment test instruments for pain with an analog visual scale are used to map changes and decreases in pain before treatment and after therapy and changes in range of motion in the knee to support the healing process assisted by these therapeutic method during the effriction massage therapy intervention. Subjective reporting on the level and function of pain is also documented. The results of the study for the homogeneity test mean that the data are homogeneous, and there is a significant difference between the 1 month and 2 month injuries. It was obtained that for massage therapy with an effriction treatment, the duration of the injury was 1 month with a duration of 10 minutes of therapy, which experienced a significant reduction in pain by 0.047 and for effriction therapy with a duration of 15 minutes, it had a significance of 0.049 so that for effriction therapy the duration of the injury was 1 month and for frirage therapy the duration of the injury was 1 month. months with 15 minutes of therapy in this group alone experienced a significant reduction. So that for 1 month there was no interaction between the independent variables and the dependent variable for the duration of 2 months there was an interaction because many factors influenced the reduction of pain and must be described in other studies. Effriction massage therapy is determined as a complementary therapy that is effective in helping to reduce pain relief in knee injuries, especially for 1 month injuries with a duration of 10 minutes and 15 minutes and frirage can significantly reduce pain in the injury duration of 1 month with a therapy duration of 15 minutes, and the type for this therapy there was a non-significant reduction in injury duration of 2 months.

**Keywords:** *Massage Therapy, Therapy Duration, Injuries, Reduction of Pain.*

## Introduction

Sports activities and strenuous physical exercise with high intensity and tiring can cause problems for athletes and sportsmen. One of the problems that occurs

is sports injuries, which result in not being able to train and do activities anymore<sup>1</sup>. Sports injuries are all kinds of injuries that arise, either during training or during a match or afterwards. An injury is a damage to the structure or function of the body due to force or physical pressure from outside or from within which causes pain resulting from an accident or sport. Based on the time the injury occurs, it can be classified into two, namely traumatic injury and overuse injuries. Traumatic injury is a serious injury that just happened suddenly such as dislocation, fracture, sprain, strain and can break the tendon. Whereas

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overuse injuries are caused due to repetitive movements that are too fast and a lot of movement, this overuse injury is often experienced by athletes, starting from the existence of a slightly excessive force repeatedly for a long time<sup>2</sup>. Indicators of injury are marked by the body with signs of inflammation such as: 1) heat (increased body temperature), 2) dolor (pain), 3) rubor (red skin), 4) tumor (swelling), and 5) function leissa (can no longer be used due to tissue damage to muscles, tendons, ligaments, joints, and bones due to excessive movement activity or accidents).<sup>3</sup>

Various kinds of efforts are made to deal with injuries, for example, medical actions that involve medical SOPs, supported by drugs, in addition to medical actions there are also non-medical actions that use various therapeutic method taking into account the level of injury suffered by sports injury sufferers. The therapeutic method used in this study is massage therapy method. Massage is derived from the Arabic word “mash” which means “to press gently” or the Greek word “massien” which means “to massage” or “to knead”. Furthermore, massage is also known as massage science or lulut science. In providing massage treatment that aims to help the injury recovery process depends on the accuracy of handling the injury experienced. The factors that determine the accuracy of treatment are the type or method of therapy, the duration of treatment and the duration of the injury<sup>3</sup>. Massage not only knows the types, techniques and physiological benefits of massage that can be used to increase flexibility and performance but also massage is used for the process of muscle recovery and injury rehabilitation for sports injury sufferers. Therefore, it is necessary to strive for proper and fast handling so that sports injury sufferers can recover optimally so that sports injury sufferers can take part in every exercise or competition<sup>4</sup>.

There are only a few techniques used to provide massage treatment to injuries. In general the techniques used are efflurage, friction, petrissage, tapotement, vibration techniques with a treatment duration of more than 15 minutes to reduce post-exercise pain<sup>5</sup>. Whereas for injury recovery, the technique used is a combination of existing techniques, namely the Swedish massage technique on the grounds that when providing treatment at least 2 combined techniques, effriction and frirage techniques are selected with a duration of 10 minutes and 15 minutes on the grounds that they can provide time efficiency in treatment. and directly to the part directly related to the injury suffered.

The use of the effriction therapy method was chosen because this technique is a combination of efflurage and friction in the implementation of the treatment, there is massaging with the palm of the hand, there is a speed and massage pressure in the area of the quadriceps muscle and the surface hamstring muscles being treated. While the frirage therapy method is a combination of frikcion and efflurage, but the dominant treatment is pressing with the thumb and there is no excessive pressure or speed in massaging the surface of the treated area. The frirage therapy method is a combination of massage techniques or manipulations of friction and effleurage techniques which are carried out simultaneously in doing massage<sup>4</sup>. The hope of massage therapy which is carried out with the duration of treatment time so that sports injury sufferers do not return to the same injury in the near future<sup>6</sup>. owever, there are other factors that influence, namely the duration of the injury and the type of injury.

The duration of the injury and the duration of the injury affect the recovery process, because injuries that do not heal quickly are caused by mishandling due to unprofessional handling or therapy in the case of injuries. The intended professionals are those who understand the development of the massage world and are competent in handling injuries, so that the duration of the injury must be known so that the treatment is not wrong. With the acute period passed and not yet treated by the therapist based on field data that the researcher did for one year in the research clinic, the injury usually lasted about 1 month. Whereas in the range of 2 months and above, the injury has usually been treated but has not changed and even there has been mishandling. Another factor that follows is the type of injury, Injuries are the most frequent namely injury to the knee joint. Injury to the knee joint involves damage to the anterior cruciate ligament (ACL)<sup>6</sup>. The number of athletes who are injured is 150,000 each year from male and female athletes in basketball and football. It is related to the injury to athletes who go to the Multispecialty Sports Clinic from 19 sports. There were 12,681 sports injury sufferers who suffered leg and ankle injuries. Due to the athlete’s injury, the opportunity to participate in the championship is lost by 20% - 35%. Based on field data that the researchers conducted from January to December 2018 at the Sports Injury Massage Research Clinic, the total number of injuries was 1,506 from various injury variations. In one year there were 481 sports injury sufferers who suffered knee injuries, if the percentage of knee injuries in one year was 31, 93%.

The knee has the largest percentage of injuries, reaching 22.5% because it has multiple functions, namely as a driving and weight bearing, so that the possibility of injury is even greater. Therefore, it can be concluded that the most common injuries suffered by sports injury sufferers are knee injuries<sup>7</sup>. If someone has a knee injury, they will experience great pain. According to the International Association for the Study of Pain (IASP) pain is an unpleasant sensory and emotional experience due to damage or threat of damage to tissues Pain is the most common patient complaint and anxiety due to pain will serve as a warning to clinicians. Pain is a perceptual and sensual phenomenon and it is important for the body to be protected from injury so that humans can survive. Pain is very disturbing and troublesome for more people than any disease<sup>8</sup>.

The high prevalence of pain proves that pain is still neglected. Management of lax pain has adverse consequences. This can cause pain in the muscles and interfere with movement activities, because the pain that is focused on in this discussion is pain due to sports injuries. Pain can also cause various psychosocial effects including depression, anxiety, delirium, post-traumatic stress disorder, and disorientation. Sports injury sufferers will feel pain need adequate therapy to relieve pain, because the pain not handled properly can aggravate the physical and mental condition of the sports injury sufferer. Any pain that arises will make the body respond to the painful stimuli, which in turn will affect the activity and organ systems of the sufferer. One of the ways to treat pain is massage therapy. Pain in the knee that often occurs includes injury to the anterior cruciate ligament (ACL) which is the most common knee injury in sports (Arovah, 2010)<sup>8</sup>. Knee ligament injuries can cause sudden pain, swelling of the knee, a crackling sound from the injured knee, loose knee joints, and pain every time you lift weights. The recovery period depends on the severity of the injury and the treatment given. The characteristics of knee injuries are athletes feeling pain in the injured area, edema of the muscles or ligaments around the joints and decreased joint movement activity Research data carried out for one year in 2018 can be concluded that the subjects of this study were sports injury sufferers who had chronic knee injuries with injury duration of 1 month and 2 months who were given a combination of effriction and frirage massage therapy with a duration of time. 10 minutes and 15 minutes. As an indicator of using pain reduction in knee injuries<sup>9</sup>.

Based on the formulation of the problem that has

been described above, the researcher will analyze several objectives as follows:

1. The effect of massage therapy method effriction duration of 10 minutes with injury duration of 1 month on pain reduction?
2. The effect of massage effriction therapy method with duration of 15 minutes with 1 month on pain reduction?Effect of massage therapy method effriction duration of 10 minutes with injury of 2 months on pain reduction?
3. The effect of massage therapy method effriction duration of 15 minutes with injury for 2 months on pain reduction?
4. The effect of frirage massage therapy method of duration of 10 minutes of injury to 1 month on pain reduction?
5. The effect of frirage massage therapy method with duration of 15 minutes of injury to 1 month on pain reduction?
6. The effect of the frirage massage therapy method, the duration of 10 minutes, the injury to 2 months, on the reduction of pain?
7. The effect of frirage massage therapy method with duration of 15 minutes injury 2 months on pain reduction?
8. How does the interaction between the 10 minutes effriction massage therapy method and the Frirage massage therapy for 10 injuries 1 month reduce pain?
9. How does the interaction of 15 minutes effriction massage therapy method with frirage massage therapy 15 for 1 month injury to reduce pain?
10. How does the interaction between the 10 minutes effriction massage therapy method and the Frirage massage therapy 10 minutes injury 2 months to reduce pain?
11. How does the interaction of 15 minutes effriction massage therapy method with frirage massage therapy 15 for 2 months injury to decrease pain?

## **Method**

This study consists of three variables, namely the independent variable, the attribute variable and the dependent variable. There are 2 manipulated independent variables, namely: 1) effriction massage therapy

method, 2) frirage massage therapy, attribute variables are therapy duration and injury duration consisting of: 1) duration of therapy with 10 minutes and 15 minutes 2) duration of injury 1 month and 2 months. While the dependent variable is a decrease in pain. The relationship between independent and dependent variables in quasi-experimental research like this is called experimental design with factorials, namely the research structure that investigates three kinds of independent variables, whether each of these variables affects the dependent variable. Effriction massage therapy method and frirage massage therapy method, therapy duration of 10 and 15 minutes, and duration of injury 1 and 2 months. Meanwhile, the dependent variable is a decrease in pain. This study used a quasi-experimental method with a factorial design. Therefore, the design in this study is a factorial experimental design in block design because the experimental units in the relative block are homogeneous and the many experimental units in a block are the same as the many treatments being studied.

The population is limited as a number of residents or individuals who at least have one characteristic in common. In quantitative research, population is defined as an area of generalization consisting of objects or subjects that have certain quantities and characteristics determined by the researcher with the aim of obtaining and then drawing conclusions<sup>9</sup>. The population in this study amounted to 200. Of these who have the same characteristics, the characteristics of the population are as follows: 1) chronic knee injury, 2) male gender, 3) knee injury 1 and 2 months, 4) causes of injury from sports, and 5) age range 18-30 years. The sample is part of the number and characteristics of the population. The sampling technique uses propovise screening. This study is a sample study that only examines a part of the population. The sample used in this study were injury patients who had chronic knee injuries and those who were accompanied by pain total 40.

There are three variables in this study, namely the independent variable that is manipulated, the attribute variable and the dependent variable. To avoid differences in the interpretation of terms on the variables contained in this study, it is necessary to convey or put forward the operational definition as follows:

1. There are 2 manipulated independent variables, namely: 1) effriction massage therapy is a massage method with a combination of efflurage and friction manipulation that uses the entire palm and fingers, 2)

frirage massage therapy is a combination of massage method with friction and efflurage manipulation using the thumb only.

2. The attribute variables were duration of therapy and duration of injury which consisted of: 1) duration of therapy with 10 minutes and 15 minutes 2) duration of injury 1 month and 2 months.
3. The dependent variable is decreased pain

Research instruments are tools or facilities used by researchers to collect data so that research implementation is easier and research results are better, in the sense that research is more careful, research is more complete and research is more systematic so that data processing is more accurate<sup>10</sup>. The instrument used was the VAS (visual analog scale) to measure pain. The data collected in this study were data on the results of the effriction massage therapy method with a therapy duration of 10 and 15 minutes and an injury duration of 1 and 2 months, the frirage massage therapy method with a therapy duration of 10 and 15 minutes and an injury duration of 1 and 2 months on the measurement of pain in the injury. knee that can be generalized or applied to other samples in the population studied, it is necessary to talk about various things that can affect the results of yaotu's research: in the presence of: 1) internal validity and 2) external validity<sup>11</sup>. internal validity relating to the validity of the conclusions drawn about the cause and effect of the relationship between the independent and dependent variables. Meanwhile, external validity, which refers to the validity of the cause – effect relationship generalized to others, the setting, the validity to solve problems, and further action<sup>11</sup>.

**In this study, the following requirements were tested:** Normality test with Kolmogorov Smirnov. The data found were VAS measurement data, the Kolmogorov Smirnov normality test was performed ( $p > 0.05$ ) and the results were normally distributed data. Homogenitis Test, the data found were VAS measurement data on the quad dricep muscle and hamstring muscle. The homogeneity test was performed using the Levene test ( $p > 0.05$ ) and the results were homogeneous data variants. ANOVA test and LSD test, ANOVA test ( $p < 0.05$ ) to determine whether there is an effect of massage therapy treatment effriction, effleurage on reducing pain in knee injuries. After the research data was collected, the data was processed using the parametric ANOVA test at a significance level of 0.5%, through the SPSS program<sup>12</sup>.

Internal validity shows that the test differences on the dependent variable are the result of manipulation of each independent variable that is different in each group, while external validity is where the results can be generalized or applied to groups and environments that are not experimental treatment, in this study the validity of the design. internal, among others: 1) The effect of the physical condition of the sample who suffered an injury, namely not experiencing pain other than the injury suffered, 2) The effect of physical maturity, is to select a sample of the same gender from a similar age range, so that it is expected to have the same characteristics, in the sense that it has the same maturity, 3) The effect of time, the time of research is controlled in such a way as to avoid the existence of various forms of intervention that make injuries the higher the level of injury suffered by the sample, 4) The effect of natural conditions, is to adjust the serving time, 5) Slow Treatment for each group so that the conditions are at the same level, but the time is arranged in such a way that there is no significant difference, the treatment is carried out with the intervention of the type of massage, duration of injury and duration of therapy, 6) Effect of tests, control of the test by giving time the same breaks at the final data collection, no experimental treatment at the time of performing the test<sup>13</sup>.

The results of this experiment were generalized from the population, the sampling in this study was carried out purposively, carried out by considering that the subjects had gone through screening, with the level of injury being adjusted to the level of injury taken and the level of stress that was equal, so that it was considered to be of a similar level to be sampled in the experiment. this. Sampling is done by providing a pain test to determine the level of injury suffered. The pain test used is a visual analog scale or a numeric rating scale to determine the group in Control of Ecological Validity<sup>14</sup>.

#### **The ecological validity in this study are:**

1. All treatments given must be predicted so that the implementation of this experiment can be generalized and used in another time.
2. The main relation, interaction relation and combination relation which is manipulated with the treatment effect can still be used at the same time, so that the treatment in this experiment. Sensitivity to the initial test is controlled in such a way as not to treat the initial test.
3. Trial of the implementation of teaching method and assessment of instruments carefully, so that the implementation of research for each group and the results of the assessment can be controlled properly.
4. Sensitivity to the test is controlled by not giving treatment to the implementation of the test.
5. Control of the dependent variable measurement, by controlling the test
6. Psychological influence in the implementation of experimental treatment

## **Result and Discussion**

**Data Description:** The data that will be described by the researcher are data obtained from the field in the form of injury duration, therapy duration and pain reduction. The sample in this study amounted to 64 people who were divided into 8 groups. Data described in the form of injury duration were obtained from interviews with patients, meaning that the duration of the injury was from the time of incident to the arrival of clinical therapy for sports injury massage. Furthermore, decreased pain perception experienced by patients during therapy and post therapy.<sup>15</sup>

**Duration of Therapy and Injury:** The duration of injury experienced by athletes who suffered an injury in this study was grouped into 2 groups, in general, the duration of the injury was 1 month and the duration of the injury was 2 months. The therapy used was Effriction massage therapy, the duration of therapy was 10 minutes and 15 minutes of treatment and the sample requirements were injury for 1 month and injury for 2 months, with a sample of 64 people who were selected according to the verification sheet. From the raw data obtained, it can be described as follows:

**Table 1: Descriptive Statistics based on mean and standard deviation**

Descriptive Statistics					
Dependent Variable: PN					
J_T	Durasicedera	Durasi Terapi	Mean	Std. Deviation	N
Effriction	1month	10 minutes	6,0000	1,41421	8
		15minutes	4,8750	,35355	8
		Total	5,4375	1,15289	16
	2month	10 minutes	2,1250	,99103	8
		15minutes	3,1250	1,12599	8
		Total	2,6250	1,14746	16
	Total	10 minutes	4,0625	2,32289	16
		15minutes	4,0000	1,21106	16
		Total	4,0313	1,82252	32
Frirage	1month	10 minutes	5,2500	1,28174	8
		15minutes	4,1250	,83452	8
		Total	4,6875	1,19548	16
	2month	10 minutes	5,7500	1,16496	8
		15minutes	4,6250	1,06066	8
		Total	5,1875	1,22304	16
	Total	10 minutes	5,5000	1,21106	16
		15minutes	4,3750	,95743	16
		Total	4,9375	1,21649	32
Total	1month	10 minutes	5,6250	1,36015	16
		15minutes	4,5000	,73030	16
		Total	5,0625	1,21649	32
	2month	10 minutes	3,9375	2,14379	16
		15minutes	3,8750	1,31022	16
		Total	3,9063	1,74798	32
	Total	10 minutes	4,7813	1,96312	32
		15minutes	4,1875	1,09065	32
		Total	4,4844	1,60349	64

The calculation of the normality test is carried out with the aim of knowing whether the research data is normally distributed or not. The results of data normality calculations obtained with a value of  $p > 0.05$ , the data is normally distributed. All test indicators are sig values  $0.282 \geq 5\%$ , so  $H_0$  is accepted, thus the research data is homogeneous.

**Effect of Effriction Therapy with 10 Minutes of Therapy Duration with 1 Month of Injury on Pain:** Data analysis was performed to examine the effect of

type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is effriction therapy with a therapy duration of 10 minutes and an injury duration of 1 month with a selected sample of 8 people. Statistical analysis shows that the t test results above show that the significance is 0.047. The test results are known to be smaller than 0.05 ( $0.047 < 0.05$ ) so that the hypothesis is accepted, meaning that there is a significant effect of massage effriction therapy with a

therapy duration of 10 minutes and an injury duration of 1 month on pain perception in knee injuries.

**Effect of Effriction Therapy with a Therapy Duration of 15 Minutes and an Injury Duration of 1 Month on Pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is effriction therapy with a therapy duration of 15 minutes and an injury duration of 1 month with a selected sample of 8 people. Statistical analysis shows that the t test results above show that the significance is 0.049. The test results are known to be smaller than 0.05 ( $0.047 < 0.05$ ) so that the hypothesis is accepted, meaning that there is a significant effect of massage effriction therapy with a therapy duration of 15 minutes and an injury duration of 1 month on pain perception in knee injuries.

**Effect of Effriction Therapy with a Therapy Duration of 10 Minutes and an Injury Duration of 2 Months on Pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is effriction therapy with a therapy duration of 10 minutes and an injury duration of 2 months with a selected sample of 8 people, statistical analysis obtained 0.056. The test result is known to be greater than 0.05 ( $0.056 > 0.05$ ) so that the hypothesis is rejected, meaning that there is no significant effect of massage effriction therapy, 10 minutes duration and 2 months of injury duration on reducing pain in knee injuries.

**Effect of Effriction Therapy with a duration of 15 minutes of therapy with an injury duration of 2 months on pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is effriction therapy with a therapy duration of 15 minutes and an injury duration of 2 months with a selected sample of 8 people. Statistical analysis shows that the t test results above show that the significance is 0.063. The test results are known to be greater than 0.05 ( $0.063 > 0.05$ ) so that the hypothesis is rejected, meaning that there is no significant effect of massage effriction therapy, 15 minutes duration and 2 months of injury duration on reducing pain in knee injuries.

**Effect of frirage therapy with a therapy duration of 10 minutes and an injury duration of 1 month on pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is Frirage therapy with a therapy duration of 10 minutes and an injury duration of 1 month with a selected sample of 8 people. Statistical analysis showed that the t test results above showed that the significance was obtained 0.061. The test result is known to be greater than 0.061 ( $0.061 > 0.05$ ) so that the hypothesis is rejected, meaning that there is no significant effect of frirage massage therapy, 10 minutes duration and 1 month injury duration on reducing pain in knee injuries.

**Effect of frirage therapy with a therapy duration of 15 minutes with an injury duration of 1 month on pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is Frirage therapy with a therapy duration of 10 minutes and an injury duration of 1 month with a selected sample of 8 people. Statistical analysis shows that the t test results above show that the significance is 0.050. The test result is known to be greater than 0.050 ( $0.061 > 0.05$ ) so that the hypothesis is accepted, meaning that there is a significant effect of frirage massage therapy, 15 minutes duration and 1 month injury duration on reducing pain in knee injuries.

**Effect of frirage therapy with a therapy duration of 10 minutes with a duration of injury of 2 months on pain:** Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is Frirage therapy with a therapy duration of 10 minutes and an injury duration of 2 months with a selected sample of 8 people. Statistical analysis showed that the t test results above showed that the significance

was obtained 0.063. The test results are known to be greater than 0.063 ( $0.063 > 0.05$ ) so that the hypothesis is rejected, meaning that there is no significant effect of frirage massage therapy, 10 minutes duration and 2 months of injury duration on reducing pain in knee injuries.

**Effect of frirage therapy with a therapy duration of 15 minutes with a duration of injury of 2 months on pain:**

Data analysis was performed to examine the effect of type of therapy, duration of therapy and duration of injury on reduction of pain levels in patients with knee injuries. In this section, the type of therapy used is Frirage therapy with a therapy duration of 15 minutes and an injury duration of 2 months with a selected sample of 8 people. Statistical analysis showed that the results of the t test above showed that the significance was obtained 0.063. The test results are known to be greater than 0.063 ( $0.063 > 0.05$ ) so that the hypothesis is rejected, meaning that there is no significant effect of frirage massage therapy, 15 minutes of therapy duration and 2 months of injury duration on reducing pain in knee injuries. Significance values that appear are important values and it can be concluded that the effect of all independent variables on the type of massage, duration of therapy and duration of injury on pain reduction. The duration of therapy simultaneously affects the dependent variable (pain reduction). If Significance (Sig.)  $< 0.05$  (Alfa) = Significant. Based on the table. The significance (Sig.) Of the Corrected Model shows 0,000 means that the model is valid. The value of changes in the dependent variable without the need to be influenced by the existence of an independent variable, meaning that without the influence of the independent variable, the dependent variable can change in value. If Significance (Sig.)  $< 0.05$  (Alfa) = Significant. Based on the Significance Table (Sig.) Of the Intercept, it shows 0.000, which means that the Intercept is significant. The error value of the model, the smaller the model the better. The value of multiple determination of all independent variables with the dependent. R Squared shows 0.553 which is close to 1, meaning strong influence.

### Conclusion

The results of the study for the homogeneity test mean that the data are homogeneous, and there is a significant difference between 1 month and 2 months of injury. It was obtained that for massage therapy with an effriction treatment, the duration of the injury was 1 month with a duration of 10 minutes of therapy,

which experienced a significant reduction in pain by 0.047 and for effriction therapy with a duration of 15 minutes, it had a significance of 0.049 so that for effriction therapy the duration of the injury was 1 month and for frirage therapy the duration of the injury was 1 month. months with 15 minutes of therapy in this group alone experienced a significant reduction. So that for 1 month there was no interaction between the independent variables and the dependent variable for the duration of 2 months there was an interaction because many factors influenced the reduction of pain and must be described in other studies. Effriction massage therapy is determined as a complementary therapy that is effective in helping to reduce pain relief in knee injuries, especially for 1 month injuries with a duration of 10 minutes and 15 minutes and frirage can significantly reduce pain in the injury duration of 1 month with a therapy duration of 15 minutes, and the type for this therapy there was a non-significant reduction in injury duration of 2 months.

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