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JOGGING AND PNF STRETCHING AGAINST CHANGES IN FLEXIBILITY

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ABSTRACT

The problem in this study was to test and find out flexibility in students before and after carrying out the Dynamic stretching and PNF tests, so this study aimed to determine the effect of Dynamic stretching and PNF exercises on flexibility in students. This research was an experimental data analysis technique from Dynamic stretching exercises and PNF. The research instrument used the Sit and Reach tool. The samples in the study were from Tanjungpura University PKO students, class of 2022. The research instrument used was the Sit and Reached tool to find out flexibility which will be tested. After doing Dynamic stretching and PNF, this study concluded that Dynamic stretching and PNF exercises affected increasing flexibility before and after carrying out the stretching test, known as the Sit and Reach. From the data obtained, it was proven that after the trial test carried out the Dynamic stretching and PNF, there was an increase in flexibility values before and after the test was carried out.

Keywords: Flexibility; PNF; Jogging

Introduction

This flexibility also provides benefits for preventing injury and can improve the shape of the body's posture (Pulcheria & Muliarta, 2016). Stretching is a process of elongating muscles and joints, which is done to give the body readiness to carry out activities and make our bodies relax after doing exercises (Nohantiya, 2017). The effect of stretching for warming up is more effective in increasing running speed than stretching warm-up (Sulikan, 2018), so this stretching activity is carried out either dynamically or actively. The results will affect all body muscles as an effort to improve work posture and minimize taking breaks (Nooryana et al., 2020). It was concluded that stretching could prevent injury because stretching has the effect of making the body relax after doing exercise.

Good training should still consider flexibility. Research stated that exercise with the flexibility training method using one's weight is better than flexibility training using dynamic motion (Habibie et al., 2019). Stretching using the PNF will directly provide a stimulus following the purpose of the intended joint by putting pressure on the muscle groups, with more pressure that will stimulate the muscles that receive more stretching loads (Wahyuddin & Arief, 2008).

Research explains that back muscle flexibility exercises using PNF and pilates exercises in women have better PNF results (Murti, 2016), Furthermore, the method used with PNF could increase postoperative flexibility in postoperative physiotherapy treatment (Permana et al., 2021). Besides that, it turns out that therapeutic massage can be used to reduce pain as a result of injury, as well as provide stretching treatment; more effective is the

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use of massage and stretching with PNG, which is much more effective and faster in restoring joint space, reducing pain and improving movement conditions. Injured hip (Hernowo & Ambardini, 2019). It was concluded that health is a process of change in a person related to the goal of a healthy life, and stretching can reduce complaints of injury.

Other research states that PNF can increase the motion of the knee joint range of m in patients with osteoarthritis of the knee (Nurhayati, 2019). Adding the PNF technique to body intervention is more effective than the changes before stretching (Sudaryanto & Islam, 2018). PNF has also been proven to increase the sense of motion and space for joint motion, and muscle elongation will occur. It reduces pain to shortened muscle contractions (Devi N, 2019). It was concluded that the addition of PNF stretching was more effective than the change before stretching. The purpose of giving stretching was to lengthen the muscles.

Previous studies provide the support that stretching by PNF has more advantages. This study provides a field evidence review of the effectiveness of PNF and dynamic stretching when compared between the two. In general, in sports learning at schools, recreational sports, and sports achievements, the PNF is already familiar, but people generally understand more about dynamic sports that are carried out independently. This research tries to prove how effective it is if people try the same when they are hot (have run 2 kilometers) and then stretch with two different types of stretching.

Method

This study provides treatment in several stages with an experimental design. The treatment given was jogging both stretching (PNF). The research sample was ten students of PKO Tanjungpura University class of 2022. The data this research was carried out at the football field of SMAN 8 Pontianak; the researchers conducted an initial test (Pre-test) Sit and Reach test, then students continued to jog 2000 meters by circling the athletic track 5 times, after that they were given Dynamic Stretching and PNF treatment. (Post-test) the final test, then, students measure Sit and Reach again to find out changes in flexibility when at the beginning of the test before doing (Treatment) and after doing jogging and (Treatment**)** stretching PNF.

Discussion

Table 1. PNF data collection results

No	Nama	Pre test	Post test
1.	Kay	19,3	20,5
2.	Dim	9,3	17,4
3.	Rir	7,6	15,1
4.	Ron	6,3	14,1
5.	Soh	16,17	17,8
6.	Ar	6,5	9,1
7.	Bay	8,0	14,8
8.	Riz	4,2	5,1
9.	Firm	22,3	23,3
10.	Dar	7,7	7,9

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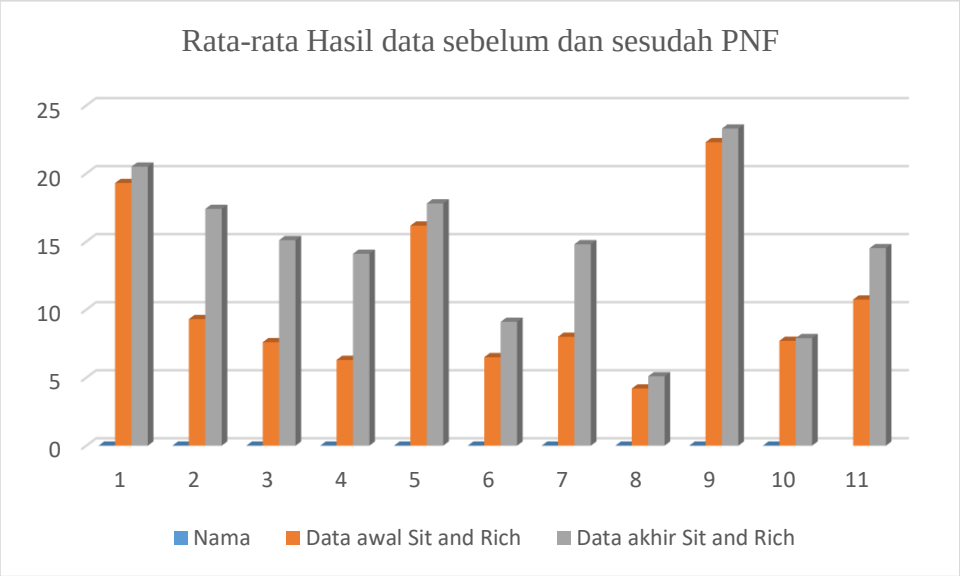

Figure 1. Average results before and after PNF stretching treatment

Based on the results of table 1 and graph 1, there is a comparison of flexibility before and after jogging and treatment. There is a number and average before jogging and treatment of 10.74 cm and after jogging and treatment of 14.51 cm. The previous minimum value was 4 cm, and the maximum before carrying out the test was 22 cm. After jogging and treatment, the value increased, the minimum value increased to 5 cm, and the maximum value increased to 23 cm, so each minimum and maximum value increased by 1 cm.

Table 2. Normality Test

	Shapriro-wilk		
	Statistic	**df**	**sig**
Pre-test	.832	10	.035
Post-test	.966	10	.856

Table 2 above shows that the calculated significance values for both before and after treatment are above 0.05 which indicates that the data is normal.

Table 3. Homogeneity Test

		Levene Statistic	**df1**	**df2**	**Sig.**
hasil sit and reach	Based on Mean	3.462	1	1	.079
	Based on Median	.921	1	1	.350
	Based on Median and with adjusted df	.921	1	9.097	.362
	Based on trimmend mean	1.909	1	18	.184

Likewise with the results of the homogeneity analysis, based on the calculated significance value, the sig value is obtained. greater than 0.05 which states homogeneous data.

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Table 4. Table T test Paired Samples Test

T	-3.592
Df	9
Sig.(2-tailed)	.006

Table 4 provides information with a significance value of 0.006. It can be concluded that there is a difference between the results of flexibility before and after jogging and treatment. Thus the flexibility after jogging and treatment is greater than the flexibility before jogging and treatment.

Based on the results of the research and discussion, it was concluded that there was a significant. Based on the results of this study that flexibility before and after jogging 2000 meters and given (Treatment) PNF stretching there is a significant difference between the T-test and the average results of the previous test. The results showed increased flexibility after being treated for 2000 meters of jogging and PNF stretching. Because jogging exercises clearly have an effect and can improve fitness, as long as the exercises are in accordance with the body's conditions. Heart rate (AKMAN et al., 2013), and other jogging are used to lose weight (Muharramah et al., 2018). Jogging can increase Hb at a dose of 3 times a week for 18 times (Sepriadi et al., 2020). In addition, jogging is intended to warm up as a series of stretching (Abdul Latif Rusdi, 2018).

The measuring tool for stick flexibility is the Sit and Reach test. The subject shows that flexibility can increase significantly after being given the SAS or PNF training treatment (Sari et al., 2016). PNF is a form of flexibility training. Its implementation is by applying pressure with the help of people when the joints contract and relax (Apian, 2019), PNF training can be applied to athletes who are trained to gain the advantage of increasing flexibility and preventing the risk of injury (Dewanti, 2020), Stretching exercise is an action between times to help relax muscles and improve blood circulation so that it has a recovery effect (Priyoto & W, 2019). It turns out that stretching exercises can reduce complaints of muscle tension that is being injured (Ariska, 2018),, and PNF causes increased pain, nerve mobility, and balance beyond or close to clinical relation (Jeanbart & Tanner-Bräm, 2021). It was concluded that the PNF relaxation contract is one of the ways to increase flexibility when exercising athletes.

This stretching is also widely performed on dynamically and statically swimming athletes to increase joint motion flexibility (Susanto, 2010), Further research shows that stretching is related to vertical jump performance and 60-meter running(Apriantono et al., 2020). It was concluded that short leg exercise intervention and posterior tibial strengthening. Difference between flexibility before being given treatment and jogging 2000m and after being given treatment and also jogging 2000m. and jogging by 14.51cm. It can be concluded from the results that we take that doing treatment and jogging can increase flexibility in the body.

This stretching is also widely practiced in swimming athletes, both dynamically and statically in an effort to increase joint space (Susanto, 2010), to improve dynamic balance to minimize the risk of injury there are short leg training interventions and posterior tibialis strengthening (Haq & Imania, 2021), further research evidence states that stretching has a relationship with vertical jump performance and 60 meter running (Apriantono et al., 2020). It is concluded that to improve dynamic balance to prevent injury there is an intervention of short leg training and posterior tibialis strengthening.

Conclusion

Based on the results of the research and discussion, it was concluded that there was a significant difference between flexibility before being given treatment and jogging 2000m and after being given treatment and also jogging 2000m. and jogging by 14.51cm, it can be concluded from the results that we take that doing treatment and jogging can increase flexibility for the body.

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