The Influence of Circuit Training on Physical Conditions of Sports Training Education Students

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Abstract: The Problems that occur during the lecture process of female students in 2015wastheir result relatively far below the average of the male student.This can be seen in the recapitulation of the value of the subjects in the 2015/2016 odd semester that was 74 for the female, and 82 for the male student. Other data that proved the problemwas when the initial physical condition test was conducted for the Physical condition development course on February 13, 2018, the same problem occurs for the 2015 class year student. The result shows that 87.5% or 7 out of 7 female students have physical conditions in fewer categories. The circuit training method was used to improve the physical condition of a student. In this study, researchers took 7 female population. The sample in this study used a total sampling technique, so the sample in this study amounted to 7 students. The data was obtained from physical condition tests. The results obtained from pretest and posttest were analyzed by t-test. Based on the t-test, it yielded counted t of 2.313 with tabled t 2.015 then Ha was rejected, at alpha level (α) of 0.05. It can be concluded that there is an effect of circuit training on the physical condition of female class B trainees in sports training in 2015.

Keywords: Circuit Training, Physical Conditions

1. Introduction

Sport is a physical activity that has a game activity and is carried out in the form of a match or race (Yusuf H. and AifSyarifudin, 1996: 4). The purpose of doing sports activities are (1) for recreation namely; balancing autonomic nerve function due to mental stress, (2) for education namely; teach values and development of personality and good behavior, (3) to improve physical fitness, (4) for achievement namely; develop one's talents (Kanca, 2006a: 3). The form of the exercise carried out varies according to the objectives to be achieved. According to the National Sports System Law in 2005, a sport is divided into three namely sports education, recreational sports, and sports achievements. Achievement sports are sports that foster and develop sportsmen in a planned, tiered, and sustainable manner through competencies to achieve achievement with the support of sports science and technology (Article 1). Sports achievement is also a sport that emphasizes more on improving an athlete's performance in a particular sporting deficit. Through this achievement, sport can be developed self-potential or talent from the athlete concerned. Sports achievements also play an important role in the

development of athletic personality aspects such as responsibility, competition, discipline, and confidence.

Efforts to improve sports performance are complex things that complement each other and are influenced by various factors. In addition to mental, psychological, tactic and strategy factors, physical condition factors are also very important factors in sports achievement. Physical condition training can play an important role in maintaining and increasing the degree of physical fitness (IwanSetiawan, 1991: 110). Elements of physical conditions that influence the endurance of the heart, breathing, and blood circulation muscle endurance, speed, agility, strength, joint flexibility, and explosive power (IwanSetiawan, 1991: 112). An athlete who has good tactics and techniques will not be able to show his best performance throughout the match/race without being supported by excellent physical abilities, especially cardiac, respiratory and circulatory endurance. Setiawan (1992: 110) describes athletes who have a good level of physical fitness will avoid the possibility of injury which usually occurs if someone is doing heavy physical work. If someone has a good physical condition then he is able to perform physical tasks without experiencing excessive fatigue. If the physical condition is good then; (1) there will be an increase in the ability of the circulatory system and work of the heart, (2) there will be an increase in strength, flexibility, stamina, speed, and other physical components, (3) there will be more economic motion during training, (4) there will be a rapid recovery in the organs after exercise, (5) there will be a rapid response from the organs

The University of Riau Sports Coaching Education study program is one of the study programs that are in line with its vision and mission, which will pass sports trainers capable of producing outstanding athletes. Various subjects based on sports movement skills such as athletics, pencak silat, swimming, sepak takraw, volleyball, basketball, table tennis, and other sports make students required to have good physical fitness in order to be able to attend lectures smoothly. The problems that occur during the lecture process are ongoing skills of the 2015 class students, their ability is far below the average male student, this can be seen in the recapitulation of the value of the courses that the researchers study namely the 2015/2016 odd semester athletics on average 74 students, average students 82. Other data that strengthens probematic is when the initial physical condition test was conducted for the Physical condition development course on February 13, 2018, the same problem occurred for the 2015 class year student. The 2015 physical condition test for female class B students was concluded as 87.5% or 7 out of 8 female students have physical conditions in fewer categories.

Based on the above background, the researcher wants to provide a form of training namely circuit training to improve the physical condition of female students of Class B 2015 Sports Coaching Education.

2. Methodology

This research was conducted at the Volleyball Campus of Rumbai Sports Education Campus. Research time was planned for April, May 2018, with a frequency of 3 times a week. The theory

states that the physical training for 4-6 weeks can increase skeletal muscle strength, lose weight and significantly improve fat and glucose metabolism (Kanca, 2004: 52). Based on the theory, the training duration in this study is 4 weeks.

The type of research used is quasi-experimental (quasi-experimental), with the aim of obtaining information which is an estimate for information that can be obtained with actual experiments in circumstances that do not allow to control and / or manipulate all relevant variables (Kanca, 2006: 79) The subject of the study is the overall variant that is the subject of research. In this study, the number of research subjects used was 7 people of Class B Class 2015 Sports Coaching Education Study Program students.

3. Results and Discussion

A. Description of Research Data
The data obtained as a result of the study are quality data through tests before and after treatment. Exercise training sessions have done on the physical condition of female students of class B sports training in class 2015. The variables in this study are training circuit exercises denoted by X as the independent variable, while the physical condition is represented by Y as the dependent variable.
1. Pre-test results in Physical condition
After testing the physical condition before the training method is implemented, the initial data is obtained with details as given in the Pre-test Results Analysis of the physical conditions in the table:

Table 1. Pre-test analysis of physical conditions

No	*Statistic Data*	*Pre-test*
1	*Sample*	7
2	*Mean*	13,14
3	*Std. Deviation*	3,89
4	*Variance*	15.14
5	*Minimum*	9
6	*Maximum*	19
7	*Sum*	92

Based on the Pre-test Analysis in table 1, the physical conditions can be explained that the pre-test results from the physical conditions as follows: the highest score is 19 and the lowest score is 9, with a mean of 13.14, a standard deviation of 3.89 and variant of 15.14. Analysis of data contained in the frequency distribution as given in Table 2.

Table 2. Pre-test Data Interval of Physical condition

Range	Absolute Frequency	Relative Frequency
9-11	3	42,85
12-14	1	14,28
15-17	2	28,57
18-20	1	14,28
Jumlah	7	100%

Based on the frequency distribution data above, the percentage of 7 samples turned out that 3 samples (42.85%) had the results of physical conditions with 9-11 interval classes, then there were 1 sample (14.28%) having physical condition with Intervals class 12-14, then as many as 2 samples (28.57%) had the results of physical conditions with 15-17 interval classes and 1 sample (6.25%) had the results of physical conditions with 18-20 interval classes. For more details, see the following histogram:

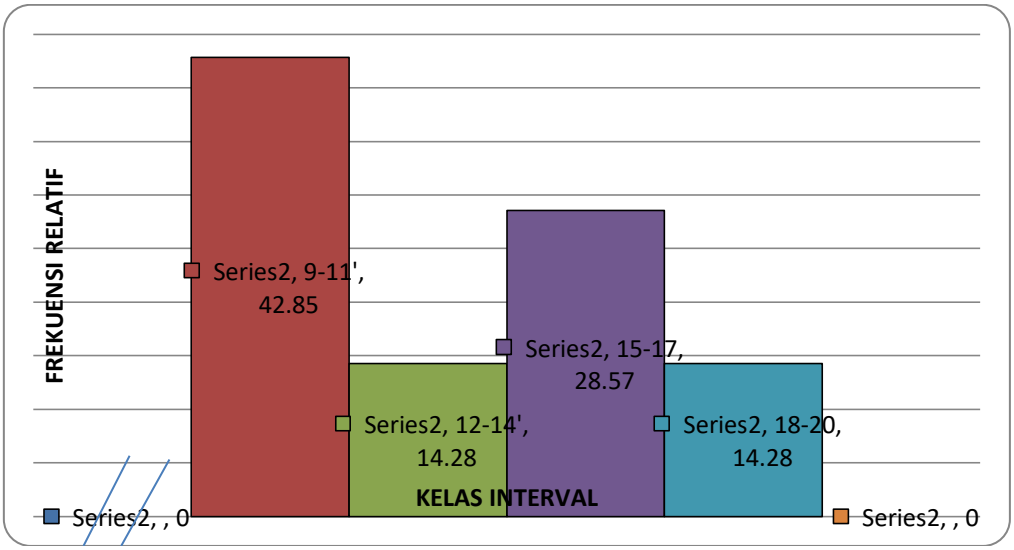

Figure 1.*Histogram*of *Pre-test* of the physical test

2. Post-test results of physical conditions

After testing the physical condition and applying the training practice, the final data is obtained with the details in the analysis of the post-test result of the physical condition as given in Table 3:

Table 3. Analysis of endurance post-test results

No	*Statistical Data*	*Post-test*
1	*Sample*	7
2	*Mean*	15,57
3	*Std. Deviation*	3,41
4	*Variance*	11,62
5	*Minimum*	11
6	*Maximum*	20
7	*Sum*	109

Based on the analysis table above, it can be concluded that the results of the post-test physical conditions are as follows: highest score 20 and lowest score 11, with an average of 15.57, standard deviation 3.41, and variance 11.62. Analysis data present in the distribution frequency can be shown in Table 4.

Table 4. Post-test interval value for durability

Interval	Absolute Frequency	Relative Frequency
11-13	2	28,57
14-16	2	28,57
17-19	2	28,57
20-22	1	14,28
Sum	7	100%

Based on the frequency distribution data above, the percentage of 7 samples turned out as many as 2 samples (28.57%) had the physical conditionsresult; each sample with 11-13, 14-16 and 17-19 intervals and 1 sample (14.28%) have physical conditions with interval classes 20-22. For more details, see the following histogram:

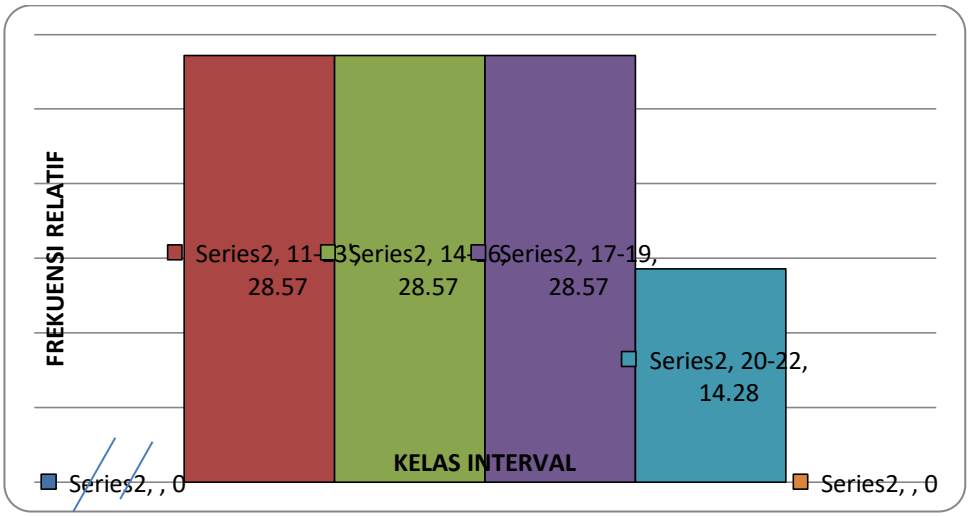

Figure2.Histogramdata for the post-test of physical condition

B. Testing of Requirements Analysis

Testing of requirements analysis is intended to test the initial assumptions that are used as a basis for using variance analysis techniques. Assumptions are data that is analyzed and obtained from samples that represent the population with a normal distribution. For that, what the testers used is the normality test. Normality test is done by Lilliefors test with a significant level of 0.05 with the results of testing the following requirements:

The normality test is carried out by the Lilliefors test, the results of the normality test on the research variable, namely the training (X) circuit training physical condition (Y) can be seen in Table 5

Tabel 5. Normality test for the endurance test

Variable	Calculated L	Tabled L
Pre-test Result	0,220	0,300
Post-testResult	0,139	0,300

Based on table 5 above, it can be seen that the results of the pre-test data on physical conditions after the calculation results inacalculated L of 0.220 and tabled L of 0.300. This means calculated L < tabled L. It can be concluded that the distribution of data from physical conditions is normally distributed. For testing the data, the physical condition of the post-test result in a count of 0.139 < tabled L of 0.300. So it can be concluded that the dissemination of the results of the post-test physical conditions is normally distributed.

C. Hypothesis Test

The hypothesis tested in this study are:

H0: There is no effect of training sessions on the physical condition of female students of class B 2015 sports training study program.

Ha: There is an effect of training sessions on the physical condition of female students of class B 2015 sports training study program

The data obtained were analyzed descriptively, then further testing the research hypotheses that had been proposed according to the problem wes: "there was the effect of a training drill on the physical condition of female students of class B in 2015. Based on the t-test analysis, it yielded a calculated t of 2.313 and tabled t of 2.015. Means that t count > t table. It can be concluded that Ha is accepted.
From the results of the above analysis, it can be concluded that there is an influence of the training session on the physical condition of female students of the 2015 class B sports training at alpha level (α) 0.05 with a 95% confidence level.

D. Discussion
Physical conditions play an important role in any improvement of performance besides other aspects such as technical, tactic and mental. A physical condition that is very necessary for all sports. The physical training program must be well planned, systematic and aimed at improving the physical condition and functional ability of the body system so that it can cause athletes to achieve better performance as in expectation.
One of physical condition that is very dominant by an athlete is the condition of endurance. Endurance can be interpreted as a holding time, that is the length of time a person does an intensity of work or away from fatigue.
Physical exercise is very good for repairing and influencing the cardiovascular system which includes the heart, lungs and blood circulation. Exercise will be useful if carried out properly and correctly so that there is an influence on the development of physical fitness. The forms of training include training sessions.

Based on the above theory, to get the results of a good physical condition can be done by training. The following is an example of what can be done if it turns out that a particular player needs special training. This study uses a sample of 7 people who carried out the initial data collection and then given training circuit training, after that the final data was taken again. After getting the initial and final data, the data is analyzed.

Based on t-test yield calculated t of 2,313 with tabled t of 2,015 then Ha is accepted, at alpha level (α) 0,05. It can be concluded that there is an effect of training sessions on the physical condition of female students of class B 2015 sports training study program
Based on the results of the research until the data processing after the research was carried out starting from the data collection until the data processing was finally used as a benchmark as a discussion of the results of the study as follows: there is the effect of training sessions on the physical condition of the 2015 class B class sports training students, this shows there is an influence between the two variables mentioned above. Testing the hypothesis that shows that there is an effect of the training session on the physical condition of female students of the 2015 class B training in sports training, this illustrates that physical conditions have an effect on circuit training.
Based on the analysis above, it is clear that in order to get the good physical condition, it is necessary to exercise by using circuit training. Many forms of exercise can improve a person's physical condition such as fartlek training intervals and others. However, researchers only did exercises on the training course, so that the next researcher may look for other forms of training that improve physical conditions.

4. Conclusion

Based on the t-test, it yielded calculated t of 2.313 with tabled t of 2.015 then Ha was rejected, at alpha level (α) 0.05. It can be concluded that there is an effect of circuit training sessions on the physical condition of female students of class B 2015 sports training. It can be concluded that there is an effect of a co-training on endurance training in female class B 2015 sports training students, meaning that training can be used to improve physical conditions.

Recommendations that might be useful in an effort to increase the muscle power of the arms and shoulders are:For researchers, as input for further research in order to develop knowledge in the field of sports education. For trainers is to be able to apply the training method by using Circuit Training to be more effective in improving physical conditions.For readers, this research is useful as input in developing exercise strategies in sports that can improve the mastery of sports techniques among athletes.

References

Gerry A. Carr. 2003. *Atletik Untuk Sekolah*. Jakarta: Raja GrafindoPersada.
Hadisasmita, Yusuf dan Aif Syarifuddin. 1996. *Ilmu Kepelatihan Dasar*. Jakarta: Depdiknas.
Harsono. 1988. Coaching dan Aspek-Aspek Psikologis dalam Coaching. Jakarta: Depdikbud
Radcliffe, C. James & Farentinos, C. Robert.1985. Plyometrics Explosive Power Training. USA: Human Kinetics Publishers.
Rosdiani, Dini. (2012). Dinamika Olahraga dan Pengembangan Nilai. Bandung.
(http://pasuhtar.blogspot.com). Dibrowsing pada tanggal 22 Februari 2018
Penjas16.blogspot.com. Dibrowsing pada tanggal 22 Februari 2018
ayusinauonline.blogspot.com. Dibrowsing pada tanggal 22 Februari 2018
Wikipedia.org. dibrowsing pada tanggal 22 Februari 2018