Performance Of Triple Jumpers In Relation To Selected Motor Fitness Variables

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Abstract

The purpose of the study was to find out the relationship between performance and selected motor fitness variables of under 17 triple jumpers. To reach the purpose of the study, total of twenty (N=20) state level triple jumpers were selected for the study. The participant selection was random and all of them were healthy and free of injury. Prior to the commencement of the study, Physical Activity Readiness Questionnaire (PAR-Q) and informed consent were obtained from all participants. In this study was specifically conducted to evaluate the performance of triple jumpers with respect to such motor fitness variables: agility, explosive power and speed respectively. The motor fitness test had been conducted in this study were shuttle run test (agility), standing broad jump (explosive power) and 50m speed test (speed). The relationship for each motor fitness tests with triple jump performance were tested. The triple jump test was conducted on a standard long jump venue that has all the basic needs of a triple jump competition to be held. The tool used for triple jump test is a measuring tape. Descriptive statistics were derived for all test variables using SPSS. To determine the relationships between performance and selected motor fitness variables was evaluated by Pearson product moment coefficient of correlation. The level of significance is set at 0.05 for testing the hypothesis. The result of the study indicates that there would be significant correlation between performance and selected motor fitness variables such as agility, explosive power and speed.

Key Words: Agility, Explosive power and speed.

1. INTRODUCTION

Sports includes all form of competitive physical activity or game which through casual or organised participation, at least in part aim to use, maintain or improve physical ability and skills while providing enjoyment to participants, and in some cases, entertainment for spectators.
Jumping is an event that requires an athlete to jump and land at the farthest distance. According to Pornomo, there are three basic styles that are commonly used during triple jump that are the hang, sail and kick kick style. Despite differences of the jump styles, the aspects that need to be emphasized during the jump include speed during the aiming phase, push-off power in the jump phase, kick-off style in the kick-off phase and body balance during landing. These four phases are believed to significantly influence the performance of the athlete. In order to perform a great jump, motor fitness is believed to play a significant role. Generally, motor is a function of the whole body as an efficient organism. The importance of this motor fitness in related sports activities is considered to be a critical aspect of athletes achieving their desired performance. Several previous studies has shown the relationship between physical fitness and performance. As of the authors’ knowledge, not much study has been conducted on investigating the relationship of motor fitness and performance of triple jumpers. Thus, the main objective of this study was to determine whether there was a relationship between selected motor fitness variables and triple jump performance under 17 triple jumpers. This will be an initial study before commencing to the finding of the proper way of physical training among triple jumpers.

1.1 Statement of the Problem

The purpose of the study was to find more about the “relationship between performance and selected motor fitness variables namely agility, explosive power and speed of triple jumpers”.

1.2 Objectives of the Study

1. Assess the relationship between performance agility of the triple jumpers.
2. To find out the relationship between performance and explosive power of the triple jumpers.
3. To analyses the relationship between performance and speed of the triple jumpers.

2. MATERIALS AND METHODS

This study involved thirty active under 17 state level triple jumpers. The participant selection was random and all of them were healthy and free of injury. Prior to the commencement of the study, Physical Activity Readiness Questionnaire (PAR-Q) and informed consent were obtained from all participants.

2.1 Data Collection

The motor fitness test had been conducted in this study were shuttle run test (agility), standing broad jump (explosive power) and 50m speed test (speed). The relationship for each motor fitness tests with triple jump performance were tested. Shuttle run test was conducted...
to measure agility of the participants. The performer started behind the starting line on the signal “go” and ran to the blocks, picked up one, return to the starting line, and places block behind the line; then repeats the process with the second block. Allow some rest between the two trails. The score for each performer was the length of time required (to the nearest tenth of a second) to complete the course. Recorded only the bet trial (Yobu, 2010). Horizontal jump test was conducted to measure power. Horizontal jump length was measured using measurement tape on stand-up jump mats. Measurements were calculated from the jump starting line to any part of the body that landed closest to the starting line and recorded by the researcher(Yobu, 2010). 50 Meter Sprint Test was conducted to measure speed. For this test, the distance of 50 meters was measured using a measuring tape and markers were placed using tape and cone on the start and end lines. Then, participants were asked to stand behind the starting line and start to run from a standing position when “go” instruction was given. Participants were required to run within 50 meters of the speed limit. Timing of 30 meter sprint test was recorded using stopwatch (Casio, Malaysia). Researcher started the clock based on the subjects’ first initial movements until the participant reaches the finish line(Yobu, 2010). The triple jump test was conducted on a standard long jump venue that has all the basic needs of a triple jump competition to be held. The tool used for triple jump test is a measuring tape.

2.2 Statistical Techniques

Descriptive statistics were derived for all test variables using SPSS. To determine the relationships between performance and selected motor fitness variables was evaluated by Pearson product moment coefficient of correlation. The level of significance is set at 0.05 for testing the hypothesis.

3. RESULT AND DISCUSSIONS

Table 1: Descriptive statistics on agility, explosive power and speed and performance of under 17 triple jumpers

<table>
<thead>
<tr>
<th>Sl No</th>
<th>Variables</th>
<th>N</th>
<th>Mean</th>
<th>SD</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Performance</td>
<td>20</td>
<td>14.33</td>
<td>1.06</td>
</tr>
<tr>
<td>2</td>
<td>Agility</td>
<td>20</td>
<td>11.75</td>
<td>0.30</td>
</tr>
<tr>
<td>3</td>
<td>Explosive Strength</td>
<td>20</td>
<td>2.06</td>
<td>0.26</td>
</tr>
<tr>
<td>4</td>
<td>Speed</td>
<td>20</td>
<td>6.89</td>
<td>0.58</td>
</tr>
</tbody>
</table>

Table 1 shows that, the descriptive statistics of the selected motor fitness variables and performance of the under 17 triple jumpers. The mean value on the performance of under 17 triple jumpers was 14.33 with a standard deviation 1.06. The mean and standard deviations
for the agility were 11.75 and 0.30. The mean values on the explosive strength and speed were 2.06 and 6.89 respectively. The SD values on the explosive power and speed were 0.26 and 0.58 respectively.

Table 2: Relationship between performance and Selected motor fitness variables of triple jumpers

<table>
<thead>
<tr>
<th>Performance</th>
<th>PRFM</th>
<th>AGTY</th>
<th>EXPS</th>
<th>SPD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Pearson Correlation</td>
<td>1</td>
<td>-0.62*</td>
<td>0.70*</td>
<td>-0.47*</td>
</tr>
<tr>
<td>Sig.</td>
<td>-</td>
<td>0.00</td>
<td>0.00</td>
<td>0.03</td>
</tr>
<tr>
<td>N</td>
<td>20</td>
<td>20</td>
<td>20</td>
<td>20</td>
</tr>
</tbody>
</table>

*Correlation is significant at the 0.05 level (2-tailed)

Table 2 Shows the Correlations coefficient between performance and selected motor fitness variables of triple jumpers. The statistical results showed that agility (r= -0.62*, p=0.00, p<0.05) showed a significant relation with performance. The statistical results showed that explosive power (r= 0.70*, p=0.00, p<0.05) showed a significant relation with performance. The statistical results showed that speed (r= -0.47*, p=0.03, p<0.05) showed a significant relation with performance.

3.1 Discussion on Findings

The study on relationship of selected motor fitness variables to the playing ability has brought to light few findings and observations. Motor fitness variables chosen for the research such as agility, explosive power and speed. The result showed that motor fitness variables has significantly related to the performance of triple jumpers.

Results also showed that there was a significant relationship between horizontal jump test and triple jump performance. The results of these test that representing the power component was in line with the findings from Muhamad et al., (2001) that found the participants with high explosive leg strength in standing broad jump test also showed a positive relationship with triple jump performance. The horizontal jump were used as plyometric exercise to develop leg explosive (power) and it has been proven to increase jumps, it is because movement of these both jump have a similarity with triple jump take off phase that contain stretch shortening cycles of the leg muscles (Ashker et al., 2019). Muraki et al., (2008) stated that to increase jumping distance, there were needed for long jumper to
transfer horizontal velocity into vertical velocity during take-off phase. Therefore, power from horizontal jump can help to maximize take-off velocity to produce greater jumps in triple jump performance. The findings of this study showed that there was a moderate negative relationship between the shuttle run test, 50-meter sprint test and the triple jump performance. In the event of a triple jump, an individual must have the ability to run fast and quick movement ability. This is so that the power generated during the run can be transferred to power generation to jump further. Abdullah (2009) stated that the speed and agility that occurs when an athlete runs gives the athlete the best impact before jumping. This findings was in line with the study of Mackata at al., (2015) that found significant relationship between 100-meter sprint speed and the ability of jumping.

4. CONCLUSIONS

1. It was concluded that performance of under 17 triple jumpers were significantly correlated with agility at 0.05 levels of confidence.
2. The results show that performance of under 17 triple jumpers were significantly correlated with explosive power at 0.05 levels of confidence.
3. It was proved that performance of under 17 triple jumpers were significantly correlated with speed at 0.05 levels of confidence.

5. REFERENCES

7. Anitha J, Kumaravelu P, Lakshmanan C, Govindasamy K. Effect of plyometric training and circuit training on selected physical and physiological variables among


