Correlation of Reaction Time on Athletics Triple Jump in High School Students

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ABSTRACT

The purpose of the study. This research aims to determine the influence of reaction time on triple jump athletics in high school students in Medan City.

Materials and methods. This type of research is a qualitative associative approach with path analysis. The sample comprised of 30 extracurricular athletic male students taken using total sampling techniques. The instruments used are a triple jump test and a whole body reaction test. The data was analyzed using product moment analysis, then continued with path analysis via a structural model at = 0.05.

Results. The results showed reaction time contributed to triple jump ability (r>0.05). The results of reaction time with triple jump ability showed that there was a contribution (r=0.847 and r^2=0.719=62.41%)

Conclusions. Triple jump athletics is greatly influenced by reaction time and we recommend that in training students the role of reaction time is the influencing factor of physical condition.

Keywords: Reaction Time; Athletics Triple Jump; High School Students.

INTRODUCTION

The coaching and development of educational sports is carried out by paying attention to the potential, abilities, interests and talents of students as a whole, both through intracurricular and extracurricular activities (Indonesian Law No. 3 of 2005 and Government Regulation of the Republic of Indonesia, 2007). The difference between these activities is that intracurricular activities are carried out during school teaching hours, while extracurricular activities are carried out outside school teaching hours. One of the sports that is popular and in demand among students at school in extracurricular activities is athletics. In general, the branches in athletics are divided into four parts, namely, walking numbers, running numbers, jumping numbers and throwing numbers.
To be able to improve your ability to excel in athletics, especially jumping events, you need to increase your strength, endurance and speed. One of the efforts that we can make to strengthen muscles is with exercises that force the muscles to resist a load, which is commonly called weight training (Sunaryo Basuki et al., 1979: 17). Training load is a combination of volume and intensity. Throughout the training program there is always a progressive increase in the load. This increase always occurs with an increase in volume before an increase in training intensity occurs (IAAF, 1993: 80). To increase strength, the weight we use must be quite heavy, while the number of repetitions is adjusted to the training program. Training carried out using training weights will be able to stimulate muscles to contract optimally and will increase explosive strength. Weight training is very suitable to be used to increase explosive strength for throwers, jumpers and sprinters (Sunaryo Basuki et al, 1979: 17).

Reaction time comes from the words speed and reaction, speed is the ability to carry out the same activity repeatedly and continuously in a short time, while reaction is the ability of the body to react as quickly as possible when a stimulus is received. by somatic, kinetic, or vestibular receptors (Toho Cholik Mutohir and Ali Maksun, 2007). Speed is the ability of a muscle or group of muscles to respond to stimuli in a fast or short time (Sukadiyanto, 2005). Speed is the ability to run and move very quickly (Tangkudung and Wahyuningtyas Puspitorini, 2012). Speed is a person’s ability to move in the shortest possible time (Andi Suhendro, 2007). Speed is the ability to carry out similar movements consecutively in the shortest possible time or the ability to cover a distance in a short time (Harsono, 1988). Speed is the ability to perform continuous movement in the same form in the shortest possible time (Moch. Sajoto, 1995). (Sukadiyanto, 2005) various types of speed are divided into two types of speed, namely reaction time and movement speed. Reaction time is a person's ability to respond to a stimulus in a short period of time. Reaction time can be divided into single reactions and compound reactions. Single reaction time is a person's ability to respond to stimuli whose direction and target are known in a short time. This means that before carrying out a movement in the athlete's mind there is already a perception and direction as well as a target for the motor plan to be carried out so that the stimulus conditions can
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be predicted before the movement is carried out (Jaliusril et al., 2012). Meanwhile, compound reaction time is a person's ability to respond to stimuli that do not yet know the direction and target in a short time (Ismoyo, 2014). This means that before making a movement, the athlete's mind already has a perception, but the direction and target of the movement that will be carried out is not yet known.

MATERIALS AND METHODS

Study participants

The population consisted of 30 extracurricular athletic male students taken using total sampling techniques.

Study Organization

The research method or method used in the research is a descriptive research method with correlation techniques which aims to determine whether there is a contribution of leg reaction time to the ability to triple jump. In the research there are two variables, namely: a) The independent variable, namely: Reaction time (X) b. The dependent variable is: triple jumping ability (Y).

Test and measurement procedures

In this study, we used 2 reaction time ice tests and a triple jump results test (with a measurement of meters). The first test is the foot reaction time test. The foot reaction time in question is the ability of a person's feet to make movements in a short time after a stimulus, so in this study the researcher will use a foot reaction time test (Foot Reaction Test). Next, measure the results of the triple jump: The testee stands behind the starting line, runs towards the jump box, performs a triple jump (stepping up, stepping and jumping) then lands in the jump box.

RESULTS AND DISCUSSION

In testing the correlation of leg explosive power data, a probability value (P) of 0.000 was obtained, which was smaller than the value α: 0.05. Thus, it can be stated that has a significant relationship and likewise with the reaction time of the legs, a probability value (P) of 0.000 is obtained which is smaller than the value α: 0.05. Thus, it can be stated that the reaction time of the legs and the ability to triple jump has a significant relationship. In testing the correlation of the reaction time of the feet on the ability to triple jump ability, the Pearson correlation test value is 0.719. Thus, it can be
stated that there is a strong relationship seen from the correlation coefficient value which is greater than the $\alpha: 0.05$ value.

<table>
<thead>
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<th>VARIABLE</th>
<th>N</th>
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<th>INFORMATION</th>
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<tbody>
<tr>
<td>X-Y</td>
<td>30</td>
<td>0.719</td>
<td>Sig.</td>
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Based on the results of regression analysis testing and data correlation between reaction time on the ability to triple jump, a regression value of 0.719 was obtained with a probability level of $(0.000 < \alpha: 0.05)$, for an R squared (coefficient of determination) value of 71.90% contribution or contribution of reaction time to the ability to triple jump. From the Anova test or F test, the calculated F is 24,488 with a significance level of 0.000. Because the probability value (0.000) is much smaller than the $\alpha: 0.05$ value, the regression model can be used to predict the contribution of reaction time on the ability triple jump (can be applied to the population from which the sample was taken). Therefore, the probability value (0.000) is much smaller than $\alpha: 0.05$. So there is a significant contribution to the reaction time of the legs to the ability to triple jump.

Based on the theory that says; Reaction time is the movement made by the body to respond as quickly as possible after receiving a stimulus. Reaction time is a person's ability to respond to a stimulus in a short period of time. Reaction time is the time needed to give a kinetic response after receiving a stimulus. So it can be concluded that reaction time is the speed of responding to stimuli and the speed of moving after stimulation and providing a kinetic response in a short time. The element of reaction time also has an important role in the ability to triple jump ability.

CONCLUSION

Based on the results of the research and discussion that have been put forward, the following conclusions can be drawn: There is a contribution of reaction time to the ability to triple jump ability, equal to 71.90%. Based on the results of research data and conclusions, the following suggestions can be put forward: 1) For coaches and physical
education teachers, it is recommended that in an effort to improve the triple jump, it is necessary to pay attention to the elements of physical ability that can support, reaction time of the legs; 2) For athletes running the triple jump, it is recommended that athletes need to equip themselves with knowledge about the importance of developing physical abilities such strength and leg reaction speed; 3) For students who are interested in carrying out further research, it is recommended that they involve other variables that are relevant to this research as well as a wider population and sample.

REFERENCES


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APPENDIX

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