



EXERCISE SPEED, AGILITY AND QUICKNESS (SAQ) TO IMPROVE PHYSICAL FITNESS

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Abstract

The purpose of this study was to determine the speed, agility and quickness (SAQ) exercise in improving physical fitness. The sample of this study was a student of a male in the Study Program of Sports Education Teacher Training and Education Faculty Universitas Muhammadiyah Surakarta peers of 30 people, to determine the sample using purposive sampling. This research method uses quasi-experimental research. Data analysis techniques using a constellation of one group pretest_posttest design. Data analysis techniques used in this study are using descriptive analysis and inferential analysis, descriptive analysis is used to describe the results of this research while inferential analysis using paired test samples at a significant level $\alpha=0.05$ analysis used with the help of SPSS version 20.0. The results of this study showed that there is a significant influence of exercise speed, agility, and quickness (SAQ) to improve physical fitness in students of sports education FKIP Muhammadiyah University of Surakarta. Based on these findings, it can be assumed that SAQ training is an effective exercise to improve physical fitness. However, further research is needed to pay attention to other exercise methods that are associated with improving physical condition.

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INTRODUCTION

Restrictions on activities have been implemented by governments in various countries around the world in recent times since the outbreak of COVID-19 has had a huge effect on people's lives in particular. In research (Emy et al., 2020; Hasanah et al., 2020; Hikmat et al., 2020); (Jariono & Subekti, 2020) that the implementation of social distancing with large scale and daily activities must be done from home, is a strategy that is considered effective to prevent the spread of coronavirus outbreak. However, the fact that prolonged acts of self-isolation harm physiological and psychological responses.

The need for a physical movement that should be one of the important components in maintaining body fitness becomes difficult to do as a result of this condition (Ardella, 2020; Nuhadi, 2020; Nurmudin et al., 2020; Wicaksono, 2020). To maintain a routine of physical activity with regular exercise is one of the strategies to maintain the condition of physical health and mental health as long as a person is in a state of restriction of activities (Wicaksono, 2020).

The science of coaching in sports is a science that is always evolving from time to time. The phenomenon of motion in sports related to physical activity is very interesting to study. Physical activity is a series of deliberate movements to improve physical fitness, so that harmony and harmony form for the sake of a healthy and fit body, thus for the successful implementation of this task there needs to be conformity between the conditions that must be met that is anatomical and physiological to the kind and intensity of physical tasks that must be carried out. The term training is always associated with a physical activity that is designed consciously, carried out

regularly, and gradually intending to improve one's performance.

The status of physical fitness is the core goal of a training program, while achievement is a bonus of perseverance and commitment that wakes up during The science of coaching in sports is a science that is always evolving from time to time. The phenomenon of motion in sports related to physical activity is very interesting to study. Physical activity is a series of deliberate movements to improve physical fitness, so that harmony and harmony form for the sake of a healthy and fit body, thus for the successful implementation of this task there needs to be conformity between the conditions that must be met that is anatomical and physiological to the kind and intensity of physical tasks that must be carried out. The term training is always associated with a physical activity that is designed consciously, carried out regularly, and gradually intending to improve one's performance.

The status of physical fitness is the core goal of a training program, while achievement is a bonus of perseverance and commitment that wakes up during walking exercises (Erfan, 2017; Julianto, 2016; Listyarini, 2015; Syahrudin, 2020). Physical fitness is very important not only for athletes who will participate in a match but also needed for all ages. With good fitness status, health levels will also increase automatically.

In the development of sports coaching science today, many approaches to exercise models, one of which is applied to improve physical fitness. The main study in this study was about Speed, Agility, and Quickness exercises which were later abbreviated as SAQ, where many kinds of literature explained that SAQ exercises are worth using to improve physical performance.

SAQ training is a very popular training model used by trainers in the

process of training physical conditions from beginner to professional level (Amar et al., 2017; Fauzi et al., 2020; Latip & Isyani, 2020; Mohammad Hasan Basri & Noer Wahid Riqzal Firdaus, 2020). This form of SAQ training is designed by developing high-intensity physical movements as well as optimizing the components of speed, agility, and acceleration of motion will have an impact on the increasing neuromuscular conditions (Azmi & Kusnanik, 2018; Polman et al., 2009) Exercise with the type of forcing heart conditioning will provide the effectiveness of circulatory processes throughout the human organs, so that it will force changes in heart rate and cardiovascular adaptation in performing physical activities of sports (Hayashi, 2016).

The main objective in training is to improve physiological function through biological adaptation to provide an effect of improving the performance of physical activities carried out. With the increasing physiological function automatically the body's organ system and body immune system will function well in caring for the body so that the body will always be in a fit state

METHODS

The method used in this research is quasi-experimental using the design of pretest_posttest one group design. The free variables are Speed, Agility, and Quickness exercises while the bound variables are physical fitness. In this research there are several steps taken, namely " (1) establish the research subject group; (2) carry out physical fitness pretests (3) To treat Speed, Agility and Quickness exercises; (4) Carry out physical fitness post-test (5) look for pre-test and post-test average scores and be compared between the two; (6) find the

difference between the two averages through the method of paired samples test (t_{test}).

Participants

The sample of this research is the Student of Sports Education Muhammadiyah University of Surakarta with the sex of the son of semester 1 amounting to 30 people as a sample of research while the place of this research was carried out at the Muhammadiyah University of Surakarta in December 2020 until January 2021.

Sampling Procedures

Sampling techniques using purposive sampling techniques. Because this study considers gender and age.

Materials and Apparatus

The data collection technique in this study used treatment tests. Physical fitness tests consist of 60-meter running tests, pull-ups, sit-ups, vertical jumps, and 1200-meter runs.

Procedures

The procedure in this study is that researchers conduct pretests to find out the initial ability of physical fitness. The norms of physical fitness can be seen in the following table:

Table 1. TKJI Value Age 16-19 years

Test item	Value				
	5	4	3	2	1
60_m Run	≤ 7.2"	7.3" - 8.4"	8.4" - 9.7"	9.7" - 11.1"	≥ 11.1"
Pull ups	≥ 19	14 - 18	9 - 13	5 - 8	≤ 4
Sit Ups	≥ 41	30 - 40	21 - 29	10 - 20	≤ 9
Vertical jump	≥ 73	60 - 72	50 - 59	39 - 49	≤ 38
Run 1200 meters	≤ 3.14"	3.15" - 4.25"	4.26" - 5.12"	5.13" - 6.33"	≥ 6.34"

Table 2. TKJI Classification Age 16-19 years

No	Value Total	Classification
1	22 – 25	excellent
2	18 – 21	Good
3	14 – 17	Are
4	10 – 13	Less
5	5 – 9	Less Once

Design or Data Analysis

This data analysis used in this study is using t_{tes} at a significant level of $\alpha=0.05$ to find out the difference between pretest and posttest physical fitness. Overall, this data analysis uses SPSS version 20.0.

RESULT

1. Descriptive analysis

The purpose of descriptive data analysis is to draw a distribution of "pretest and posttest" physical fitness through the application of speed, agility, and quickness exercises.

Tabel 3. H Results of descriptive analysis "pretest and posttest " physical fitness

Statistics	Physical fitness	
	Pretest	Posttest
N	30	30
Mean	15.77	21.83
Range	6	5
Minimum	14	19
Maximum	20	24

Based on the results of the descriptive analysis in table 3, it can be concluded that there is an increase in pretest and posttest physical fitness of students of sports education study program of Muhammadiyah University of Surakarta there is an increase after being treated with speed, agility and quickness exercises. This is evidenced by the

difference in the average value of "pretest and posttest" of 15.77 and 21.83 difference in the average value of 6.06. Thus it can be concluded that speed, agility, and quickness exercises can improve the physical fitness of students of the Sports Education Muhammadiyah University of Surakarta reviewed from the gender.

2. Prerequisite test

In this prerequisite, the test is carried out using the normality test and homogeneity test. Normality test requirements are normal distributed data if $KS-Z \geq \alpha=0.05$ otherwise the data is assumed not to be normally distributed if $KS-Z \leq \alpha=0.05$ while the homogeneity test is used Barlet test or Levene Statistic on homogeneity analysis of homogeneous data variant if $p > 0.05$ and not homogeneous if $p < 0.05$. More details can be described as follows:

a. Test normality

The normality test is used as a prerequisite for the hypothesis test. As for this normality test using barlet test. Normality test requirement is normally distributed data if $KS-Z \geq \alpha=0.05$ otherwise data is assumed not to be normal distribution if $KS-Z \leq \alpha=0.05$. The normality test can be seen in the following table:

Tabel 4. Normality test results "pretest and posttest" physical fitness

Statistics	Physical fitness	
	Pretest	Posttest
Sig.	0.278	Sig.
Sig.	0.00	Sig.

Based on normality test results data "pretest and posttest " normal distributed physical fitness or $KS-Z > \alpha = 0.05$. Thus it can be concluded that the sample of this study as a whole is distributed normally. After the first condition is fulfilled, a homogeneity test is carried out. The

homogeneity test can be seen in the following table:

Tabel 5. Homogeneity test results "pretest and posttest" physical fitness

Levene Statistics	χ^2	$\chi^2_{table \alpha = 0,05}$	Sig. (p)
"pretest – posttest"	0.209	43.773	0.649

The test results give an indication of homogeneity test results using Levene statistic obtained values of 1,863 and $p = 0,649 > \alpha 0.05$ or testing indicates that the value $\chi^2_{counts} = 0.209$ is smaller compared to the χ^2_{table} of value = 43.773 with a significant degree $(p) = 0.097$ so it is concluded that the "pretest and posttest" physical fitness data tested came from a homogeneous variance population. After the overall requirements are met, then the hypothesis test is then carried out.

3. Hypothesis test

In this hypothesis test to find out the difference between "pretest and posttest" physical fitness using exercise exercises speed, agility, and quickness. The results of the hypothesis test can be seen in the following table;

Tabel 6. Results paired samples to test (t_test) data "pretest and posttest" physical fitness

	physical fitness		
	t_count	Sig	t_table (
pretest_ posttest	13.571	.000	1.699

Based on analysis paired samples test (t_test) "pretest and posttest" physical fitness in table 6 above obtained the value of t_{count} of 13,571 and $t_{table (29(10);0.05)}$ of 1,699. Thus it can be concluded that the correlation coefficient (paired samples test (t_test) between pretest and posttest significant physical fitness improvement

or H_0 is rejected and received H_1 . This means that there is a significant influence of speed, agility, and quickness exercises on improving physical fitness.

Koefisien overall physical fitness of students sports the education Muhammadiyah University of Surakarta can be generalized or can apply to the overall population of students where a sample of 30 people taken.

DISCUSSION

Based on the results of data analysis can be stated that speed training, agility, and quickness can improve the physical fitness of students of sports education Muhammadiyah Surakarta of University. this is evidenced by the results of analysis paired samples to test (t_test) "pretest and posttest" physical fitness in table 6 above obtained t_{count} value of 13,571 and $t_{table (29(10);0.05)}$ of 1,699. Thus it can be concluded that the correlation coefficient (t_test) between pretest and posttest of significant physical fitness improvement or H_0 is rejected and received H_1 .

Research on improving physical fitness through the approach of exercise is widely done, but in this study, researchers tried to do an approach to exercise by utilizing the method of exercise speed, agility, and quickness. Research conducted by (Mohammad Hasan Basri & Noer Wahid Riqzal Firdaus, 2020) on speed, agility, and quickness (SAQ) exercises to improve agility in PUSLATCAB futsal athletes in 2020. But there is a fundamental difference with this research, that previous research has only utilized one variable physical component namely agility. The difference between previous researchers and research conducted by researchers in the exercise of speed, agility, and quickness (SAQ) to improve physical fitness.

This research was conducted in the form of exercise physiology experiments on humans as an object of research that of course has many weaknesses and limitations, although it has been attempted to do control as optimally and objectively as possible. The weaknesses and limitations in question need to be put forward as considerations in interpreting and generalizing the findings of this study. limitations of research that need to be addressed

This research only involves a sample of research, namely men's students in the sports education study program of the Muhammadiyah University of Surakarta, so that this research can only be generalized to the group of students of men. Women's samples should also be used as samples because, in speed, agility, and quickness exercises include in the whole aspect of the exercise, to be able to generalize to the characteristics of students.

CONCLUSION

This research shows that there is a significant influence of speed, agility, and quickness (SAQ) exercises to improve physical fitness. However, this study is only limited to identifying the physical fitness of students following the characteristic gender and limited to only male students. Therefore, it is necessary to conduct further research by involving other variables related to this research.

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