Mulyadi Hendri, Indah Debby. The Effect of Exercise Methods on Variations and Strengths of Explosive Muscle Power of The Power of 100 meters of Running Capability in State Middle School 1 Rambah Rokan Hulu Regency. Journal of Education, Health and Sport. 2019;9(7):626-630. eISSN 2391-8306. DOI http://dx.doi.org/10.5281/zenodo.3353479
http://ojs.ukw.edu.pl/index.php/johs/article/view/7185

The journal has had 7 points in Ministry of Science and Higher Education parametric evaluation. Part B item 1223 (26/01/2017).
1223 Journal of Education, Health and Sport eISSN 2391-8306 7

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The authors declare that there is no conflict of interests regarding the publication of this paper.

Received: 01.07.2019. Revised: 05.07.2019. Accepted: 28.07.2019.

The Effect of Exercise Methods on Variations and Strengths of Explosive Muscle Power of The Power of 100 meters of Running Capability in State Middle School 1 Rambah Rokan Hulu Regency

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ABSTRACT

The problems found in male students of class VIII2 of SMP Negeri I Rambah Rokan Hulu District. that the results of the sprint run achieved by students are still not optimal, this is because the practice of watching too much does not make students take it seriously. Students are lazy, students are bored, students are stiff. From the students 'running techniques such as swinging their hands with foot movements less harmoniously, besides the coordination of the students' running movements were not maximal, so that when students ran, the coordination between swinging hands and feet still looked stiff and made the student's running speed reduced, beside seen from the leg muscle strength that students have, so to create the maximum running speed results, students always have to practice the variation training method and the strength of the leg muscles. The aims of this study was to determine the effect of the variation training method, leg muscle strength on the results of the 100-meters sprint in class VIII2 of SMP Negeri I Rambah Rokan Hulu Regency, Indonesian Country.

The type of research is Pseudo Experiment. The population is all male students of class VIII2 of SMP Negeri I Rambah, Rokan Hulu Regency with a population of 14 male students, with the sampling technique being total sampling or taking the entire population of male students of class VIII2 in SMP Negeri I Rambah, 14 people in Rokan Hulu Regency. The instrument used in this study was to measure leg muscle strength by using the leg dynamometer test and to measure the run of students a 100-meters run test was conducted.

The results of the study and analysis of the data showed that (1) the form of training methods for the variation of limb explosive strength significantly affected the increase of 100 meters runner effect of 8.11, it can be concluded that there was influence of leg muscle strength on the results of 100 meter sprints in male students class VIII2 State Middle School I Rambah Rokan Hulu Regency (2) the form of exercise using the power of explosive limb muscle power has a significant effect on the ability

of the 100 meters running 9.07 (3) there is a difference in the effect of variation training with the explosive strength of leg muscle 0.96.

Keywords: Exercise Method Variation, Leg Muscle Strength, 100 Meter Sprint Running

1. INTRODUCTION

Exercising the body will be healthy because, with the exercise of many health benefits for the body, exercise is a means of forming a healthy and disciplined person (Tucker, Martin, Jackson, Morrow, Greenleaf, & Petrie, 2014). Because sports activities carried out by the body will be healthy and fit, with these sports activities a person will get used to living with a healthy pattern, because in sports activities there are certain rules that must be obeyed by each implementation. In the law of the Republic of Indonesia No.3 of 2005 concerning the National Sports System Article 20 paragraph 3 which reads as follows. ″ That education informal education is carried out at every level of education, educational sports in non-formal paths can be carried out in a structured, tiered manner and can be assisted by sports forces prepared by each education unit ″.

Based on the explanation above, we can conclude that educational sports can be carried out both formally and non-formally and carried out systematically, tiered and guided by each teacher or lecturer or assisted by sports personnel prepared by each educational unit in carrying out these sports activities. The sports activity is the athletic branch number 100 meters sprint. Running a sprint is running fast because a short distance run is carried out with a maximum speed starting from the start to the finish line (Kram, Grabowski, McGowan, Brown, & Herr, 2010). In a sprint run, there are some basic techniques that must be mastered by a sprinter. The technique is a start technique, techniques for running and techniques entering the finish line. In the implementation of the 100-meters run, the most needed aspect is the aspect of leg muscle strength.

This certainly can not be separated from the factors that affect the speed of the 100-meters sprint. Several factors in it such as biomechanical aspects. Biomechanics is the aspect of running speed determined by the length of the step, the frequency of steps at the time of the run. Motoric properties that affect speed consist of muscle power, coordination, muscle condition, reaction speed, contraction speed, anthropometric characteristics, and stamina.

Muscle power plays an important role in speed, for beginner runners who are carrying out training, directed direction of energy will greatly help improve achievement. Muscle power is an internal force that will overcome the external force (gravity, air resistance), resulting in changes in motion when running (Thom, Morse, Birch, & Narici, 2007). This is where muscle strength is needed until the sprinter enters the finish line. Strength of leg muscles is the ability of a person to move all the strength of his limbs, in this case, the leg muscles from the start to the finish line. So by having good leg muscle strength, it will create a good 100-meters sprint.

Based on the observations of the authors in the field, especially in class VIII2 of State Middle School I Rambah, Rokan Hulu Regency, which is related to the 100-meters short distance running, there are still obstacles that the results of the sprint run achieved by students are still not optimal, this is due to poor student running technique such as swinging hands with foot movements less harmonious, besides that the coordination of the running of students is also not maximal, so that when students run, the coordination between swinging hands and feet is also less harmonious, thus making the student's running speed decrease. Besides that the running speed of students is also not maximal, this can be seen from the limb muscle power possessed by students, so to create the maximum running speed results, students always have to practice techniques, speed, and leg muscle strength.

The aims of this study was to determine the effect of the variation training method, leg muscle strength on the results of the 100-meters sprint in class VIII2 of SMP Negeri I Rambah Rokan Hulu Regency.

2. RESEARCH METHODS

2.1. Method

The method used in this study is quasi-experimental research. Maksum (2012) says that in experimental research is a study that is conducted strictly to find out the causal relationship between these variables. It is said that this research is an experimental research because this study will examine the cause and effect relationship of the independent variable on the dependent variable, namely the effect of training (treatment).

2.2. Participant

The population is the total number of research subjects Arikunto (2006). The population in this study included Grade VIII^2 students of SMP Negeri 1 Rambah, Rokan Hulu Regency, Indonesia Country, which numbered 14 people.

According to Arikunto (2014), the sample is part of the number and characteristics of the population. Sampling in this study using proportional random sampling technique is a sampling technique performed on sampling units, where the sampling unit consists of one group (Nasution, 2003). Based on the criteria of the sample, samples were taken from one population group, namely 14 people who were sampled.

2.3. Data Collection Technique

The type of data in this study is primary data, data that is taken directly and obtained from the person conducting the determined experiment, while the secondary data is obtained from the trainer. Sources of data are data that have been collected by researchers originating from research. Data collection techniques were obtained from the results of the initial test (pre-test) and final test (post-test) measurement of the ability of the variation training method and Strength of leg muscle explosive power in class VIII^2 of SMP Negeri I Rambah Rokan Hulu Regency, Indonesia Country.

2.4. Data Analysis Technique

The data analysis technique of this study includes the following three stages: data normality testing, homogeneity testing, and hypothesis testing data.

2.4.1. Normality test

The purpose of the normality test is to find out whether the data is normally distributed or not. Normality testing using the Liliefors formula. The criteria used to determine the normal distribution is if L-count <L-table, the distribution is normal and if L-count> from L-table, the data is not normal.

2.4.2. Homogeneity Test

Homogeneity tests were carried out to obtain information on whether the two sample groups had homogeneous variances or not according to Sudjana (2005). For homogeneity, testing use the following formula.

$$F = \frac{Biggest\ variance}{Smallest\ variance}$$

The variance is declared homogeneous if the hypothesis is rejected zero (H0) accepted F-count ≤ F-table, and the variance is declared not homogeneous if the alternative hypothesis (Ha) is accepted (F-count ≥ F-table) received distribution F has df (degree of freedom) numerator = (n1-1) and denominator (n2- 1).

2.4.3. Hypothesis testing

To test the research hypothesis, the t-test is used. The test is used to determine the truth of the statement or guess hypothesized by the researcher. The formula that can be used in applying this t-test is as follows (Arikunto, 2006).

$$t = \frac{|\bar{x}_1 - \bar{x}_2|}{\sqrt{\frac{\sum D2 - \frac{(\sum D)^2}{N}}{N(N-1)}}}$$

3. RESULT AND DISCUSSION

After testing the normality and homogeneity test hypothesis testing was conducted to find out whether variations in training had an effect on the ability to run 100 meters (1) the form of training methods for the variation of limb muscle explosive power significantly affected the increase of 100 meters running effect 8.11 so it could It was concluded that there was an effect of limb muscle strength on the results of the 100 meter sprint on male students of class VIII2 of State Middle School I Rambah Rokan Hulu Regency (2) the form of exercise using leg muscle explosive strength significantly affected the 100 meters running ability 9.07 (3) there is a difference in the effect of variation training with the strength of explosive muscle leg strength 0.96.

Efforts to improve achievement are inseparable from the training methods applied by the trainers. Bompa & Buzzichelli (2015) explained that the actual achievement is determined by many factors, but the quality factor of the training method has a very strategic position, because however great the potential, talent and motivation of a person without adequate training will be difficult to achieve optimal performance. Based on the results of this study it was proven that the variation training method had a significant influence on the ability of 100 Meters Run. Running speed is not only influenced by the variation training method, but also by the biomotor abilities of trained athletes.

Wrong biomotor ability that is directly related to running speed is the power of explosive muscle leg power. This factor is directly related to the running speed process, starting from rejecting the start block, to getting the maximum speed. The greater the explosive power that is owned, the maximum speed can be achieved and conversely less explosive power will be difficult to achieve maximum speed (Lockie, Murphy, Schultz, Knight, & de Jonge, 2012). Based on the results of this study it was proven that the power of explosive limb muscle power had a significant effect on the ability of 100 Meters Run.

CONCLUSSION

Based on the analysis of the results of the research and discussion above, it can be concluded that there is a difference, a significant effect of the variation training method and the strength of the explosive strength of the leg muscles on 100 meter run in SMP Negeri 1 Rambah of 0.98. The results of the study gave rise to suggestions from researchers as follows:

1. It is recommended that sports teachers improve their 100-meters running skills using more varied training methods.
2. In order to practice the skills of explosive limb strength, it is recommended that sports teachers and trainers use variation training
3. To readers who are interested in this research and want to re-examine it so that it will be carried out in a more flat scope, the program is better and the time is good in the morning or evening. And can see several other factors that have not been noticed by researchers.

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