

The Effect of Circuit Training on Wall Climbing Speed Climbing Technique in Mapala Athletes PGRI Palembang University

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Abstract

The problem of this study was found that athletes do not yet have the maximum speed in climbing speed climbing techniques. The purpose of the study was to determine the effect of circuit training on the speed of climbing the wall of speed climbing techniques in mapala athletes of PGRI Palembang University. The research method is an experimental method of one group pretest-posttest design technique. The study population was 10 people and the sample constituted the total population. Data collection uses tests, with speed climbing technique speed test instruments. Data analysis using paired sample t test SPSS 16. The results of the study stated that there was an influence of circuit training on the speed of climbing the wall of speed climbing techniques in mapala athletes of PGRI Palembang University because of the $T_{table} > calculation$ ($6,810 > 1.83$).

Keywords: Circuit, Speed Climbing



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INTRODUCTION

Sports are physical training activities, where physical activities themselves are useful for enriching and improving abilities and also basic movement skills or special sports skills. In addition, exercise also has a goal for the development of body organs in order to improve physical health and fitness, mental development, emotional development, social development and intellectual development Bangun (2016). This statement is also strengthened by the theory of Salahudin & Rusdin, (2020) which states that exercise is the right strategy to form a healthy physique besides that exercise is also a very important activity in daily life because if a person does exercise regularly enough, of course, it will affect both physical health and also spiritual health.

Exercise is certainly very important for human health, Besides being able to nourish this sport, it can also be used to channel hobbies in certain sports such as big ball games (basketball, volleyball and football etc.), small ball games (golf, table tennis, softball, badminton etc.) as well as sports that can challenge adrenaline, for example such as natural sports (rafting, hiking, rafting and rock climbing). The sport of rock climbing is one of the natural sports that can also be used to train adrenaline. In addition to being challenging, this sport also certainly has its own exciting point for altitude connoisseurs. Because with the rapid development of the times, humans are reluctant to play directly in nature, in addition to being afraid of unpredictable rock terrain, they also do not have time to explore the rocks in nature, because not everyone dares to play in the original nature, so a sport similar to rock climbing was created but can be done even though it is not in the natural realm directly, i.e. wall climbing.

Wall climbing is a sport that resembles rock climbing. This sport was originally just for a hobby event, but with the times, this sport is worthy of competition which according to (Climbing Speed of Rock Climbing Extracurricular Students et al., n.d.) this sport has been competed in the National Sports Week (PON) which is held every 4 years. From the results of

observations that have been made by researchers, it can be concluded that not a few wall climbing athletes at the MAPALA Organization of PGRI Palembang University (PALASPA), especially in speed climbing techniques, found several obstacles such as the lack of fast movement of athletes and the lack of stability of the body when climbing and physical weakness and became the main problem experienced by athletes so that the climbing carried out could not be optimal. Meanwhile, in this speed climbing technique, athletes are required to reach the target or top as soon as possible. And seeing these conditions, researchers try to provide a method of circuit training to improve the results of the problems experienced by athletes as listed above.

From the research that has been conducted by Feriyanto wicaksono (2021), there are results of the analysis of t-test data for paired samples, it can be seen that there is an influence of anaerobic motion exercise models on the climbing speed of extracurricular rock climbing students of SMA N 2 Ponorogo. It can be seen from the pre-test value with a travel time of 47.69 seconds, and after being given treatment, a post test value is taken with a travel time of 32.75 seconds. Therefore, this study showed significant results.

Exercise is "exercise is a systematic process of practicing that is done repeatedly as the intensity of the exercise increases" (Erliana & Arisman, 2017). Exercise is also a form of various body movements that are carried out in an arranged and patterned and regular manner, each exercise performed will be added to the intensity of the exercise every week according to the needs of the perpetrator, the additional weight of this exercise also serves to be able to restore the system and function of the organs and mentality of a person so that when carrying out sports activities the person can reach his target optimally. The exercise program that is carried out as a whole will also have an impact on the heart muscle which will increase its strength. With the addition of the strength of the heart muscle, it will certainly have a good impact on the frequency of blood that will be pumped by the heart in every second Febi & Rifki (2020).

RESEARCH METHODS

This research can get good results and according to what is expected, So the research method used in this study is the one group pretest-postes design experimental method. The basis for using this experimental method is experimental activities with pre-test (before being treated) and post-test (after being treated) with circuit training or circuit training. So the experimental method is the most appropriate method for examining causal relationships. According to the opinion expressed by (Sugiyono, 2019) which states that experimental research is a research method with experiments, then it can be used to determine the influence of independent variables (treatment / treatment) on dependent variables (results) in conditions that have been resolved. With the control or overcome the goal is that there are no other variables (other than treatment variables) that affect the dependent variables. Data collection or collection techniques, namely by using tests and measurements. Data analysis technique is a way taken to obtain or analyze the data obtained. Data analysis aims at the correctness of the hypothesis to be formulated. A hypothesis will be accepted or rejected depending on the results of the data.

RESULTS OF RESEARCH AND DISCUSSION

The process of elaborating the data in this study by describing the initial test data and the final test carried out by measuring the speed of climbing the athlete's wall through the wall climbing test on as many as 10 Mapala athletes of PGRI Palembang University through the distribution of the frequency distribution of the initial data and the final data. The initial data and the final data can be seen in the table below:

Table 1. Initial Data and Final Student Data

No	Athlete's Name	Time Record (Seconds)	
		Pretest	Posttest
1	Joni saputra	57	26
2	Enita Riyanti Qolbi	110	85
3	Marina meleniya	120	100
4	Nadiyah Aprilia	62	54
5	Burhan Solehudin	47	30
6	Tri Muliani safitri	170	120
7	Enis Jayanti	97	64
8	Gita atika	100	70
9	Melita	122	98
10	Desti Seri Hanggraini	107	57
Mean		99,2	70,4
S. Deviasi		36,57	30,55

(Source : Researcher Document, 2022)

Based on the table above, it can be explained that the average speed of Mapala athletes at PGRI Palembang University in climbing the wall is 99.2 seconds with a standard deviation of 36.57 on the initial ability test (pretest). Meanwhile, in the final ability test (postest) the average speed of Mapala athletes at PGRI Palembang University in climbing the wall was 70.4 seconds with a standard deviation of 30.55.

Table 2. Initial Data Frequency

Interval	Frequency	Percentage
47-78	3	30
79-110	4	40
111-142	2	20
143-170	1	10
Jumlah	10	100

(Source : Researcher Document, 2022)

The initial data frequency above can then be interpreted through the histogram below:

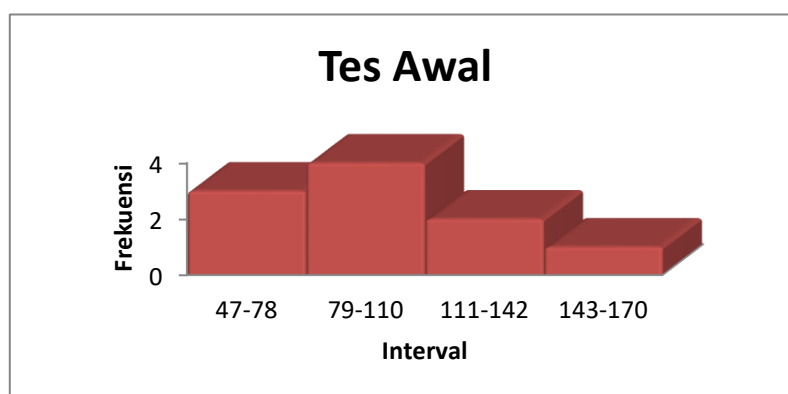


Figure 1. Initial Data Frequency

Based on the table and histogram above, it can be explained that Mapala athletes from PGRI Palembang University who reached the speed of climbing the wall with an interval of 47-78 seconds as many as 3 people, an interval of 79-110 seconds as many as 4 people, an interval of 111-142 seconds as many as 2 people and an interval of 143-170 seconds as many as 1 person.

Table 3. Final Data Frequency

Interval	Frekuensi	Persentase
24-50	2	30
51-74	4	40
75-98	2	20
99-120	2	10
Jumlah	10	100

(Sumber : Dokumen Peneliti, 2022)

The final data frequency above can then be interpreted through the histogram below:

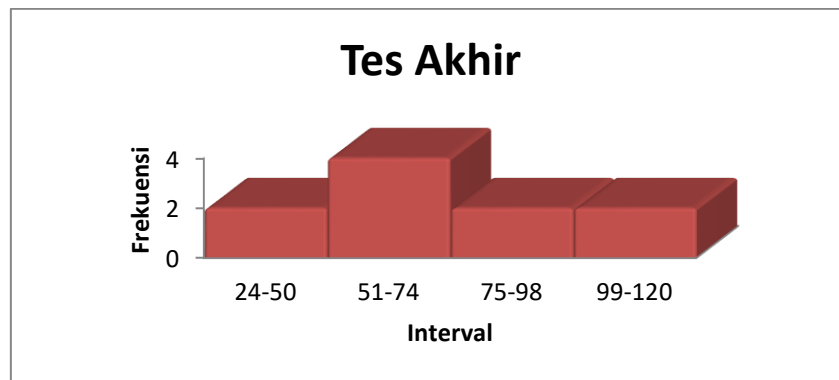


Figure 2. Final Data Frequency

Based on the table and histogram above, it can be explained that Mapala athletes from PGRI Palembang University who reached the speed of climbing the wall with an interval of 24-50 seconds as many as 2 people, an interval of 51-74 seconds as many as 4 people, an interval of 75-98 seconds as many as 2 people and an interval of 99-1200 seconds as many as 2 people.

Data normality testing in this study used the one samples kolmogrov smirnov SPSS 16 test. Normality testing is intended to test normally distributed data or vice versa. The H_a test criteria is accepted if the Asymp Sig value > 0.05 then the data is normally distributed. The implementation of this research was carried out at the Rock Climbing Training Gym of PGRI Palembang University on May 16 to June 14, 2022 starting from taking initial data then providing treatment for 14 meetings and final data collection. Preliminary data collection was carried out by measuring the ability of cliff length athletes through a test on May 16, 2022, as many as 10 Mapala athletes University of PGRI Palembang. From May 17 to June 12, 2022, researchers provided treatment in the form of circuit training to as many as 10 Mapala athletes from PGRI Palembang University with training program guidelines (attached). After the athlete was given the next treatment, the last step was June 14, 2022, the researcher took the final data of the study through the athlete's wall climbing ability test.

Based on data from the results of the initial test and the final test of the speed of Mapala athletes, PGRI Palembang University, it is stated that the average speed of athletes in climbing the wall is 99.2 seconds with a standard deviation of 36.57 on the initial ability test (pretest). While in the final ability test (postest) the average speed of athletes in climbing walls is 70.4 seconds with a standard deviation of 30.55. Meanwhile, the results of hypothesis testing concluded that there was an influence of circuit training on the wall climbing speed of Mapala athletes at PGRI Palembang University because of the $T_{\text{tabel}} > \text{calculation}$ ($6,810 > 1.83$).

The test results above show that by being trained in a circuit guided by an exercise program that starts from the lowest intensity to the highest intensity, it has succeeded in affecting the speed of Mapala athletes at PGRI Palembang University in climbing the wall. In

essence, circuit training whose suppressor is the division of groups in posts or circuits makes the athlete's speed increase, this is in accordance with the emphasis of training in the post prepared types of training that can give rise to speed for athletes in climbing walls.

The sport of rock climbing is one of the sports that is currently starting to be favored by the Indonesian people, especially young people and people who are young at heart. According to (Hardiyono, Nurkadri, Pratama, & Laksana, 2019) explained that wall climbing is one of the challenging sports and has a very big risk. The achievement of wall climbing is certainly supported by several factors, especially the training factor. Other opinions explained (Amara, Ramadi, & Mandan, 2022) Some of the things that affect the achievements of a rock climbing athlete so far are psychic factors (emotions), physical factors, technical factors of the athletes themselves. Another factor is the human resources themselves, especially coaches who are able to guide their athletes to be able to excel and a good and correct training program.

According to (Immortal, 2016) the logical consequence of a system of exercises of high quality is usually a high achievement. Except for the coach factor, there are other factors that support and determine the quality of training, namely the results of research discoveries, training facilities and equipment, evaluation results of matches, athletes' abilities and so on. Gordon said in (Hardiyono, Nurkadri, Pratama, & Laksana, 2019) dividing the types of strength into 5 types. The division of strength is based on the relationship of strength, speed, acceleration as well as the relationship of muscle length/tension, so that levels can be made that are all has implications for athletes. In wall climbing sports, the type of strength needed is not only basic strength, but also strength that can give rise to speed.

Circuit training is essentially an exercise that can be modified by adjusting the type of exercise on each post. According to Lutan in (Permana & Pratama, 2021) explained that circuit training is one way that can improve synchronously the overall fitness level of our body which includes basic biomotor components. So circuit training is very helpful in repairing or maintaining and improving the components of physical condition.

Research (Wijaya, Sugihartono, & Yarmani, 2017) as for the data results $R_{hitung} = 0.87 > R_{tabel} = 0.444$ then H_0 is rejected and H_a is accepted meaning that there is a meaningful relationship between X_1 and X_2 together with Y . Contribution of arm muscle strength and hand strength to climbing speed is $K = r^2 \times 100\% = 75.69\%$ So it can be concluded that there is a positive contribution between arm muscle strength and hand strength to climbing speed of 75.69%. The research (Pramukti & Junaidi, 2014) of this study is to determine the difference between Ladder drill training and ABC Run training to increase the speed climbing speed of FPTI rock climbing athletes in Magelang City. Where this study stated the results that Ladder drill training is better than ABC Run training against increasing the speed climbing speed of rock climbing athletes FPTI Magelang City. Ladder drill and ABC Run training have an effect on increasing the speed climbing speed of FPTI rock climbing athletes in Magelang City.

CONCLUSION

Based on the findings of the research results and data analysis, this study can be concluded that there is an influence of circuit training on the wall climbing speed of Mapala athletes at PGRI Palembang University because of the calculation of $T_{tabel} > (6,810 > 1.83)$.

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