

# Circuit Training Method for Tarung Derajat Unimed Athletes

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**Abstract:** *This study aims to determine the impact of the application of the circuit system weight training method in the converting phase of power for athletes fighting degrees in preparation for the National Sports Week. This study uses action research methods developed by Kemis. The instruments used were four forms of tests, namely the right foot kick speed, left foot kick speed, arm punch speed and blow resistance as well as the observation sheet of the athlete's activity during the application of the training method. The results obtained are that through the circuit training method there is an increase in the speed and strength or power of the limbs and arms of athletes in preparation for the national student sports week.*

**Keyword:** Circuit Training, Tarung Derajat.

## 1. Introduction

Tarung Derajat is a martial art that has its characteristics and independence, such as a quick and practical self-defense system with realistic and rational body movements. This is logic and moral action that utilizes the compounds of muscle, brain and conscientious movement to be used primarily in efforts to preserve life's safety and health. For example, avoiding and defending themselves from all forms of violence that damage the morality of humanity and respecting equal rights and obligations in public relations wherever they are, as well as prevention and recovery of physical and mental illness that fosters damage to the life order. In its journey, martial art is known as the Boxer.

There are five typical Boxer main elements, namely: strength, speed, accuracy, courage, and tenacity. All of these elements can function as self-defense and apply the principle of "attack to win" by applying the philosophy of forming self-tenacity to practice is "martial arts training is to conquer yourself, but not to be conquered by others." In structuring the five elements of a boxer technique, good muscle (physical) abilities are needed, namely: anaerobic endurance, strength, speed and accuracy and mental elements, namely: courage and tenacity. Supposedly, these two elements are always inherent dynamically and aggressively to survive to attack which is practical and effective for defense. However, based on tests conducted on seven athletes from the Tarung Derajat Unit of Medan State University (UNIMED), unsatisfactory results were obtained. The results can be seen in Table 1.

**Table 1:** Results of Physical Tests

No	Subject	Right Foot Kick	Left Foot Kick	Blow speed	Blow resistance	Durability
1	Athlete 1	46	65	51	35'	Low
2	Athlete 2	64	40	34	20'	Low
3	Athlete 3	53	50	61	45'	Low
4	Athlete 4	48	39	28	16'	Low
5	Athlete 5	63	42	42	22'	Low
6	Athlete 6	53	52	37	21'	Low
7	Athlete 7	62	43	46	22'	Low

From Table 1 it can be seen that there are still too low physical abilities of athletes. This happens because the

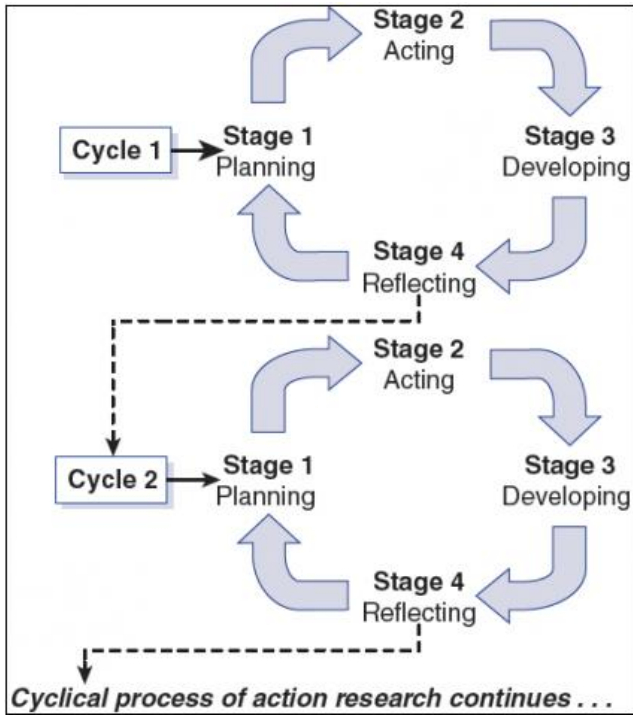
trainer has not been organizing optimally for his training programs. Therefore an effort is needed to fix the problem that occurs, namely by providing physical training to athletes. Physical exercise is an exercise that aims to improve physical condition, which is a crucial factor for every athlete. Without a good physical condition, athlete athletes will not be able to take part in exercises, let alone compete correctly.

One method that can be used in physical training is the circuit training method. Circuit Training is a form of station training arranged in a circle, so that muscle groups work sequentially from station to station. Bompaa (2005) states that circuit training is one of the names of exercises with stations that are carried out in circles or sequentially until they return to their original places which can consist of 6-9 stations. CT exercises must be chosen to convert muscle groups in a row, with better and faster recovery.

From the explanation above, this Circuit training method is by the needs of Tarung Derajat athletes at Medan State University. The purpose of this study was to see an increase in limb muscle power an athlete's arms by applying strength training with the circuit method.

## 2. Research Methods

The research method used is the method of action research. The design of this study consisted of 4 stages, namely: planning, acting, observing and reflecting. The following is a description of the cycle in classroom action research conducted in the study.



**Figure 1:** The ongoing, cyclical process of action research (from Mertler, 2017, p. 38).

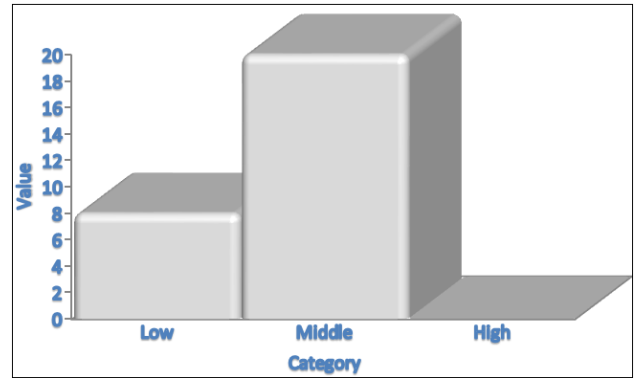
The research subjects in this study were degree fighters who were prepared to attend the National Sports Week. This research was conducted at Unimed with a total of 7 athletes. The research was carried out during the preparation of physical conditions in the face of National Sports Week.

The instruments used were in the form of four forms of right foot kick speed test, left foot kick speed test, arm punch speed test and blow resistance test. The data collection tools used are trainer notes, athlete records, tape recorder recordings, interviews, questionnaires and various documents related to athletes. The observed aspect in each cycle is the athlete's activity during training with the circuit method to see changes in physical condition and attach behavior, to determine the level of progress of his physical condition which will affect the athlete's performance. The data taken is quantitative data from the test results, qualitative data that describes the activeness, enthusiasm, and participation of athletes.

### 3. Research Results and Discussion

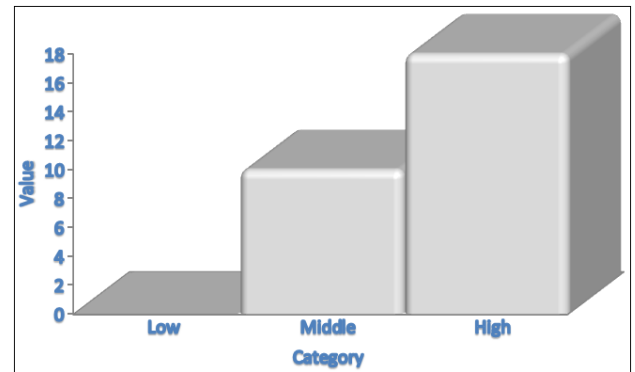
#### Research result

The condition before the implementation of the training activities, it seems that athletes tend to be lazy, the presence on time is still very low, and the spirit of practice is not optimal. Also, based on the results of the physical tests also showed that the athlete's condition was mostly in the moderate category, while for athletes who would compete at a national level it must at least be in a good category. Based on these conditions, a study was conducted to improve the speed and strength or power of the legs and arms of athletes. The following is the research data for two cycles of training activities using the circuit training method.



**Figure 2:** Cycle I Test Results

Figure 2 shows the test results given in cycle I. Of all the tests given, there were four tests to 7 athletes, there were 8 test indicators that were of low value, 20 test indicators were of moderate value and there were no test indicators that reached a high point. That is, from all the test indicators given to 7 athletes, no athlete has reached the target.



**Figure 3:** Cycle II Test Results

Figure 3 shows the best achievement results from athletes. Namely, 18 test indicators reach high levels, 10 test indicators that reach moderate values and no low values. That is, in the second cycle there has been a significant change in kick strength and speed as well as the endurance of the athlete.

Table 2 presents data on the results of Cycle I and Cycle II on each test item is given, namely the right foot kick test, left foot kick test, punch speed test and blow resistance test. Each test item has the best achievement target for athletes.

Table 2. Comparison of the results of a cycle I test and Cycle II tests

NO	Subject	Test Item	Test		Target
			Cycle I	cycle II	
1	Athlete 1	1	78	105	110
		2	69	110	110
		3	96	104	110
		4	40'	57'	60'
2	Athlete 2	1	61	101	110
		2	53	105	110
		3	86	102	110
		4	36'	58'	60'
3	Athlete 3	1	66	107	110
		2	46	104	110
		3	96	103	110
		4	25'	57'	60'
4	Athlete 4	1	60	105	110

		2	51	91	110
		3	87	110	110
		4	25'	59'	60'
		1	63	107	110
5	Athlete 5	2	56	93	110
		3	85	110	110
		4	24'	55'	60'
		1	62	107	110
6	Athlete 6	2	54	98	110
		3	83	93	110
		4	24'	60'	60'
		1	63	109	110
7	Athlete 7	2	52	103	110
		3	85	90	110
		4	26'	57'	60'

Table 2 shows that many changes occur in athletes. In cycle 1, many targets were not reached, even reaching half of the target was difficult. In cycle 2, the target can be achieved properly. Although there are also athletes who have not yet reached the target, the number is very close to the predetermined point. Therefore, the results of this training are many targets that can be met or achieved after the circuit training exercise is carried out.

**Table 3:** Data on the activity of athletes in the first cycle

No	Observation	Achieve	
		Cycle I	Cycle II
1	Athletes respond to training methods	65%	90%
2	Athlete's behavior during training	70%	90%
3	The involvement of athletes during training	65%	90%

In addition to the test results in the first cycle and the second cycle, the results of the questionnaire and observations made during the training can also be seen. Table 3 shows that there is an increase in achievement that is equal to 90%. This shows that using the circuit training method has increased the speed and strength or power of the limbs and arms of athletes in preparation for the national sports week.

#### 4. Discussion

In carrying out training with the circuit training method, athletes are given advance guidance on what will be done during the exercise. This circuit method is carried out sequentially from the station to another station or from one device to another. Training circuits are one of the names of training stations that are carried out in circles or sequentially until they return to their original places which can consist of 6-9 stations (Bompa, 2005). With this exercise, you can change muscle groups in stages and try better and faster recovery. Break interval between stations 60-90 seconds, with 1-3 minutes between circuits. The choice of exercises must be chosen to develop the overall body drive member. The recommended parameters for circuit training exercises are:

**Table 4:** Parameters of circuit training

Guidelines for Basic Strength Training		
Training Parameter	Beginner	Experienced
Length of phase	8-10 weeks	3-5 weeks
Time of year	Off-Season	Off-Season
Load (free weights)	30-40% -RM	40-60% 1-RM
No. Repetitions	12-15	12-15
No. Stations per circuit	9-15	6-9
No. Circuits	2-3	3-5
Duration of circuit	20-30min	30-40min
Rest Between Exercises	90sec	60sec
Rest Between Circuits	2-3min	1-2min
Frequency Per Week	2-3	3-4

Physical training is needed for athletes without muscular physique. Athletes will not have more strength to do the exercises properly. With physical conditions that are not good, will affect all muscle strength in the body. That is, his job as an athlete who should be the champion, will be difficult to achieve. As research conducted by Ambara, states that the relationship between the high achievement of athletes with the level of physical condition achieved theoretically has a significant or influential relationship.

The development of a comprehensive physical condition is very important. Because without a good physical condition, the athlete cannot follow the next training steps. So, before being lowered in a race, an athlete must be in a physical condition and a good level of fitness to deal with the intensity of work and all kinds of stress that he will face in a race. From the description above, it is clear that to develop physical conditions, always pay attention to the preparation of a continuous physical training program.

Almost all sports require a physical component of explosive power the term explosive power is often also used with power, Bompa (2005) explains that explosive power is the main ability to achieve goals. The success of achieving goals is determined according to the needs of the sport such as jumping, running, throwing, kicking, hitting. Included in the athletics branch, especially in throwing and rejecting numbers, repulsions and throws are carried out maximizing energy. Imran (2013) defines power as a result of work in units of time that is carried out when muscle contractions move objects in a certain space or distance. In an exercise program to achieve maximum strength must go through the stage of anatomical adaptation, or the stage of adjusting strength training where an athlete must have experienced strength training with a load of 40-60% RM, between 1-2 microcycles or 1-2 months (Bompa; 1999).

#### 5. Conclusion

The conclusions obtained from this study indicate that using the circuit training method has increased the speed and strength or power of the limbs and arms of athletes in preparation for the national student sports week. This can be seen in the very significant increase of each test item given

to athletes. Data on observations of athletes' activities which included responses, behavior, and involvement of athletes during training also showed an increase in achievement of 90%.

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