The Effect fo Ascending and 40 % Weight Training Method on The Strength of The Muscle Arm

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Abstract

The purpose of this research is to increase performance softball UKM students with exercise ascending method and exercise 40% loads method. There is thirty-three students selected accordance will be conducted pretest to determine division of a group ascending, exercise 40% loads method or the control group. Push up for 60 second to measure arm muscle strength level. Will be given exercise on 6 weeks for each group and treatment 3 times of a week. Test results paired sample t-test show a method of ascending significant influence on the variables strength of arm muscles, group of 40% loads methods significant influence on the variables strength of arm muscles. It can be concluded that the exercise of ascending method and exercise of 40% loads methods effective to improve the components physical condition strength of arm muscles, this can happening because the duration less of exercise and high student activity, see the whole subject is a student of physical education who join on UKM softball UNESA.

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INTRODUCTION

Sport is an aspect of activities that must be developed in a coaching effort channeled in an exercise, so that sports are expected to become a necessity of life for all Indonesian people, this gives an opportunity for Indonesian people specifically to be able to excel in various sports.

Training methods that are popular in the modern era are often used in various fitness centers or sports people who want to improve their fitness using the training method. Weight training or called weight training of trainers faced with the creation of training programs in accordance with the prior knowledge of each athlete is different, making this program may consist of exercise types that will be used, the intensity of the workout, reps up the number of sets per exercise when exercise it uses more than one set each exercise (multiple-set). When designing a form of exercise that uses multiple-sets, the next step is to determine the structure per one exercise, the structure here means the pattern of loading each exercise or volume from one set of exercises to the next set. the intensity and volume of training can remain, decrease or increase (Ratamess, 2012: p.76).

The form of arm muscle strength training is the main and important in order to achieve the appropriate target, because the most dominant muscles used when doing sports activities are always using the arm muscles. Exercises to increase strength can be done using several training methods.

In this study the author will use several training methods, namely the ascending pyramid method and methods that use certain weight training only here. The author will use a 40% load according to the conditions of the subject, this is viewed from several aspects where in previous studies the method proved capable increasing the strength of each subject, this is also expected to increase muscle strength.

Here, researchers will take the form of strength training arm which will be done using two methods of exercise in the treatment of each group, the two models of the exercises is ascending practice models and models of practice 40%.

Light to heavy system or can be called ascending pyramid starts with the use of lighter loads with a lot more repetitions in the first set, and continues to increase the load and reduce repetitions for each subsequent set.

Initial load for ascending Pyramida exercise can be done with a minimum load of 70% - 100% of 1RM, but this method has been criticized pros and cons for each athlete may experience overtraining. (Antonio ,et al., 2009, Zatsiorsky,1995). But in the study of each other literature said that the minimum load limit can be reduced to 60%, even though there has been a decrease in volume training load, the effectiveness of the Method will remain the same because the number of repetitions keeps increasing from each set.

According to Symons, et al., (2005) said that to improve strength training in general must pay attention to the shape and contraction of muscles. Muscle contractions are divided into four basic forms, namely isotonic, isometric, ecentric, and isokinetic. Whereas about giving weight to the beginning of the training according to Siahaan (2017), states that there is no exact formula to be used as a benchmark for determining the burden. So most of the burden used is using the trial and error method. Generally in determining the initial load to train strength is 40-60%. Similar statements are also included in Bompa (2015) says that for the general strength training with 9-12 times more training done comfortably without any pressure on the athletes is expected. Maximum load that ranged from 40% - 70%, with 8-12 repetitions in 2-3 sets, performed with the lowest average to medium-sized, with a 1-2 minute rest period in each set of exercises. More than 4-6 weeks will help to achieve a goal and refer to the existence of anatomic adaptation, while for beginners or junior athletes or people who do not have a background in sports training especially strengths between 9-12 weeks.

Sparkes & Behm (2010: p.1) revealed that "Adaptation Training Associated With An 6-Week Training Program With Resistance instability recreationally Active Individuals". That with training adaptation for 6 weeks by doing chest exercises isometric force and electromyographic activity of the triceps brachii and pectoralis majorunder stable and unstable conditions and 1-legged throwing distance, balance, counter movement jump (CMJ) and drop jump (DJ) heights affect the components of physical conditions such as strength and balance. The study was conducted for 6 weeks in length with the intensity of exercise 3 times a week. In Ratamess (2012: p.153) also explained that effective exercises to increase strength and power can be carried out for 4-8 weeks continuously, correctly and progressively. So from the study it can be concluded that by giving training for 6 weeks with a systematic and programmed strength training program, this will affect the quality of the ability of the trained muscle. According to Holly & Shaffrath (2001: p.452) exercise continuous and intermittent can affect the improvement in aerobic fitness and reduce body fat that is in one, but the exercise also

must have increased progress.

Referring to the theories described above, then one of the other training methods that will be used in this research is the method of theory Bompa (2015), namely the provision of this type of training using weights intensity of 40%. The training given is in accordance with the needs of the athlete. By taking the data of the athlete's pretest and posttest and adjusted to the athlete's maximum ability. It is expected that from the results of the exercise there will be an increase in arm muscle strength.

By practicing on an ongoing basis and applying the quality of training that is fundamentally on strength, one's abilities are expected to increase according to the training period and the quality of certain exercises and the more often a technique is trained, the player will have good mastery of the technique. From the related description, a study will be conducted on "the effect of ascending method training and 40% weight training on arm muscle strength.

METHOD

The aim of this study was to determine the effect of exercise menuggunakan ascending method and giving a load of 40% of the arm muscle strength. This research is classified in quantitative research using experimental methods for their treatment (treatment) imposed on the subject of research. This type of research that the researchers use a quasi-experimental (quasi experiment) because researchers can not fully control the subject of research. The research design that the researchers used was matched only design.

The population in this study is characterized, characteristics and properties first, so that the samples to be taken later are characteristic or similar to the characteristics of the population itself. Based on the theory, the population in this study were male Unesa Softball-Baseball UKM students totaling 33 people. Because the number of research subjects is not much, the researcher uses all subjects in the study, which means that the research that the researcher will do is population research. The sampling technique in this study used population studies because all populations were subjected (Arikunto, 2013: p. 173, Mahardika,2015). Each intensity zone selected by the athlete will show different neuromuscular adaptations. In weight training carried out in this study using 40-60% of maximum repetition with the aim of increasing arm muscle strength by Bompa (2015). The selection of low loads is 40-60% of maximum repetition because this study

has several uses.

Determining the set of exercises must look at the repetition aspects of the exercise because if the number of repetitions is high, the athlete will have difficulty in doing more than three sets by Bompa (2015). All periodization strength training programs begin with an anatomic adaptation phase that prepares the body for the training phase that it will follow. The exercise is carried out for 6 weeks because, the exercise will be effective if done for at least four to six weeks by Bompa (2015)

The method used in this study is to provide different treatments for each group to compare the effectiveness of the training of each method to be chosen.

Group I

During the research, the activities carried out by the group I samples were carried out by doing the ascending method training according to the training program given three times a week.
- a. The form of the ascending method
  The sample exercises with 4 types of tools, namely Wirst curl. Bicep curl, shoulder press, tricep extension with alternately and arranged according to each load that has been measured before.
- b. The exercise uses the ascending method, starting with a little repetition and so on until 3 sets.
- c. Each sample will be given 3 times a week of exercise with moderate intensity.
- d. Each exercise consists of 3 sets, for each set will be given a rest time of 1 minute.

Group II

During the research, the activities carried out by the group II samples were carried out by 40% method training according to the training program given three times a week. 40% form training method
- a. The sample exercises with 4 types of tools, namely. Wirst curl. Bicep curl, shoulder press, tricep extension with alternately and arranged according to each load that has been measured before.
- b. The exercise uses a 40% load method, with the same repetitions per set.
- c. Every 2 weeks, repeated measurements are taken to determine the load of 40% for each sample of this group.
- d. Each sample will be given 3 times a week of exercise with moderate intensity.
- e. Each exercise consists of 3 sets, for each set in practice will be given a rest time of 1 minute.

Group III

As a control group.

To create a successful strength training program, trainers and athletes will manipulate several training variables, such as the volume and intensity of the pumping exercise (Bompa, 2015). Only a few athletes are able to do strength training with a supermaximum load, even because they have a good strength training background. Each intensity zone selected by athletes will show different neuromuscular adaptations. In weight training carried out in this study using 40-60% of maximum repetition with the aim of increasing the muscle strength of the Bompa arm (2015). Selection of low loads is 40-60% of maximum repetition because this study uses many tools.

Analysis

Data analysis in the study used the SPSS 20 program with a significant level of 5%. Continued using a prerequisite test consisting of a normality test and a homogeneity test. Normality testing is done to determine the normal whether or not a data distribution. This is important to know regarding the selection of statistical tests that will be used. The homogeneity test is used to determine whether two or more population variants are the same or not.

Test the normality of the data using the Shapiro-Wilk test with a significant level of 5%. If the significance level in the Shapiro-Wilk test is greater than 0.05, the data is declared to be normally distributed. The covariance homogeneity test was carried out to determine whether or not homogeneous data was collected. by using Box's Test of Equality of Covariance Matrices. If the standard value of homogeneity of variances is greater than 0.05 then the data has a homogeneous covariance. After the prerequisite test is fulfilled, it is followed by testing the hypothesis. To test the research hypothesis using a paired t-test and multivariate analysis of variance (Manova) statistical techniques. By using the SPSS 20 program.

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Table 1. Training Program

Week	Meet	Intensity	Repetition	Set	Rest/minute
	1	40%	4-8	3	1
1	2	40%	4-8	3	1
	3	40%	4-8	3	1
	4	40%	4-8	3	1
2	5	40%	4-8	3	1
	6	40%	4-8	3	1
	7	40%	4-8	3	1
3	8	40%	4-8	3	1
	9	40%	4-8	3	1
	10	40%	4-8	3	1
4	11	40%	4-8	3	1
	12	40%	4-8	3	1
	13	40%	4-8	3	1
5	14	40%	4-8	3	1
	15	40%	4-8	3	1
	16	40%	4-8	3	1
6	17	40%	4-8	3	1
	18	40%	4-8	3	1

RESULT AND DISCUSSION

The normality test has the purpose of knowing whether the scores obtained by the sample are normally distributed or not. Normal distribution test using Shapiro Wilk. For more details, it will be described as follows **Table 2.**

Table 2. Test for data normality

Tests of Normality			
	Kolmogorov-Smirnov[a]		
	Statistic	Df	Sig.
Pretest Ascending	,618	10	,840
Postest Ascending	,910	10	,379
Pretest 40%	,866	10	,441
Postest 40%	1.176	10	,126
Pretest Control	,773	10	,589
Postest Control	,567	10	,905

*. This is a lower bound of the true significance

From **Table 2** the pretest data above, it can be seen that all data is normal or sig. > 0.05 because all data are> 0.05.

The homogeneity test **Table 3** aims to ensure that the variants of each group are the same or similar, so that comparisons can be made fairly (Maksum, 2012, p. 162).

Table 3. Test of Homogeneity of Variances

Tests of Normality			
	Levene Statistic	df1	df2	Sig.
Arm muscle strength	1.509	2	30	,237

From the data above **Table 3**, it can be seen that all data is homogeneous or sig. > 0.05 because all data are> 0.05.

To test whether there is an effect of treatment (treatment) on the variables used then paired t test is performed. The following will describe the results of different tests for each group **Table 4**.

Table 4. Test for different ascending groups

Paired Samples Test		
		Sig. (2tailed)
Ascending	Pre – Post strength	,000

From the data **Table 4**, the significance obtained by the power is 0,000 or Sig. <0.05, so there is a significant effect of ascending exercise on arm muscle strength.

Table 5. Different group test 40%

Paired Samples Test		
		Sig. (2tailed)
40 %	Pre – Post Power	,000

From the data **Table 5** the significance obtained by arm muscle strength is 0,000 or Sig. <0.05, there is a significant effect of 40% weight training on arm muscle strength.

Table 6. Different tests of control groups

Paired Samples Test		
		Sig. (2tailed)
Control	Pre – Post strength	,001

From the data **Table 6** the significance obtained by muscle strength is 0.001 or Sig. <0.05, there is a significant effect of the control group on the increase in arm muscle strength.

Exercise is one of the good physical exercises to maintain and improve physical fitness. Physical fitness is a person's ability to carry out a type of physical activity that requires strength, endurance and flexibility. In fact, an understanding in terms of biomechanical science and exercise physiology shows that many new products that initially stated that they can increase strength, speed and power might even harm them Bompa (2015).

According to Maksum (2011) defines sport as a physical activity in the form of a game con-taining struggle against elements of nature, other people, oneself, and having organizational complexity. Exercises that have various methods always show the development of the correct concept in carrying out the movements and implementation.

In ascending biomotor ability that can increase, the arm muscle strength. Whereas in weight training 40% of biomotor ability that can be increased is the strength of the arm muscles.

The ascending method and the 40% method were carried out for six weeks to improve the performance of the arm muscles. In accordance with Bompa's explanation that the exercise will affect biomotor performance for at least four weeks. Benson (2010) said that to improve the performance of softball games it is necessary to add physical training sessions that are suitable for physical conditions that feel less.

This research is an experimental research that is action research, which is to find out the appropriate training methods for improving the performance of arm muscles so that students who join Unesa Softball UKM can improve their performance when competing. The coach tells us that the players' arm muscle strength is still not maximal.

CONCLUSION

From the data generated above it can be seen that the exercises with the ascending method and the 40% method both have an increase in arm muscle strength, although with an unequal increase in number, with an ascending t value of 4.690 and t 40% at 3.612 this may also be affected by the dense activity of the entire sample which happens to be sports education students, sports science faculties and also giving treatment with a relatively short duration or less.

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