THE STUDY OF EFFECT OF SAND TRAINING ON SPEED ABILITIES OF UNIVERSITY LEVEL VOLLEYBALL PLAYERS

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ABSTRACT

The purpose of this study was to find out the effect of sand training on selected speed abilities of university level volleyball players. The subjects were taken from affiliated colleges of Punjabi University Patiala who had performed at Inter University Level. There were 24 volleyball players (Experimental group-12, Control group-12). Court speed test, Agility, 30 meters sprint was used as variables in this study. ‘t’ test was applied to find out difference between pre training and post training abilities.

KEYWORDS: - Agility, Speed, Sand Training, Experimental Group, Control Group.

INTRODUCTION

During the last few decades, volleyball has gained tremendous popularity all over the world with the improvement in performance in competitive volleyball and increasing awareness of the significance of sports and games for the welfare of the human being after its introduction in modern Olympic Games. There is rapid increase in performance at different level of competitions in volleyball. The players possessing high performance level in the all performance determining factors have the chance to win Olympic or other world level competition. In fact height is the main prerequisite for the volleyball game but alone height is not helping to get success in the high level competitions. Volleyball is not like other sports giving time to the athlete to respond in his optional way to the given situation. By nature it is a rebound sport, where the athlete has to adapt himself faster. Because of the quick reflexes expected from players, sometimes fraction of delay in reaction may bring negative results on performance. In volleyball, blocking and spiking required exceptional vertical jumping ability. During blocking and spiking the jumps are performed with adjustment of foot or with running take off or with the hop or from stand still positions.

Kumar and Alexander (2004) stated that plyometric are used to exploit the muscles cycle of lengthening and shortening in order to increase maximal power. There is a quick and
forceful eccentric contraction, or lengthening of a muscle group, followed by an explosive and violent concentric contraction or shortening of the same muscle group. There are three phases of the Stretch-shortening cycles (SSC), which will be very important to remember the muscle physiology phase 1 is called the eccentric phase or stretch phase. It is this phase where the pre-loading of the agonist muscle takes place. A rapid eccentric contraction of the agonist muscles uses the SEC to store elastic energy. Phase 11 is the most important phase of the SSC. This phase is often called the amortization phase or the transition phase. Amortization refers to the gradual extinction, extinguishing or deadening of something. Phase 11 is the time that elapses between the end of the phase 1 (eccentric action) to the beginning of the concentric contraction (phase-111), Phase 111 is often called the concentric phase of the SSC or the violent shortening of the agonist muscles. The force generated is greater than that of an isolated concentric muscles action due to the alpha motor neurons stimulating the agonist muscle group through the stretch reflex. This phase also utilize the stored elastic energy from phase 1 to increase the energy needed for force output. Wilt (1975) stated that there was strong evidence to indicate that 1972 Olympic 100 M, 200M winner from the USSR. Valery Borozov, utilized plyometric drills as part of his training which led to his unexpected victory at Munich. Wilt further expressed his opinion that the polymeric drills should be used to bridge the gap between speed, strength and the power, required in producing the explosive reactive movements so necessary to excellence in jumping, throwing and sprinting.

Researchers have proved different training procedures were effective for improvement of various motor qualities. Like vertical jump, reaction speed, movement speed, strength, strength endurance, power etc. and their important for the successful performance in volleyball. According to Kumar et. al. (2002) that plyometrics train the muscle to produce high forces in a short time to cause sport specific improvement in speed, quickness, agility and powers. Plyometric training is also known as jump training and it is aimed towards the development of jumping and running abilities. It is proposed to bridge the gap between speed and strength training. Plyometrics or more accurately stretch shortening training involves a rapid strengthening of a muscle immediately followed by a powerful contraction. The stretching action permits the storage of elastic energy and the activation of the stretch reflex. Both mechanisms increase the potential strength and speed of the subsequent muscular contraction. Plyometric training include various jumping and rebounding exercises that are supposed to develop the muscle, stretch reflex; this would promote faster and more efficient
recruitment of the motor units. He concluded that ploymetrics and weight training programme are the ideal way to increase one’s vertical leap for volleyball as long as the ploymetrics exercises are performed properly. Dintiman (1964) reported after experimenting the long term effect on supplementing sprint training with flexibility did not help in increasing the performance in speed.

OBJECTIVE

To find out the effect of sand training on selected speed abilities of university level volleyball players

HYPOTHESIS

It was hypothesized that training on sand would develop the speed ability.

METHODOLOGY

The present study has been conducted to find out the effect of sand training on selected speed abilities of university level volleyball players

Selection of the Subjects:

For the purpose of selection of the sample of study was delimited to the male volleyball players those have at least participated in the Inter University were identified. The twenty four male volleyball players were selected from colleges of Punjabi University Patiala. All 24 subjects were divided by lottery methods into two groups namely experimental group and control group consisting of 12 subjects each.

<table>
<thead>
<tr>
<th>Sr. No.</th>
<th>Name of the exercise</th>
<th>Number of repetition</th>
<th>Intensity</th>
<th>Rest period</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>15 meters sprint</td>
<td>15 mt x 3 rep</td>
<td>Maximum possible effort</td>
<td>Complete recovery (2-5 min.) in between the sets for all the exercises.</td>
</tr>
<tr>
<td>2.</td>
<td>6 meters shuttle run</td>
<td>6 mt x 2 rep</td>
<td>Maximum possible effort</td>
<td></td>
</tr>
<tr>
<td>3.</td>
<td>9 meters shuttle run</td>
<td>9 mt x 2 rep</td>
<td>Maximum possible effort</td>
<td></td>
</tr>
</tbody>
</table>
Tests used for the study:-

1. Court Speed Test (4.5 meter x 4 corners):- A demonstration of the court speed test was given to the group of the subjects to be tested. The subject was asked to take position in such a way that he has to sit on the medicine ball which is placed at the centre of the court. On signal from the coach the performer has to run to each corner of the court (4 corners) and seats on the medicine ball placed in the corner, each time he comes to center and sits on the medicine ball. The subject was asked to perform this movement in the shortest possible time. The finishing time is recorded.

Score:- the time was taken from the starting signal till he finishes all the four corners, time was noted. Two chances were given the best time taken out of two attempts.

2. Agility ability (92 meters):- 6 medicine balls 3 on each side are placed at the distance of 3 m of each other on the side line of the volleyball court. The subject was asked to stand at the point which is in the center and ½ meter away from the end line. On signal the subject starts running towards the points 1 to 6 successively. After touching each point he returns to the starting point. The time from start to the finish in taken.

The procedure of ball touching was in the order- 1,7,2,7,3,7,4,7,5,7,6,7.

Score:- The time taken from the starting signal till he finishes all the 6 point was noted. Two chances were given. The least time consumed out of two trials was taken as a score for the test.

3. 30 meters sprint:- The starter was positioned behind the subjects and gave command “Ready” and clapped his hands above his head as a signal to start the race. The subjects ran as fast as possible to the finish the line marked at a distance of 30 meters from the starting line and started decelerating only after crossing the finish line. The time keepers one for each subject were standing on the side of the finish line. They started their stop watches when they saw the starter clapping his hands and stopped their watches when the chest of the subject crossed the plane of the finish line. Time was recorded to one of the second. Three attempts were given with a pause of at least three to five minutes in between.

Score:- The best of the three attempts was recorded as score of the subject.

STATISTICAL PROCEDURE: -

The collected data was analyzed through the statistical treatment i.e. Mean, Standard Deviations, ‘t’ test.
**TABLE-2**
COMPARISON IN PRE AND POST TRAINING TEST VALUES OF
EXPERIMENTAL GROUP

<table>
<thead>
<tr>
<th>Name of Test</th>
<th>Pre training (n=12)</th>
<th>Post training (n=12)</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td>92 m S.R.</td>
<td>24.46</td>
<td>1.10</td>
<td>23.90</td>
</tr>
<tr>
<td>4.5 m x 4 C.S.</td>
<td>18.72</td>
<td>1.01</td>
<td>18.07</td>
</tr>
<tr>
<td>30 m Sprint</td>
<td>4.54</td>
<td>0.33</td>
<td>4.14</td>
</tr>
</tbody>
</table>

Tabulated value=1.796

**TABLE-3**
COMPARISON IN PRE AND POST TRAINING TEST VALUES OF CONTROL GROUP

<table>
<thead>
<tr>
<th>Name of Test</th>
<th>Pre training (n=12)</th>
<th>Post training (n=12)</th>
<th>‘t’ value</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Mean</td>
<td>S.D.</td>
<td>Mean</td>
</tr>
<tr>
<td>92 m S.R.</td>
<td>25.33</td>
<td>0.90</td>
<td>24.88</td>
</tr>
<tr>
<td>4.5 m x 4 C.S.</td>
<td>18.87</td>
<td>0.70</td>
<td>18.59</td>
</tr>
<tr>
<td>30 m Sprint</td>
<td>4.72</td>
<td>0.42</td>
<td>4.60</td>
</tr>
</tbody>
</table>

Tabulated value=1.796

**DISCUSSION & FINDINGS**

The present study has been conducted to find out the effect of sand training on selected speed abilities of university level volleyball players. The twenty four male volleyball players were selected from colleges of Punjabi University Patiala. Results showed that the mean values of all the speed abilities had no improvement in the post test. The study indicated that four weeks sand training has caused no significant improvement in the test for speed ability of experimental group and control group. The hypothesis was rejected in this study. There was insignificant difference of speed abilities of both groups.
REFERENCES


