



IMPACT OF JUMP ROPE TRAINING ON SELECTED POWER PARAMETERS AND SKILL PERFORMANCE VARIABLES AMONG VOLLEYBALL PLAYERS

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ABSTRACT

The current study was to examine the role of jump rope training on selected power parameters and skill performance variables among volleyball players. This research aimed to determine which one is more effective in improving the power parameters and skill performance. **Methodology:** The purpose of the study was find out the power parameters and skill performance impact of jump rope training among volleyball players. To achieve the purpose study forty male participants were selected from Sri Ram Volleyball Academy, Dr.NGP college of arts and science, Coimbatore, Tamil Nadu, and India. The age of the participants ranged between 18 and 25 years. The selected participants were divided into two equal group consist of twenty each. Groups I underwent jump rope training in the period of eight weeks and Group II acted as a Control Group. The power parameters and skill performance variables namely upper body power was measured by seated medicine ball throw test and lower limb explosive power was measured by vertical jump test and spiking ability was measured by wall spiking test and serving ability was measured by russel lange volleyball service test respectively. The data collected from the two groups before and after the experimental period were statistically examined for significant improvement by using *t* ratio. Whenever the '*t*' ratio was found to be significant, to determine which of the paired means differed significantly. In all cases 0.05 level of significance was fixed. **Results:** It was very clear that eight weeks of jump rope training significantly improved power parameters and skill performance among volleyball players and it also show that there was no significant difference among control group. Finally, the result of the study shows that jump rope training shows performance over power parameters and skill performance and upper body power and lower limb explosive power and spiking ability and serving ability when compare to the control group among volleyball players.

INTRODUCTION

Sport is all forms of physical activity which, through casual or organized participation, aim to use, maintain or improve physical fitness and provide entertainment to participants. Performance in sports and games depends on both physical and mental abilities. Body and mind have an equal contribution in human success. Sport may be competitive, where a winner or winners can be identified by objective means, and may require a degree of skill, especially at higher levels. Volleyball is an exhilarating and exigent sport that has developed into a premier interscholastic and professional spectator event. Jumping is a basic activity

that needed to successful performance in volleyball. Because specific technical tactical elements such as spiking, blocking and jump serving are performed while jumping. Serving, passing and placing the ball are accompanied by spiking or attacking actions. Training function of the lower extremities is the main function of all regimens doing the jumping or hopping is the key to success of the player. Jump rope training requires the co-ordination of several muscle group to sustain the precisely timed and rhythmic movements that are integral to the exercise (Ozer,D 2010).

JUMP ROPE

A The sports and fitness potential of rope jumping has emerged from the dark gyms used by boxers, martial artists, wrestlers, and other athletes who discovered and eked out its benefits. Today, rope jumping is often featured prominently as part of sports training and fitness programs because it has proven itself as a valuable technique that provides a wide range of benefits and competitive advantages. Sports training benefits include increased speed, power, agility, and explosiveness. Fitness benefits include weight loss, increased cardiovascular and anaerobic conditioning, and improved balance and coordination. Nonetheless, many coaches, fitness trainers, and sports and fitness enthusiasts remain unaware of the full potential of this simple but challenging exercise. And even those coaches and athletes who are already inspired to incorporate rope jumping into their training programs may be unsure just how to tailor these techniques to meet the unique demands of their particular sport. When done properly, jump rope training can lead to dramatic improvement in sports performance. For example, star baseball players have used rope jumping to improve their grip strength and increase their eye hand coordination and bat speed. who triggered a martial arts craze in the United States, used rope jumping as a warm-up and as a training strategy to develop timing, balance, quickness, and speed. Bruce Lee, (2003).

METHODOLOGY

The purpose of the study was find out the power parameter and skill performance impact of jump rope training among volleyball players. To achieve the purpose study forty male participants were selected from Sri Ram Volleyball Academy, Dr.NGP college of arts and science, Coimbatore, Tamil Nadu, and India. The age of the participants ranged between 18 and 25 years. The selected participants were divided into two equal group consist of twenty each. Groups I underwent jump rope training in the period of eight weeks and Group II acted as a control group. The power parameters and skill performance variables namely upper body power was measured by seated medicine ball throw test and lower limb explosive power was measured by vertical jump test and spiking ability was measured by wall spiking test and serving ability was measured by russel lange volleyball Service test respectively. The data collected from the two groups before and after the experimental period were statistically examined for significant improvement by using t ratio. Whenever the 't' ratio was found to be significant, to determine which of the paired means differed significantly. In all cases 0.05 level of significance was fixed to test hypotheses.

Criterion Measures: It is evaluate power parameters and skill performance variables where chosen as the criterion measures to this study for testing.

TABLE-I
CRITERION MEASURES

| S.No | Criterion variables | Test items | Unit of measurements |
|--------------------------|----------------------------|---|----------------------|
| POWER PARAMETERS | | | |
| 1. | Upper body power | Seated Medicine ball throw | In Meters |
| 2. | Lower limb explosive power | Vertical jump test (Sergeant jump) | In Meters |
| SKILL PERFORMANCE | | | |
| 3. | Spiking ability | Wall spiking test | In Counts |
| 4. | Serving ability | Russell Lange volleyball test Serving test | In Points |

STATISTICAL ANALYSIS

The collected data on above said variables due to all groups were statistically analyzed with using 't' test at 0.05 level of confidence. To find out the significant Improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$).

TABLE – II

MEAN AND DEPENDENT 'T' – RATIO FOR THE PRE AND POST TESTS ON JUMP ROPE TRAINING GROUP AND CONTROL GROUP ON UPPER BODY POWER AND LOWER LIMB EXPLOSIVE POWER

| variables | Group | Pre | post | Standard deviation | Standard error mean | t- ratio |
|-----------------------------------|--------------|-------|-------|--------------------|---------------------|----------|
| Upper body power | Experimental | 3.57 | 3.67 | 0.002 | 0.03 | 201.00* |
| | Control | 3.57 | 3.58 | 0.008 | 0.03 | 1.00 |
| Lower limb explosive power | Experimental | 54.55 | 57.60 | 0.22 | 0.05 | 61.00* |
| | Control | 54.55 | 54.75 | 0.61 | 0.13 | 1.45 |

*Significant level 0.05 level degree of freedom (2.09, 1 and 19)

Mean standard deviation and t-value were calculated for each outcomes measure can be found in Table-II. The result shows that the pre-test and post-test mean values of experimental group and control group (3.57,3.67) (54.55,57.60) and (3.57,3.58) (54.55, 54.75) respectively and the post-test mean values

respectively. The obtained Experimental group t-test value on Upper body power (t=201.00) and Lower limb explosive power (t=61.00). The table value required for significant difference with degrees of freedom 1 and 19 at 0.05 level of confidence. The obtained 't' test value of experimental group was greater than the table value 2.09. The results clearly indicated that the jump rope training and of the experimental group improved due to role of jump rope training among volleyball players.

FIGURE-I

BAR DIAGRAM SHOWS THE MEAN VALUE OF UPPER BODY POWER AND LOWER LIMB EXPLOSIVE POWER BETWEEN JUMP ROPE TRAINING GROUP AND CONTROL GROUP

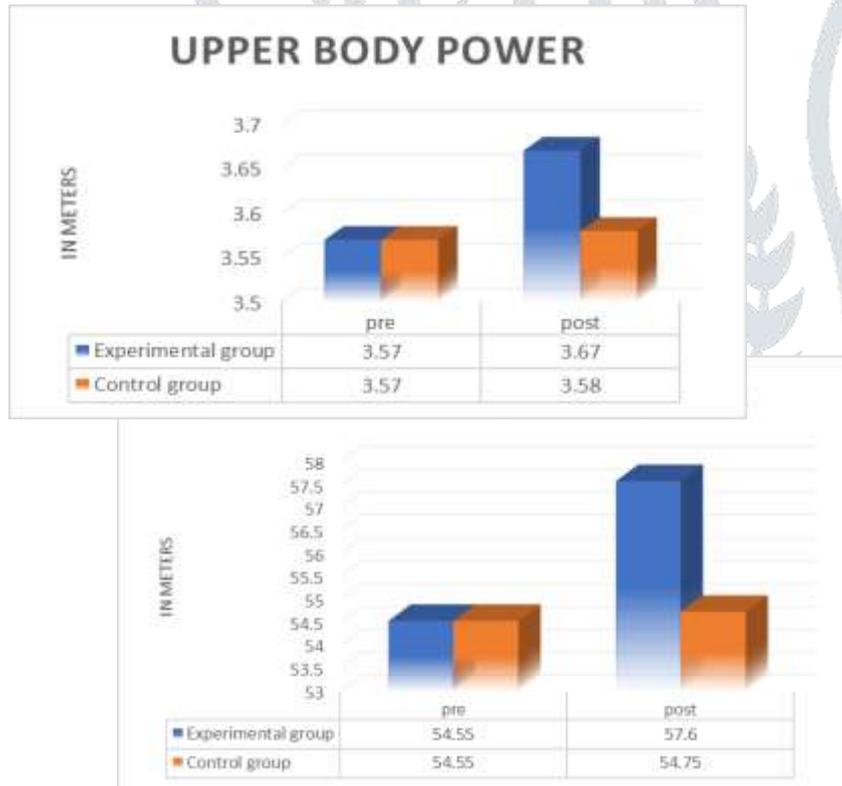


TABLE – III

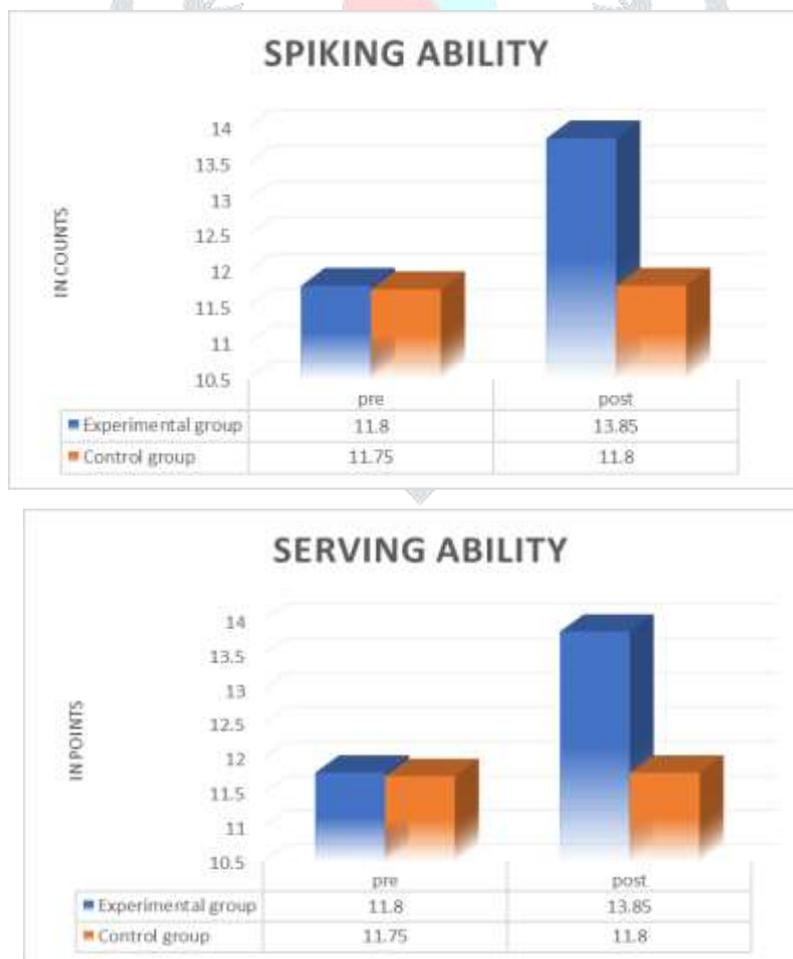
MEAN AND DEPENDENT ‘T’ – RATIO FOR THE PRE AND POST TESTS ON JUMP ROPE TRAINING GROUP AND CONTROL GROUP ON SPIKING ABILITY AND SERVING ABILITY

| variables | Group | Pre | post | Standard deviation | Standard error mean | t- ratio |
|------------------------|--------------|-------|-------|--------------------|---------------------|----------|
| Spiking ability | Experimental | 11.80 | 13.85 | 0.22 | 0.05 | 41.00* |
| | Control | 11.75 | 11.80 | 0.22 | 0.05 | 1.00 |
| Serving ability | Experimental | 23.00 | 26.00 | 0.22 | 0.05 | 61.00* |
| | Control | 22.95 | 23.05 | 0.44 | 0.10 | 1.00 |

*Significant level 0.05 level degree of freedom (2.09, 1 and 19)

Mean standard deviation and t-value were calculated for each outcomes measure can be found in Table-II. The result shows that the pre-test and post-test mean values of experimental group and control group (11.80,13.85) (23.00,26.00) and (11.75,11.80) (22.95,23.05) respectively and the post test mean values respectively. The obtained Experimental group t-test value on Upper body power ($t=4.25$) and Lower limb explosive power. The table value required for significant difference with degrees of freedom 1 and 19 at 0.05 level of confidence. The obtained 't' test value of experimental group was greater than the table value 2.09. The results clearly indicated that the jump rope training and of the experimental group improved due to role of jump rope training among volleyball players.

FIGURE-I
BAR DIAGRAM SHOWS THE MEAN VALUE OF SPIKING ABILITY AND SERVING ABILITY BETWEEN JUMP ROPE TRAINING GROUP AND CONTROL GROUP



DISCUSSION ON FINDINGS

The findings of the present study had similarity with the findings of the investigations referred in this related study. This study confirms that jump rope training produce improvement in power parameters and skill performance such as namely upper body power, lower limb explosive power and spiking ability and serving ability. According to the study the results **Duzgun, et al., (2010)** indicate that jump-rope training program is a good conditioning method for overhead athletes because of its potential benefits to shoulder strength. To other related study **Pratama, et al., (2018)** ladder drills are more effective than rope jump exercises and control groups in increasing speed and agility. While rope jump exercises are more

effective than ladder drills and control groups in increasing limb muscle power. According to the study **Awad et al., (2021)** the performance of exercises for the use of training auxiliary tools had a positive effect in developing the accuracy of the skill of spiking volleyball, and the researchers recommended the use of special exercises and circulating them to trainers working in this field to benefit from them, and the need to use training tools to assist in developing the accuracy of the spiking skill of volleyball. To other related study (**Praveen.A et al.,2020**) result of the study experimental group had significant improvement on muscular strength and explosive power when compare to control group. To other related study the results **Tsai, Y. H. (2009)** demonstrated that vertical jump performance was significantly improved ($p < .05$) in the depth jumping and rope jumping groups when compared to the control group. Post-hoc analyses revealed that neither training program was more effective than the other in improving vertical jumping ability in junior high females.

CONCLUSIONS

From the analysis of the data, the following conclusions were drawn:

Within the limitations and on the basis of finding it was very clear that eight weeks of jump rope training significantly improved power parameters and skill performance variables upper body power, lower limb explosive power and spiking ability, serving ability among volleyball players.

it was also very clear that eight weeks of jump rope training improved power parameters and skill performance variables among volleyball players. The result of the study shows that there was no significant difference among control group.

Finally, the result of the study shows that jump rope training shows better improvement over jump rope training significantly improved power parameters and skill performance variables upper body power, lower limb explosive power and spiking ability, serving ability when compare to the control group among volleyball players.

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