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Effect of Slam Waves Battle rope Exercise and Up down Waves Battle rope Exercise to Arm Strength And Arm Endurance (Study of boxing exstracurriculer at senior high school 3 Kediri)

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Abstract

The most popular extraculiler in kediri High School 3 is boxing, because it can be done and studied by both male and female students. Boxing extraction itself is in demand because it is a well-known sport with weight loss and also for self-defense. Boxing itself requires a hard punch produced from a strong arm and also requires the stability of the hand to be beside the face to support the punch technique that is in boxing.When observing at State High School 3 Kediri, many students had not yet mastered the physical condition of the arm muscle strength or arm muscle endurance. Extraculiler trainers and teachers also said that physical conditions and non-boring forms of training are important to improve student achievement in school and outside school performance. Based on the background description above, the researcher wants to provide alternative exercises to improve physical conditions specifically in increasing arm muscle strength and endurance of arm muscles in male and female extracurricular students of SMAN 3 Kediri. So that researchers are interested in conducting research "Effect of slam waves batlle rope exercise, updown battle rope on arm muscle strength and muscular endurance of students and extracurricular students of SMAN 3 Kediri Boxing"

Keywords
Battlerope; slam wavesbattlerope; updownwaves battlerope

I. Introduction

Sport is a part of physical activity that is really needed by every individual for physical and spiritual health needs. Sport is also very helpful as a media or a powerful way for the physical needs of the body to be healthier and fitter and make a very beneficial contribution to humans. In modern times sports have been carried out by various ages, both young children to elderly with different portions of exercise. Generally sports activities are carried out for various reasons, namely for health, recreation, achievement and education. With sports alone you can make and make a pretension outside of school by taking the championship also at school, because one component of achievement is students. Learning achievement can be arranged by doing exercises systematically and directed to improve students' abilities. By paying attention to several aspects of training. According to Roesdiyanto and Budiwanto (2008: 17) training is the process of improving the quality of athletes consciously or to achieve maximum achievement by being given physical and mental burdens on a regular, directed, gradual, increasing and repetitive motion. According Sukadiyanto and Muluk (2011: 6) is the application of a plan to improve the ability to exercise that contains material, theory, practice, methods, and implementation rules in accordance with the goals and objectives to be achieved. Then Venerando in Roesdiyanto and Budiwanto (2008: 17) that the systematic

practice of repetition aims to achieve better skills.Efforts that need to be done to improve learning achievement and achievements outside of school one of them by taking into account the physical condition of the students.

Physical education, sport and health are one of the main subjects that must be taught in schools, ranging from elementary school through high school. This was stated in the Act (Act) No. 20 of 2003 on National Education System (Education) of Chapter X of Article 37, which contains primary and secondary education curriculum. Physical education needs to be improved in the school environment, with physical education is expected to increase student physical fitness, in addition to the academic field will also increase. (Novianti, 2020)

Bompa in the book of methodology of training (2009) said, that to achieve achievement is determined by four factors of training, namely physical preparation, technical preparation, tactics preparation, and mental preparation. Without good physical condition, the athlete will not be able to gain achievements despite having good technical and tactical skills. The development of physical training in each exercise program is carried out through general physical stages, special physical preparation and building a high level of biomotor ability (Bompa 2009: 61). The components of physical condition referred to are as follows; (1) strength, (2) endurance, (3) explosive power, (4) speed, (5) flexibility, (6) agility, (7) accuracy, (8) reaction, (9) balance, and (10)) coordination. Of the many physical components, this study focuses on examining strength and endurance, because the physical components of strength and endurance affect in the branch of martial arts. Muscle endurance is the ability of all body organisms to overcome fatigue when doing activities that require strength for a long time (Sukadiyanto and Muluk, 2011: 104). Arm muscle strength is the ability of a person to make maximum force (Sukadiyanto and Muluk, 2011: 120). It is undeniable that physical condition is very influential to improve achievement. At Frateran Catholic High School in Surabaya, there are a lot of extracurricular activities such as boxing, basketball, futsal, volleyball and others so. Where from all these sports require good physical condition in order to support better performance. According Sukadiyanto and Muluk (2011: 6) is the application of a plan to improve the ability to exercise that contains material, theory, practice, methods, and implementation rules in accordance with the goals and objectives to be achieved. The most popular extraculiler in SMAN 3 Kediri is boxing, because it can be done and studied by both male and female students. Boxing extraction itself is in demand because it is a well-known sport with weight loss and also for self-defense. Boxing itself requires a hard punch produced from a strong arm and also requires the stability of the hand to be beside the face to support the punch technique that is in boxing. When observing at State High School 3 Kediri, many students had not yet mastered the physical condition of the arm muscle strength or arm muscle endurance.

II. Review of Literature

Extraculiler trainers and teachers also said that physical conditions and non-boring forms of training are important to improve student achievement in school and outside school performance. Based on the background description above, the researcher wants to provide alternative exercises to improve physical conditions specifically in increasing arm muscle strength and endurance of arm muscles in male and female extracurricular students of SMAN 3 Kediri. So that researchers are interested in conducting research "The effect of slam waves battle rope exercise, up down battle r Arm muscle strength and endurance of arm muscles of students and students extracurricular Boxing of SMAN 3 Kediri " Exercise or training can be

interpreted as adjusting the body to the demands of a more stringent work in preparing themselves to face the situation of the match and improve the skills of certain sports. In principle, exercise is a process of change for the better, namely to improve physical quality, functional ability of the body equipment, and the psychological quality of athletes. Here are some opinions about the definition of training according to experts between them:

Sukadiyanto (2011: 6) is training as a process of perfecting the ability to exercise containing material theory and practice, methods, scientific approaches, so that the training objectives can be achieved on time. Ambarukmi, et al, (2007: 1), that sports training is essentially a systematic process to improve the quality of athlete's work in the form of fitness, skills and energy capacity and using a scientific approach. According to Bompa (1994) in Roesdiyanto and Budiwanto (2008: 16), he argues that training is a systematic sporting activity over a long period of time that is gradually and individually improved, aimed at forming humans whose physiological functions are to fulfill the demands of their duties. Suharno (1993) in Roesdiyanto and Budiwanto (2008: 17) explained that training is a process of consciously improving the athlete's quality to achieve maximum performance by being given physical and mental burdens on a regular, directed, gradual, increasing and repetitive time.ope on The definition of training was also stated by Sukadiyanto and Muluk (2011: 5) as follows:

a. Exercise is derived from the word practice is an activity to improve sports skills (skills) by using various equipment in accordance with the goals and branches of the sport.

b. Exercise comes from the words exercises is the main device in the process of daily training to improve the functioning of the human organ system, making it easier for athletes to perfect their movements.

c. Exercise is derived from the word training is a process of perfecting the ability to exercise containing theoretical and practical material, using methods and rules of implementation with a scientific approach, using planned and organized principles, so that the training objectives can be achieved on time.

2.1 The Purpose of Exercise

The object of training is humans who must be improved in their abilities, skills and appearance with the guidance of the trainer. The aim of short-term training is to improve the elements that support physical performance, including strength, speed, endurance, power, agility, flexibility, and technical skills in sports. (Sukadiyanto and Muluk, 2011). For more details, the objectives of the exercise are:

a. Improve the basic physical quality in general and overall.
b. Develop and enhance special physical potential.
c. Adding and perfecting techniques.
d. Improve and perfect the strategy, tactics, and patterns of the game.
e. Improve the quality and psychic abilities of athletes in competing. (Sukadiyanto and Muluk, 2011: 8)

2.1 Principles of Exercise

The principle of training is the things that must be obeyed, done or avoided so that the training objectives are achieved as expected. The principle of training is also the basis of scientific guidelines that must be held firm in doing the exercise.

The following will describe some of the principles of training according to Sukadiyanto and Muluk (2011), including the following:

a. The principle of readiness

On the principle of readiness, the training material and dosage must be adjusted to the age of the athlete. Because the athlete's age is closely related to the physiological and psychological readiness of each athlete's condition. This means that the trainers must consider and pay attention to the stages of growth and development of each athlete, because the readiness of each athlete varies from one child to another, even though between sportsmen have the same age. This is due to differences in various factors such as nutrition, heredity and environment (Sukadiyanto and Muluk, 2011: 14).

b. Individual principles

In responding to the training load for every athlete, it will be different, so that the training load for each person cannot be compared to one person to another. Training must pay attention to and treat athletes according to their level of ability, potential, learning characteristics and sports specificity, Bompa (1994) in Roesdiyanto and Budiwanto (2008: 20).

c. Adaptation Principles

Human organs tend to always be able to adapt to changes in the environment or the weather, this situation is certainly beneficial to carry out the exercise process. That way, this can influence to increase the burden in the training process (Sukadiyanto and Muluk, 2011: 19).

d. The principle of overload

The training load must reach or exceed a little above the excitatory threshold. Because the burden is too heavy will result in not being able to be adapted by the body, whereas if it is too slow it does not affect the improvement in physical quality, so the training load must meet the principle of overload. Provision of training load must exceed the habits of daily activities on a regular basis. It is intended that the physiological system can adjust to the demands of the functions needed for high levels of ability, Bompa (1994) in Roesdiyanto and Budiwanto (2008: 18).

e. The Principle of Progressive (Increase)

For the adaptation process to occur in the body, an overload principle is needed which is followed by a progressive principle. Training is aggressive, meaning that the exercise is carried out from easy to difficult, simple to complex, general to specific, overall, mild to heavy and from quantity to quality and carried out consistently, progressively and sustainably. In carrying out the exercise, the provision of training load must be increased gradually, regularly and consistently until it reaches the maximum load, Bompa (1994) in Roesdiyanto and Budiwanto, (2008: 27).

f. Specific Principle (Specificity)

The principle of specification does not mean that in practice avoid loading on the opposite muscle. That is, the purpose of the exercise is only to train the muscles used in doing the movement but the antagonistic or adjacent muscles must also be trained. There are four things to consider in applying specific principles, among others: 1), specifications of energy requirements, 2), specifications of the shape and model of exercise, 3), specifications of

motion characteristics and muscle groups used and, 4), the period of exercise periodization, Sukadiyanto and Muluk (2011: 19).

g. The principle of variation

A good exercise program must be arranged varied to avoid the boredom, reluctance, and anxiety that constitute physiologically exhausted. There are several main components needed to vary the exercise according to Martens (1990) in Sukadiyanto and Muluk (2011: 20) is "a comparison between 1). Work and rest, 2). Heavy and light exercise. The principle of heating and cooling (warm-up and cooling down)

Heating (warm-up), cooling (cooling down), and cover. Warming aims to prepare the physical and psychological sportsman to enter the core activities in training. While cooling aims to get the body back to normality gradually and not suddenly, (Sukadiyanto and Muluk, 2011: 20). In conclusion, each activity starts with heating, cooling is expected to avoid athletes from injury.

h. Systematic principles

Sportsman performance is unstable and temporary so that this principle relates to the size (dose) of loading and priority scale in practice. Each training target has different loading dosage rules. The scale of exercise priority relates to the order of objectives and the main training material that is adjusted to the training periodization (Sukadiyanto and Muluk, 2011: 23).

2.3 Exercise Components

The training component is an essential part of every program regardless of the athlete's age, individual potential and level of preparation or training itself. The training component here is the key or important thing that must be considered in determining the dosage and training load. In addition, the training component is also a benchmark and benchmark that is very decisive for the achievement of an objective and target of training that has been prepared and implemented. Therefore, mistakes in determining the training component will cause the objectives of the exercise will not be achieved as planned. Deputy Assistant of PTPK (2007: 19) "The training program must be arranged in detail by taking into account the training factors or variables in the form of exercise size / dose / dose including FITTE (frequency, intensity, time, type, and enjoyment). The intended entertainment is that the selected exercise can enjoyed by athletes. Sukadiyanto (2011: 26) also added the training component that determines the percentage of super compensation, including: intensity, volume, recovery, and interval.

1) Following explanation and examples include the following description. Intensity, Intensity is a measure that shows the quality (quality) of an excitement or loading and to determine the size of the intensity, among others, by using 1RM, per minute heart rate, speed, distance, number of reps, and giving recovery time and intervals (Sukadiyanto and Muluk, 2011). To achieve good training results, then the intensity of the exercise is given cannot be too high or too low. If the intensity of an exercise is inadequate or too low, the effect of the exercise is very small or even non-existent. Conversely, if the exercise is too high, it can cause injury (Nurhasan, 2011). Increasing the intensity of exercise gradually provides the opportunity for the muscles

to adjust to heavy training, and then gradually there is an increase in shape, endurance, size, and muscle strength (Baechle and Earle, 2005). It can be concluded that the intensity of the exercise is reflected by the strength of nerve stimulation in the exercise. The strength of the stimulus depends on the load, the speed of movement and the variation of intervals or breaks between replications. Between the intensity of the exercise and the volume of training is difficult to separate, because exercise always links the quality and quality of training.

2) Exercise Volume

The following are some of the definitions of volume put forward by experts, including Roesdiyanto and Budiwanto, (2008: 40), volume is the content of the usual training load expressed in units of distance, total time, number of times, weight, number of sets. Whereas Sukadiyanto and Muluk (2011: 28), stated that volume is a measure that indicates the strength (amount) of a stimulus or loading. From the above opinions it can be concluded, volume is a measure of the training load used during training.

3) Recovery

The term recovery is always associated with intervals, because both terms have the same meaning, namely the provision of rest periods. Recovery is the time given between sets or between reps (Sukadiyanto & Muluk, 2011). From the above opinion it can be concluded that recovery gives rest time between sets or repetitions in training.

4) interval

Interval is a break that is given when between series, circuits, or between sessions per unit of training (Sukadiyanto and Muluk, 2011: 29). Then according to (Brown, 2007: 135) the interval is the amount of time used for recovery between each set. In principle, the recovery time is always shorter than the interval time. So it can be concluded, the interval is giving sportsmen a long time to rest after exercise.

5) Repetition

Repetition is a very important component in increasing athlete biomotorics as well as in developing training programs. Sukadiyanto and Muluk (2011: 30) mention, repetition is the number of repetitions performed for each item or training item.Battle rope, a sport that utilizes rope is indeed increasingly ogled by women. This exercise, which relies on the muscles of the thighs and hands, has many benefits for the body, from burning fat, minimizing the risk of injury, to strengthening muscles and heart activity. For beginners, you can try it yourself at home, with a few basic movements below. Battling ropes exercise is one of the most effective types of cardio vascular exercise to burn calories in the body, introduced by John Brookfield, a pioneer of strength training. Battling ropes are not only for athletes, but anyone can get this challenging training technique. Designed by using a tool a mine, which is connected to a pole with a display of more or less 10 meters with a diameter of 1-2 inches, although it seems that in Indonesia this method is quite new, but began to demand a lot of fitness mania lovers. The heavier the burden of the mine being played, the greater the benefits of burning calories

Based on the explanation above, it can be concluded that the battle rope is a training intended to train the strength and endurance of the arm muscles with the correct training methods.

1. Slam Waves Battle rope
2. Slams are the initial movements that you can do as a warm up. You just simply stand tall while holding a battle rope. Lift the rope to the top of the head then slam it until it touches the floor. (mitrea, 2015: 12)
3. Up down Waves Battle Rope

Do this by pedaling the rope as if you were making waves on the rope. (mitrea 2015: 15)

III. Research Method

3.1 Research Types and Design

Implementation of the research required an adequate research method. Research methods have many kinds of methods, so the research methods used must be in accordance with the problem to be solved and the objectives to be achieved. This type of research is quantitative research using quasi experimental methods. In experimental research, a researcher must as far as possible be able to ensure that variations or changes that occur in the dependent variable are really caused by manipulation of the independent variable. This is then called internal validity, where the control mechanism becomes something very important. The approach used in this study is the design or design in research using "Matching Only Design" (Maksum, 2012: 100). The research design can be described as follows:

$T1_1$	**X1**	**$T2_1$**
$T1_2$	**X2**	**$T2_2$**
$T1_3$	**-**	**$T2_3$**

Table 1. Research Design

IV. Discussion

Normality of Initial Score Data Distribution (*Pre Test)*

Tests of Normality			
Shapiro-Wilk			
Group	Variable	Sig.	Information
Slam Waves Battle Rope	Power	0,689	Normal
	durability	0,722	Normal
Updown Waves Battle Rope	Power	0,227	Normal
	durability	0,900	Normal
Control	Power	0,617	Normal
	durability	0,499	Normal

Normality of Score Data Distribution Post Test

Tests of Normality			
	Shapiro-Wilk		
Group	Variable	Sig.	Information
Slam Waves Battle Rope	Power	0,728	Normal
	durability	0,852	Normal
Updown Waves Battle Rope	Power	0,377	Normal
	durability	0,437	Normal
Control	Power	0,744	Normal
	durability	0,396	Normal

Result *Paired Sample T Test* Kelompok *Slam Waves Battle Rope*

Paired Samples Test		
		Sig. (2-tailed)
Slam Waves Battle Rope	Pre - Pos Power	0,001
	Pre - Pos durability	0,000

V. Conclusion

There is a difference in the influence of endurance of the arm muscles where slam waves battle rope exercises are better than the up down waves battle rope exercises. As for the strength of the up down waves battle rope training is better than the slam waves battle rope training this is proven through statistical calculations (one-way anova)

Based on the results of the training and the mean test stated that the slam waves battle rope training gives better results compared to the training of the up down waves battle rope on endurance. While the up down waves battle rope training gives better results compared to the slam waves battle rope training on arm muscle strength by giving training to extracurricular boxing students at SMAN 3 Kediri. From the results of a significant test using a post hoc test stated that there was no significant difference in the effect of the results of the training of slam waves battle rope and up down waves battle rope on the endurance and strength of arm muscles in the extracurricular boxing students of SMAN 3 Kediri. This is in line with the conclusion that slam waves battle rope training and up down waves battle rope is an effective exercise to increase endurance of arm muscles and arm muscle strength. So that it can be used as a reference in exercises to increase endurance and arm muscle strength in sports that focus on using endurance and arm muscle strength.

References

Arifin Zulkarno. (1989). Olahraga tinju amatir di Indonesia. jakarta: CV. Gunung Mulia Jaya

Basarah saleh.(1989).olahraga tinju di Indonesia. Jakarta: CV. Gunung Mulia Jaya

Bompa tudor. (1999).periodization theory and methodology of traning.champaign: human kinetic

Bompa, Tudor O. (2000). Total training for youangchampions: poyen conditioning program for athletes ages 6 to 18. Champaign. IL: Human Kinetic.
https://www.google.co.id/search?q=gambar+push+up&source
https://www.google.co.id/search?q=gambar tes strength
https://www.google.co.id/search?q=gambar+stork+test&source
Johson, Barry L, J.K Nelson. (2000). Pratical measurements forevaluation in physical education. Dubuque,lowa: Wm. Brown Company publishers
Kemenpora Indonesia. (2005). Penetapan parameter tes pada pusat prndidikan dan sekolah khusus olahragawan: Jakarta : deputi peningkatan prestasi dan IPTEK olahraga
Mahardika sriundy. (2010). Pengantar evaluasi pengajaran. Surabaya: Unesa university press
Mayun narendra. (2000).seni olahraga tinju.jakarta : CV gunung mulia Jakarta
Maksum, Ali. (2007). Statistik Dalam Olahraga. Surabaya: Universitas Negeri Surabaya
Maksum, Ali. (2012). Metodologi Penelitian: dalam Olahraga. Surabaya: Unesa University Press.
Novianti, D .(2020). Improvement of Physical, Honesty, Discipline and Cooperation in Class IV Elementary School Students through Circuit Training Learning Model. Budapest International Research and Critics in Linguistics and Education (BirLE) Journal. P. 244-250.
Oudshornjan.(1988). training, tecniek, taktiek boxing.jakarta.PT rosda jayaputra : offset
Sajoto.(1988).pembinaan kondisi fisik dalam olahraga. Jakarta: DIKTI
Sudjana. (1996). Metoda Statistika. Bandung: Tarsito Bandung
Thomas George,Oscar ray.(1999). physical conditioning;exrcise for sports and healthful living. New York : Barnes
Kamus Besar bahahsa indonesia (online) http://kbbi.web,id/prestasi
Departemen pendidikan dan kebudayaan. (1989). Kamus besar bahasa indonesia.Jakarta. Balai pustaka.
Sugiyono. (2008). Metode penelitian kuantitatif, kualitatif dan R. Bandung: Alfabeta
Tim penyusun. (1996). Ketahuilah tingkat kesegaran jasmani anda.Jakarta: departemen pendidikan dan kebudayaan pusat kesegaran jasmani dan rekreasi.
Nurhasan. (2005). Aktivitas Kebugaran. Jakarta: Direktorat Pembinaan Luar Biasa.
Rusli Lutan. (1988). Belajar Ketrampilan Motorik, Pengantar Teori dan Praktek. Jakarta: Depdikbud Dirjen Dikti Proyek Pengembangan LPTK.
Suharno, H. P. (1981). Metodik Melatih Permainan Bolavoli. Yogyakarta: IKIP Yogyakarta.
Djoko Pekik Irianto. (2004). Bugar dan Sehat dengan Berolahraga. Yogyakarta: Andi Yogyakarta.
Len Krevitz. (2001). Panduan Lengkap Bugar Total. Jakarta: PT. Grafindo Persada.
Harsono. (1998). Coaching dan Aspek-aspek Psikologis dalam Coaching. Jakarta: Depdikbud.