

THE EFFECT OF TOTAL BODY RESISTANCE EXERCISE (TRX) TO THE STRENGTH AND POWER INCREASING

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Abstract

This research revealed the effect of static weight exercise, dynamic weight exercise, and Total Body Resistance Exercise (TRX) to the increasing of strength, power, and recovery. The research purposes are 1) testing the effectiveness of static weight exercise to increase strength, power, and recovery, 2) testing the effectiveness of dynamic weight exercise to increase strength, power, and recovery, 3) testing the effectiveness of the total body resistance exercise (TRX) exercise to increase strength, power, and recovery, and 4) obtain empirical information on how much the difference between static weight exercise, dynamic weight exercise and total body resistance exercise (TRX) to increase strength, power, and recovery with a sample size of 30 students. This research design was used a matching-only design, and data analysis used Manova. The data collection process was used strength testing used leg dynamometer, power testing used force plate, and recovery testing used polar H.10 for measuring the pulse at the pretest and posttest. Furthermore, the research data were analyzed using SPSS 23.0 series.

The results showed that (1) there is a significant effect of static weight exercise to the increasing of strength, power, and recovery, (2) there is a significant effect of dynamic weight exercise to the increasing of strength, power, and recovery, (3) there is a significant effect of total body resistance exercise (TRX) on increasing strength, power, and recovery, and (4) there is a significant difference between static weight exercise, dynamic weight exercise, total body resistance exercise (TRX) to the increasing of strength, power, and recovery.

Keywords: static weight exercise, dynamicweight exercise, total body resistance exercise, strength, power, and recovery

I. INTRODUCTION

1. Background

The modernization erawas limited a person from physical activity, because daily activities were carried out more easily and practically. Challenges in the modernization era to do physical activity really need attention, including threats to the quality of life which are related to health. Quality of life is physical fitness where the body condition has an important role in daily activities. Baro, Singht, Thapa and Sonowal (2016) state that physical fitness is a condition for a person to do daily activities or light exercise without experiencing significant fatigue. Therefore, it is necessary to develop and maintain one's physical fitness for the success of the implementation of this task, there is a need for conformity between the requirements that must be met, namely anatomical and physiological in nature to the types and intensity of physical tasks that must be carried out.

Waloya, Rimbawan and Andarwulan (2013) state thatinactivity lifestyle triggers degenerative diseases that affect the number of illnesses and deaths, is cardiovascular. Pramono and Sulchan (2014) suggest that low physical activity is related to technological advances, this was indicated by reducing physical activity. Widiyanti and Tafal (2014) states that physical activity is a body movement produced by skeletal muscles that expends energy. Thus physical activity consists of activities during work, sleep and at leisure (normal and informal activities). Everyone does physical activity to survive. The amount of variation from one individual to another depends on the individual's lifestyle and other factors. One way to overcome this is through sports coaching.

Related to this, it is very necessary to have a professional sports coaching system that involved science and technology so that the coaching process can be carried out systematically, directed and measured which ultimately leads to the achievements stated in the Law of the Republic of Indonesia Number 3 of 2015 on the National Sports System. As stated in the Government Regulation of the Republic of Indonesia Number 16 of 2007 Article 1 concerning sports management, that coaching is carried out by a sports coach, namely a person who has interests and knowledge, leadership, managerial abilities, and/or funding dedicated to the interests of sports coaching and development. In developing sports, a qualified physical condition is needed, this is in line with research conducted by Gregory Haff (2012), Jiří, et.al., (2010), Siercovich, PL (2005), Paton (2004), Kyrolainen, H. (2005), Knudson (2007), Kawamori N (2004), Declan, et al (2003), Cormie P (2011), in their research results explain that sports that require physical components strength and power are american football, volleyball, basketball, soccer, softball, rugby, sprint athletics, long jump, high jump, and rock climbing.

To examine the above problems, it is necessary to have rules and scientific studies which include physiology, biomechanics, psychology, tests and measurements, sports health, motion learning, nutrition, history and sociology are sub-disciplines of science to support training theory and methodology. Besides, sports achievement coaching is influenced by the fundamental factors in training.

The factors are physical preparation, technique, tactics, psychology, and theory which are interrelated in all training programs. Therefore, these factors need to be considered for sports players to improve their physical condition.

Elements of physical exercise including of cardiovascular endurance, strength endurance, muscle strength, velocity (speed), flexibility, stamina, power, and agility. Starting from the initial assessment, there are several phenomena in the form of the fact that static weight exercising, dynamic weight exercising, and Total Body Resistance Exercise (TRX) to the increasing of strength, power, and recovery, it is necessary to carry out scientific research and empirical proof.

2. Research purposes

The research purposes are 1) testing the effectiveness of static weight exercise to increase strength, power, and recovery, 2) testing the effectiveness of dynamic weight exercise to increase strength, power, and recovery, 3) testing the effectiveness of the total body resistance exercise (TRX) exercise to increase strength, power, and recovery, and 4) obtain empirical information on how much the difference between static weight exercise, dynamic weight exercise and total body resistance exercise (TRX) to increase strength, power, and recovery

AI. RESEARCH METHODOLOGY

1. Research methods

The research was used quasi-experimental methods. This research was used three sample groups, given the same treatment using a circuit with three posts including of static weight exercise used kinesiology weight exercise of tecnogym exercise without wires, dynamic weight exercise used kinesiology weight exercise of tecnogym exercise using a cable, and TRX Jump Squat. Each group was given a different ratio treatment, namely group 1 used the static weight exercise method, group 2 used the dynamic weight exercise method, and group 3 used the TRX exercise method.

2. Data collection technique

- 1) The first activity is the process of collecting data for the first time, namely the collection of male students of sports coaching education study program of FIOUNESA. Furthermore, the sample selection process is carried out using simple random sampling method.
- 2) The second activity that the researchers conducted a pretest with three measurement that strength testing used leg dynamometer, limbs power testing used Accu force plate, and recovery testing used the polar H.10 tests. Then done the process of ordinal pairing for placing a sample in each group.
- 3) The third activity is taking maximum repetitions including tecnogym kinesiology training to do full squats, leg press, leg extension, squat with then, and press jump, random multidirectional lunge, and lateral locomotion with random pull and press squat with jump, Plyo Lunges, and crossback/knee drive by always monitoring and measuring the pulse (exercise intensity).

3. Data analysis technique

- 1) Data description discusses the average, standard deviation, variance, maximum and minimum values, as well as the percentage increase in the strength and power test results of the three types of weight exercise given to each group, namely the total body resistance exercise (TRX) group and analyzed using descriptive statistical techniques. Then the test results will be recorded and calculated based on the group and type of weight exercise applied. Data descriptions use the assistance of the Statistical Product and Service Solution (SPSS) 23.0 series program.
- 2) Data Prerequisite Test
 - a. Distribution normality test is to test the normality of data distribution used the Kolmogorov-Smirnov method. To determine whether the distribution of data is normal or not is to compare the results of the significance of data calculations with a significance level of 5% or 0.05. If the significance level in the statistical test is greater than 0.05, then the data is declared to be normally distributed.
 - b. Homogeneity test is a test of homogeneity of variants to determine whether the collected data is homogeneous or not. In this research, the Levene's Test was used. If the Levene's statistical value is greater than 0.05, the data has a homogeneous variant.
- 3) Hypothesis Test
 - a. To determine the difference in the effect of treatment on the dependent variable before and after the treatment of each research group, the paired T test (t test) was used, with the level of hypothesis rejection of $\alpha = 0.05$.
 - b. To determine the difference in the effect of treatment on the increase in the dependent variable before and after inter-group treatment, statistical analysis MANOVA (Multivariate Analysis of Variance) was used, with the level of hypothesis rejection of $\alpha = 0.05$.
 - c. To determine the independent variable, whichever has the most effect in improving the dependent variable used statistical analysis of LSD (Least Significant Different) in SPSS 23.0, with a level of hypothesis rejection of $\alpha = 0.05$.

BI. RESULTS AND DISCUSSION

1. Research result

The research results is a collection of empirical or real facts to describe the effect of the model group of squat with jump, plyo lunges, and crossback/knee drive to the increasing strength and power. In this study, only determine the relationship between the independent variables, namely the total body resistance exercise to increase strength and power. In order to achieve the research objectives that have been formulated previously, giving treatment based on the design and research variables that lasted for six weeks consisting of eighteen treatments with a frequency of treatment three times a week for the model group

squat with jump, plyo lunges, and crossback/knee drive. Based on the research that has been done, the following findings can be stated:

a. Results of the research data analysis

1) Results of the strength data analysis

The results of strength data analysis provide an overview of the pretest and posttest, the difference in the average training method on strength. Data from the results of strength group research can be seen in Figure 1 below

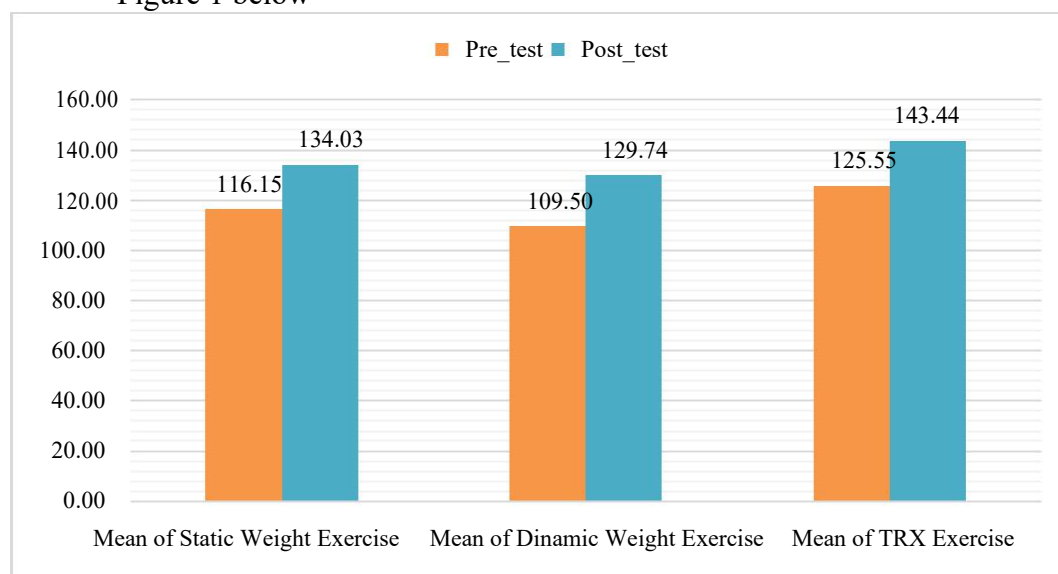
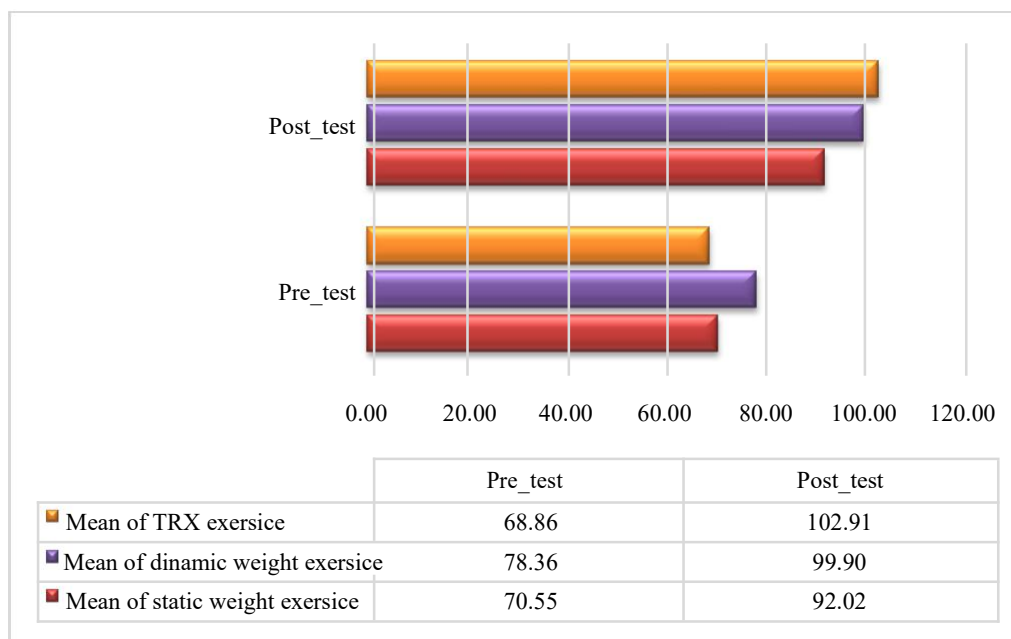


Figure. 1 The results of strength data analysis

Figure 1 illustrates that there was an increase in strength in all groups. With the order of the lowest mean difference from the dynamic weight exercise model group consisting of doing squats with jump, and press jumps, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions), and total body resistance exercise (TRX) which consists of doing squats with jumps, plyo lunges, and crossback/knee drive). Thus it can be concluded that the total body resistance exercise (TRX) model is better than the dynamic weight exercise model consisting of doing squats with jump, and press jumps, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions).

2) Results of the Power Data Description Analysis

The results of power data analysis given an overview of the pretest and posttest, mean and standard deviation of the dependent variable is power. The results of the power group research can be seen in Figure 2 below.



Picture. 2 The results of the power data analysis

Figure 2 illustrates that there was an increase in strength in all groups. With the order of the lowest mean difference from the dynamic weight exercise model group consisting of doing squats with jump, and press jump, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions), and total body resistance exercise (TRX) which consists of doing squats with jumps, plyo lunges, and crossback/knee drive). Thus it can be concluded that the total body resistance exercise (TRX) model is better than the dynamic weight exercise model consisting of doing squats with jump, and press jump, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions).

3) Results of Recovery Data Analysis

The results of recovery data analysis provide an overview of the pretest and posttest , the mean and standard deviation of the dependent variable of recovery. The results of the recovery group research can be seen in Figure 3 below

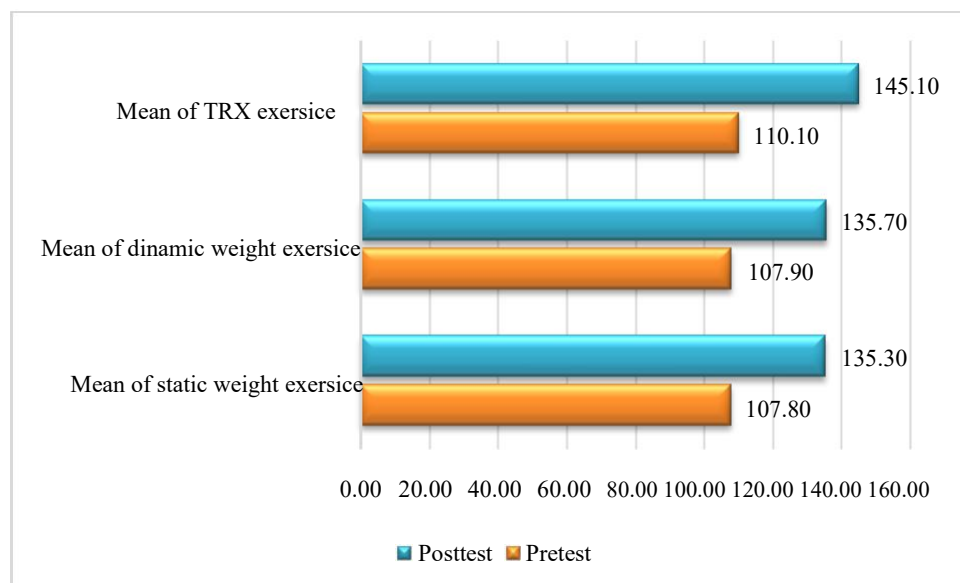


Figure. 3 The results of strength data analysis

Figure 1 illustrates that there was an increasing in strength in all groups. With the order of the lowest mean difference from the dynamic weight exercise model group consisting of doing squats with jump, and press jump, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions), and total body resistance exercise (TRX) consisting of doing squats with jumps, plyo lunges, and crossback/knee drive). Thus it can be concluded that the total body resistance exercise (TRX) model is better than the dynamic weight exercise model consisting of doing squats with jump, and press jumps, random multidirectional lunges, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions).

b. Hypothesis Test Requirements

1) Normality Test

To find out the data were normally distributed, the One-Sample Kolmogorov-Smirnov Test was performed . The basis for decision making in the One-Sample Kolmogorov-Smirnov Test normality is as follows;

- The probability of an error $\alpha = 0.05$
- If the level of significance $(p) > \alpha = 0.05$. Then the data is normally distributed.
- If the level of significance $(p) < \alpha = 0.05$. So the data is not normally distributed.

Table. 1 The Results of the One-Sample Kolmogorov-Smirnov Test Normality

Variable	Test	Ex. I Sig	Ex. II Sig	Ex. III Sig	Note	Status
Strength	Pre-test	0.899	0.428	0.361	P> 0.05	Normal
	Post-test	0.565	0.549	0.873	P> 0.05	Normal
Power	Pre-test	0.962	0.834	0.456	P> 0.05	Normal
	Post-test	0.651	0.450	0.482	P> 0.05	Normal
Recovery	Pre-test	0.631	0.629	0.960	P> 0.05	Normal
	Post-test	0.743	0.993	0.430	P> 0.05	Normal

Based on the table above shown that the value of sig. as a whole shows a number greater than 0.05. So it can be concluded that all data are normally distributed.

2) Homogeneity Test

The homogeneity test was used to determine whether the variants are equal or not from several populations. The homogeneity test decision making is as follows;

- The probability of an error $\alpha = 0.05$
- If the level of significance $(p) > \alpha = 0.05$, the variance is homogeneous.
- If the level of significance $(p) > \alpha = 0.05$, the variance is not homogeneous.

Table. 2 Homogeneity Test Results

Test of Homogeneity of Variances				
Variable	Test	Sig (P)	Note	Status
Strength	Pre-test	0.636	P> 0.05	Homogeneous
	Post-test	0.355	P> 0.05	Homogeneous
Power	Pre-test	0.735	P> 0.05	Homogeneous
	Post-test	0.345	P> 0.05	Homogeneous
Recovery	Pre-test	0.876	P> 0.05	Homogeneous
	Post-test	0.729	P> 0.05	Homogeneous

Table 2 shown a homogeneous variant data. The test criteria that the sig. > 0.05. So it can be concluded that all pre-test, post-test, and difference data from these groups have the same variant(homogeneous).

3) Hypothesis Test

To answer the problem formulation that has been described in the previous chapter, then a hypothesis test is carried out. In this section, it is proposed that hypothesis testing is based on the results of the data obtained from the tests that have been given to respondents. Then the data results are

processed and analyzed statistically to test the hypothesis that has been proposed previously.

a) Paired Sample t-Test

This analysis is used to test the presence or absence of differences in paired samples. The basis for making decisions on this test is as follows.

- (1) The probability of an error $\alpha = 0.05$
- (2) H_0 is accepted or H_a is rejected, if the significance value is 0.05, then there is no significant difference between the physical component variables before and after doing the exercise.
- (3) H_a is accepted or H_0 is rejected, if the significance value is 0.05, then there is a significant difference between the physical component variables before and after doing the exercise.

Table. 3 Results of the Paired Sample Difference Test Calculation

Paired Samples Test			
The static weight exercise model consists of doing full squats, leg presses, leg extensions			
		Sig. 2-tailed	Information
Pair 1	Pretest _ Strength - Posttest _ Strength	.000	Different
Pair 2	Pretest _ Power - Posttest _ Power	.000	Different
Pair 3	Pretest _ Recovery - Posttest _ Recovery	.000	Different
The dynamic weight exercise model consists of doing squats with jump, and press jumps, random multidirectional lunges, and lateral locomotion with random pull and press			
		Sig. 2-tailed	Information
Pair 1	Pretest _ Strength - Posttest _ Strength	.000	Different
Pair 2	Pretest _ Power - Posttest _ Power	.002	Different
Pair 3	Pretest _ Recovery - Posttest _ Recovery	.000	Different
The total body resistance exercise (TRX) model consists of doing squats with jumps, plyo lunges, and crossback/knee drive.			
		Sig. 2-tailed	Information
Pair 1	Pretest _ Strength - Posttest _ Strength	.003	Different
Pair 2	Pretest _ Power - Posttest _ Power	.000	Different
Pair 3	Pretest _ Recovery - Posttest _ Recovery	.000	Different

Based on table 3 shows the results of the calculation of the paired sample difference test. In the static weight exercise model group consisting of doing full squats, leg press, leg extension) the variables of strength (leg muscle explosive power), power (leg muscle strength) and recovery have an average with results of $\text{sig.} < 0.05$, thus the hypothesis is accepted or H_1 accepted and H_0 rejected. It can be concluded that there is a significant difference between strength, power and recovery before and after doing the exercise.

In the dynamic weight exercise model group consisting of doing squats with jump, and press jump, random multidirectional lunge, and lateral locomotion with random pull and press in the variables of strength (leg muscle explosive power), power (leg muscle strength) and recovery have average results of sig. <0.05 thus the hypothesis is accepted or H_1 accepted and H_0 rejected. It can be concluded that there is a significant difference between strength, power and recovery before and after doing the exercise.

In the total body resistance exercise (TRX) group, which consisted of doing squats with jumps, plyo lunges, and crossback/knee drive in the variables of strength (leg muscle explosive power), power (leg muscle strength) and recovery had an average result of sig. <0.05 thus the hypothesis is accepted or H_1 accepted and H_0 rejected. It can be concluded that there is a significant difference between strength, power and recovery before and after doing the exercise.

b) Different Test for Dependent Variables Between Groups

To determine the difference in the dependent variable between groups used analysis of variance. As previously explained, hypothesis testing can be done after the data is normally distributed and homogeneous. Because these criteria have been met, the next step can be used multivariate analysis of variance. For the purposes of multivariate analysis of variance, the data of the three experimental groups were tested together. The results of the Manova test are to test the differences between the dependent variables, namely strength, power and recovery in groups based on independent variables, which can be done by using the multivariate test. The test results can be seen in table 4 below.

Table. 4 Multivariate Tests

Table 1. Multivariate Tests						
Effect		Value	F	Hypothesis df	Df error	Sig.
Intercept	Pillai's Trace	.932	1213.033 ^b	2.000	178.000	.000
	Wilks' Lambda	.068	1213.033 ^b	2.000	178.000	.000
	Hotelling's Trace	13.630	1213.033 ^b	2.000	178.000	.000
	Roy's Largest Root	13.630	1213.033 ^b	2.000	178.000	.000

In table 4, the Wilks' Lambda test reveals that there are differences in increase the dependent variables of strength, power and recovery simultaneously in the research group. The results from the table above show the value of Sig. of Wilk's lambda is 0.000. Thus, because the value of Sig. <0.05 , there is a difference in increase the strength, power and recovery in the three research groups. If there are

differences in the influence between groups, the analysis is continued using the post hoc test multiple comparisons using the least significant difference (LSD) analysis in the SPSS 23.0 series program, as an effort to see which independent variables have a significant effect on increasing the dependent variable.

c) Advanced Test (Post Hoc Test)

In Manova testing it can be concluded whether to accept or reject the hypothesis. If reject the hypothesis, it means that the tested variables have a significant difference. However, we do not know which method differs from the several tested methods. Statistically it cannot be said to be the best by only considering the average of each method. Therefore, statistics have the Post Hoc Test technique, which is a technique used to determine which variables have significant differences. One of them is the LSD (Least Square Differences) method because the sample is less than 50 and the number of each variable is the same.

In this research, a further test (Post Hoc Test) was carried out on the strength, power and recovery variables, because from the Manova results these variables had significant differences in results. The basis for decision making is as follows.

- (1) The probability of an error $\alpha = 0.05$
- (2) H_0 is accepted or H_a is rejected, if the significance value is 0.05, then there is no significant difference between the three exercises.
- (3) H_a is accepted or H_0 is rejected, if the significance value is 0.05, then there is a significant difference between the three exercises.

The results of the test post hoc with LSD for variables of strength, power and recovery can be seen in Table 5 below.

Table 5 Post-Hoc Test Results with LSD strength, power and

Post-Hoc Test Results with LSD of Strength			
Model	Group	Mean Difference (IJ)	Sig.
Static Weight exercise	Pretest and Posttest	-17,8800	.138
Dynamic Weight exercise	Pretest and Posttest	-24,5300 *	.042
TRX	Pretest and Posttest	-17,8900	.138
Post-Hoc Test Results with LSD of Power			
Model	Group	Mean Difference (IJ)	Sig.
Static Weight exercise	Pretest and Posttest	-21.4700	.075

Dynamic Weight exercise	Pretest and Posttest	-21,5400	.074
TRX	Pretest and Posttest	-34.0500 *	.005
Post-Hoc Test Results with LSD of Recovery			
Model	Group	Mean Difference (IJ)	Sig.
Static Weight exercise	Pretest and Posttest	-27,5000 *	.023
Dynamic Weight exercise	Pretest and Posttest	27.8000 *	.022
TRX	Pretest and Posttest	-35.0000 *	.004

Table 5 shown that there are significant differences between the three groups. This difference can be seen in the mean difference, so that this difference gives a meaning the difference in influence on the increase in power between the research groups. It can be seen from the values mean difference, that the experimental group III optimally increase in strength compared to the experimental group I and group

AI. Thus, from the results of the dependent difference between groups of dependent variables (strength, power and recovery) it can be concluded that the total body resistance exercise (TRX) model provides a greater increase than the static weight exercise model and the dynamic weight exercise model. This is evidenced by the results of the acquisition of the mean value in each treatment, the value of total body resistance exercise (TRX) is higher than the average value of static and dynamic weight exercise. Thus it can be concluded that the total body resistance exercise (TRX) model is better than the dynamic weight exercise model consisting of doing squats with jump, and press jump, random multidirectional lunge, and lateral locomotion with random pull and press); the static weight exercise model consists of doing full squats, leg presses, leg extensions).

IV. Discussion of Research Results

This research focuses on training topics with static, dynamic and total body resistance exercise (TRX) models being compared, namely; 1) static weight exercise is an exercise in kinetic technogym not use cables with exercise kinesis technogym done full squats, leg press, leg extension is a model of the power exercise (lower body), 2) dynamic weight exercises is exercise of kinetic technogym using cables with exercise kinesis technogym performs the squats with jump, and press jumps, random multidirectional lunge, and lateral locomotion with random pull and press is a power training model (lower body), and 3) total body resistance exercise (TRX) consists of squat with jump, plyo lunges, crossback/knee drive is a power training model (lower body). The results of this research answered about the effectiveness of the static weight exercise model, dynamic weight exercise and total body resistance exercise (TRX) with the

training model's loading structure on strength, power, and recovery. Based on the results in the statistical data analysis chapter, this chapter will explain the supporting theories of the analysis results.

a. Relationship strength, power and recovery

Physical condition is divided into physical condition, fitness and performance (ACSM, 2012). Physical condition of fitness is divided on the basics of motor abilities such as strength, flexibility, endurance, balance, while the physical condition of performance is closely related to special movements and through a training process, such as power or agility. This association has been already linked in theory raised by Bompa, namely the link between physical condition stated in linkage component of physical condition. If look further, it seems that all of the physical components are related either directly or indirectly. According to previous studies, the relationship between strength and power is no longer in doubt, since power is a derivative of strength combined with the aspect of speed, in other words it produces a large force in a very short time (Stone, 2007). The relationship between force and velocity as suggested by Kawamori and Haff (2005) is another evidence of the relationship between speed and strength which cannot be separated from the aspect of power. Recovery is also an important aspect of physical condition and in everyday life. In its definition, recovery can be defined as the state of the body for recovery.

b. Static Weight exercise

Static weight exercise is an isometric exercise that used static weight by adding more sets of exercises by doing Kinesis exercises using tecnogym using cables. Kinesis exercise is part of the exercise using tension resistance cables using circuit walls in the training process to increase the explosive power of the limbs. Suharjana (2007) argues that sports experts have believed that to build muscle strength, an effective method is to use weight exercise, because with this method the intensity of loading can be measured and can be adjusted easily and precisely, adjusted to the desired training objectives. To develop a weight exercise program, a trainer must be able to answer the following questions: how much weight should be lifted, how many sets of exercises must be completed, how many repetitions must be done, how many times a week, how many rest times between sets training, any form of exercise that is suitable for training. The problem that arises in the field is that trainers are still often found to be less good at weight exercise methods. Therefore, if you want to use the weight exercise method, the trainer must really understand how to combine this exercise into an effective, measurable exercise according to training rules.

c. Dynamic Weight exercise

Dynamic weight exercise is an isotonic exercise using dynamic weight by adding more sets of exercises by doing kinesis exercises using tecnogym without using cables. For dynamic kinesis exercises, it is part of the exercise without using resistance cables with kinesis technogym exercises to do squats

with jump, and press jumps, random multidirectional lunge, and lateral locomotion with random pull and press in the training process to increase leg explosive power.

d. Suspension Training (TRX Training)

Suspension exercise or suspension training, or known people that TRX has the concept of functional training with weight load and angle of inclination. Various studies have shown that exercise has many uses TRX good for performance or health. From the theoretical research, the training intensity of TRX is determined by 3 principles. Namely the stability principle , vector resistance and the pendulum principle (Brian 2010 in Suprpto 2018: 104). The Stability Principle puts forward the principle of the size and position of the body's support, in this case the feet, vector resistance puts forward the principle of the angle of the body relative to the surface and the Pendulum principle puts forward the principle of the center of gravity on the body relatively horizontally with the anchor point of the tool. For athletes who aim to increase strength, suspension training can be used as an alternative to exercises such as squats, deadlifts or power clean. TRX exercises can also be used as additional exercises, exercises with the concept of increasing volume and decreasing intensity that can be incorporated into a period of exercise, especially the recovery process. Because TRX training can reduce stress on muscle joints without reducing the amplitude of activity in the muscles. So that strength is maintained and the risk of injury decreases.

V. CONCLUSION

The results showed that: 1) there was a significant effect of static weight exercise on increasing strength, power, and recovery; 2) there is a significant effect of dynamic weight exercise on increased strength, power, and recovery; 3) there is a significant effect of total body resistance exercise (TRX) on increasing strength, power, and recovery; and 4) there is a significant difference between static, dynamic, total body resistance exercise (TRX) to increase strength, power, and recovery .

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