

EFFECT OF RESISTANCE TRAINING ON THE SPEED OF JUMP SERVE IN VOLLEYBALL



PHYSICAL EDUCATION

Keywords : Agility and Balance

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ABSTRACT

Resistance training is based on the principle that muscles of the body will work to overcome a resistance force when they are required to do so. When you do resistance training repeatedly and consistently, your muscles become stronger. The purpose of the study is to find out the effect of the resistance training in determining the speed of jump serve in volleyball. 10 players from Indian navy were selected as subjects. A pre test was conducted and a post test after 6 weeks. This experiment shows the development of strength of muscles and that leads to change of speed of the ball. The application of resistance training in the training schedule increase the strength and the speed of jump serve in volleyball. This training positively effects in the player's performance in the matches. They gain many aces and destroy the serve reception formation of the opponents.

I. INTRODUCTION

One of the most dramatic skills in modern volleyball is the jump and serve or spike serve, which provides the exciting and dynamic skill that is captivating for players and spectators alike .the player starts about four to five meters behind the end line of the court, uses a fast and explosive run up ,a dynamic spike take off and an exciting spike action at the peak of their jump that sends the ball across the net at a very high speed ,with heavy top spin and at a sharp downward angle .The jump serve has become a dangerous offensive weapon for the top volleyball teams of today. A good serve can produce a number of aces over the course of a match. Resistance training is a type of physical exercise specializing in the use of resistance to induce muscular contraction which builds the strength, anaerobic endurance, and size of skeletal muscles. When properly performed, Resistance training can provide significant functional benefits and improvement in overall health and well-being, including increased bone, muscle, tendon and ligament strength and toughness, improved joint function, reduced potential for injury, increased bone density, increased metabolism, increased fitness,^{[2][3]} improved cardiac function, and improved lipoprotein lipid profiles, including elevated HDL ("good") cholesterol. Training commonly uses the technique of progressively increasing the force output of the muscle through incremental weight increases and uses a variety of exercises and types of equipment to target specific muscle groups. Strength training is primarily an anaerobic activity.

DELIMITATION

The subjects are the volleyball players from Indian Navy Cochin. Sex-male The players with in an age group of 18-30 will be selected as the subjects. The 10 players are selected as the subjects. The training is scheduled for 6 weeks. A camera and KINOVEA VIDEO and analysis software were used. A

red coloured band with one meter height will be to caliber the speed.

LIMITATION

The response of the player at the time of data collection is the primary limitation. Injury, illness of the subject at the course of the data collection Performance level while testing may have been influenced by environmental condition and dietary habits of the subjects.

HYPOTHESIS

In a specific application of the resistance training to the volleyball players, the hypothesis of this investigation is that a weight training program increase the jump serve speed in the volleyball players.

II. SIGNIFICANCE OF THE STUDY

This study will help to evaluate the effect of resistance training, as improves the serving speed in volleyball players. The result and findings of the study will help the players to produce aces and to score points. It help to demoralise the opponents service reception formation. The opponents will be demoralized and it will be very hard to receive the serve.

III. METHODOLOGY

SELECTION OF SUBJECTS

For the purpose of the study 10 men volleyball players were selected as subjects. The players are in the age group of 18-30.

PROCEDURE

A camera is placed 8m away from the post and it should be in line of post, in a stand of height 1.20 m. a red coloured band with the height of 1m is rounded in the top of the post. Ask the players to stand behind the end line, minimum of 4-5 meters. then tell them to do jump serve forcefully and accurately into the other court. three successful chances will be given to each

players and the fastest one will be considered as the score. KINOVEA video analysing software will be used to analyse the speed of the ball. After 6 weeks of weight training programme (3 sessions per week), the players will be again tested the jump serve speed. A pre test and post test is conducted before and after the 6 week resistance training respectively.



WORKOUT ROUTINE

DAY 1	DAY 2	DAY 3
Back and Biceps Lat Pull Down Pull Up Biceps Curl (Dumbbell)	Chest and Shoulder Bench Press Chest Flye (flat bench) Shoulder Press Upright Row	Legs Squat Leg extension Leg Curl Seated Calf Raise

Note: Take sufficient(2sets min) warm up. Stretch b/w sets. 2min rest b/w sets (for strength). Each exercise with 2warm up and 3 working sets.

INSTRUMENT

1. A camera.
2. KINOVEA video analyzing software.

RESEARCH DESIGN

Experimental research design will be single group design, before and after resistance training.

STATISTICAL TECHNIQUES

T-ratio will be selected as statistical technique, were as the study is testing a single group of players before and after training.

ANALYSIS OF DATA AND RESULT OF THE STUDY

SL NO.	PRE TEST (m/s)	POST TEST (m/s)	RESULT
1	12.26	13.19	Increased
2	13.20	13.44	Increased
3	11.43	12.07	Increased
4	10.50	11.03	Increased
5	12.71	12.71	No change
6	12.28	12.93	Increased
7	11.97	11.91	Decreased
8	13.79	14.02	Increased
9	12.11	12.36	Increased
10	10.57	11.23	Increased

The data listed in the above table indicate that the performance of volleyball players before and after the six week resistance training in this case 80% of the players increases the jump serve speed.10% didn't get any change and 10% decrease the speed. The value of t is 3.99

Pretest (p1)	Posttest (p2)	Diff(p2-p1)	Dev(Diff-M)	Sq. Dev
12.26	13.19	0.93	0.52	0.27
13.20	13.44	0.24	-0.17	0.03
11.43	12.07	0.64	0.23	0.05
10.50	11.03	0.53	0.12	0.02
12.71	12.71	0.00	-0.41	0.17
12.28	12.93	0.65	0.24	0.06
11.97	11.91	-0.06	-0.47	0.22
13.79	14.02	0.23	-0.18	0.03
12.11	12.36	0.25	-0.16	0.02
10.57	11.23	0.66	0.25	0.06
		M: 0.41		S: 0.93

Difference Scores Calculations

Mean: $0.41\mu = 0$

$S^2 = SS/df = 0.93/(10-1) = 0.10$

$S^2_M = S^2/N = 0.10/10 = 0.01$

$S_M = \sqrt{S^2_M} = \sqrt{0.01} = 0.10$

Speed of pre test and post test (km/p)



DISCUSSION OF FINDINGS

In this chapter the results of the data analysis are presented. The data were collected and then processed in response to the problems posed in chapter1 of this dissertation. The fundamental goal drove the collection of the data and the subsequent data analysis. The aim is to analyse effect of resistance training on the seed of jump serve in volleyball. A camera is used to analyse the speed. KINOVEA video analyzing software is used. These objectives were accomplished. The findings presented in this chapter demonstrate a good result in volleyball players of Indian navy this training can be applicable to school and college players. The players get a significant improvement in the speed of jump serve. The training should be given to every sports person who need strength. It will devolops strength in the muscles.

SUMMARY

Resistance training is based on the principle that muscles of the body will work to overcome a resistance force when they are required to do so. When you do resistance training repeatedly and consistently, your muscles become stronger. The purpose of the study is to find out the effect of the resistance training in determining the speed of jump serve in volleyball. 10 players from Indian navy were selected as subjects. A pre test was conducted and a post test after 6 weeks. This experiment shows the development of strength of muscles and that leads to change of speed of the ball.

CONCLUSIONS

The application of resistance training in the training schedule increase the strength and the speed of jump serve in volleyball. This training positively effects in the player's performance in the matches. They gain many aces and destroy the serve reception formation of the opponents.

REFERENCES

- [1] Science and Practice of Strength Training By Vladimir Zatsiorsky; William J. Kraemer
- [2] Strength Training for Young Athletes By William J. Kraemer; Steven Fleck
- [3] The Ultimate Guide To Weight Training For Volleyball (Paperback) by Robert G. Price Volleyball Skills & Drills (Paperback) by Kinda S. Lenberg
- [4] Complete Conditioning for Volleyball (Paperback) by Allen E. Scates
- [5] Jump serve Jake Maddox; Tuesday Mourning; Bob Temple Minneapolis : Stone Arch Books, ©2008.