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Effect of Jump Rope and Resistance Training with and without skill Training on Physical Fitness Variable among Intercollegiate Male Volleyball Players

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Abstract

The purpose of the study was to find out the effects of jump rope and resistance training on physical fitness variables among intercollegiate male volleyball players. To achieve this study sixty male volleyball players from Nallamuthu Gounder Mahalingam College, Pollachi, Coimbatore were selected as a subjects. Physical fitness variables of speed (50 yard dass in seconds) Flexibility (sit and reach in cm) were selected as a variables. The study was formulated as pre and post test random group design, in which sixty subjects were divided into 3 groups. The subjects was assigned at random to one of the three groups, in which the first group (n=20) will be performing resistance training and jump rope training with skill training, the second one (n=20) will be performing resistance training and jump rope training without skill training, and the third one was the control (n=20;control group).Pre and post test random group design was used 't' ratio, Anova, Scheffe's post hoc test was applied as a statistical tool. This study jump rope and resistance training with skill training significantly improve the speed and flexibility of male intercollegiate Volleyball players.

Keywords: Speed, Flexibility, Resistance Training, Jump Rope Training With Skill Training.

Introduction

Volleyball is an awesome sport. It is one that people can play and enjoy when they are young and continue playing throughout their entire lives; it's really an ageless sport. There are so many ways to get involved as well, beach volleyball, club volleyball, volleyball leagues, outdoor volleyball and indoor volleyball. Many people enjoy volleyball as a recreational sport and many, many others like to up the ante a bit and play competitively. No matter where you are in your love of volleyball you can see great improvements in your volleyball performance with sports specific exercises. Volleyball is a team sport that requires great skill and can be very rewarding when played properly. Certainly considered to be both a competitive and leisurely activity, it can be played by school teams, professional athletes and families enjoying a day on the beach. Normally, each team in a volleyball match consists of six players. However, the health benefits of playing with fewer people on each team increases with the larger area for which each player is responsible.

Volleyball also develops key upper body muscles (especially the arms), improves sprint speed and Speed due to the quick changes of pace and direction,

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and improves overall flexibility**.** Volleyball places a large number of demands on the technical and physical skills of a player. During the course of play, players are required to serve, pass, set, attack, block and dig the ball. Playing volleyball requires flexibility, good balance, upper and lower body strengthand speed in order to be played effectively. A well-structured volleyball training program requires explosive power, vertical jump height, stamina and speed and Speed around the court. Skill training alone, such as practicing spikes, won't develop the physical traits necessary to play to the athlete's full potential (Gabbett, et al 2006). Resistance training is any exercise that causes the muscles to contract against an external resistance with the expectation of increases in strength, tone, mass, and/or endurance. The external resistance can be dumbbells, rubber exercise tubing, your own body weight, bricks, bottles of water, or any other object that causes the muscles to contract.

A jump rope can be one of the most cost-effective ways to add high-intensity cardiovascular fitness to your workout routine. If you want an inexpensive and efficient workout, the jump rope might be the ultimate "must have" piece of fitness equipment. When done properly, jumping rope can improve cardiovascular fitness, improve balance and Speed, increase muscular strength and endurance, and burn calories. Newton et al (1999) conducted a study on the effects of ballistic training on preseason preparation of elite volleyball players. The purpose of this study was to

determine whether ballistic resistance training would increase the vertical jump (VJ) performance of already highly trained jump athletes sixteen male volleyball players from a NCAA division I team participated in the study. The subjects completed the tests and were then randomly divided into two groups, control and treatment. All subjects completed the usual preseason volleyball on- 29 court training combined with a resistance training program. In addition, the treatment group completed 8 wk of squat jump training while the control group completed squat and leg press exercises at a 6RM load. The treatment group produced a significant increase in both SJR and AJR of 5.9+/-3.1% and 6.3+/-5.1%, respectively. Analysis of the data from the various other jump tests suggested increased overall force output during jumping, and in particular increased rate of force development were the main contributors to the increased jump height. These results lend support to the effectiveness of ballistic resistance training for improving vertical jump performance in elite jump athletes.

Statement of the Problem

The purpose of the study is to find out "Effect of jump rope and resistance training on with skill training physical fitness variable among intercollegiate male volleyball players"

Delimitations

The study was delimited to the following factors.

1. To achieve the purpose of the study, 60 students were selected from the Bharathiar University Inter-Collegiate level male volleyball players of Nallamuthu Gounder Mahalingam College, Pollachi, Coimbatore district, Tamilnadu (state). The age of the subjects ranged between 18-25 years. The selected subjects were divided into three groups namely experimental and control.
2. The following dependent variables are selected for this study namely Speed, Flexibility.
3. The duration of the training period will be restricted to twelve weeks and the number of sessions per week is confined to three.
4. The level of significance is fixed at 0.05 level, which is considered to be appropriate.
5. The data will be collected prior to and immediately after the training period.

Limitation

1. The regular activities of the players will not be controlled.
2. The food habits, other regular habits and life style will be controlled

Methodology

The purpose of this study was find out Combined effect of jump rope and resistance training on physical fitness and skill performance variable among intercollegiate volleyball male players.Sixty students were selected from the Bharathiar University Inter-Collegiate level male volleyball players of various colleges in Coimbatore district, Tamilnadu. The study was formulated as pre and post test random group design, in which sixty subjects were divided into 3 groups. The subjects was assigned at random to one of the three groups, in which the first group (n=20) will be performing resistance training and jump rope training with skill training, the second one (n=20) will be performing resistance training and jump rope training without skill training, and the third one was the control (n=20;control group). The dependent 't' test and analysis of covariance (ANCOVA) was applied as statistical tool. In all cases .05 level was fixed as significance. Physical fitness variables of speed (50 meter tests) and flexibility (sit and reach) were used. Whenever the 'F' ratio found significant, Scheffe's test was used as post hoc test to determine which of the paired means differ significantly.

Analysis of Data and Interpretation

Table 1

The tabulation shows the mean values between pre and post test of resistance training and jump rope training with skill training among intercollegiate male volleyball players

Parameters	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Speed In Seconds	Pre-Test	16.71	1.74	0.188	2.908	15.501*
	Post- Test	13.81	1.42			
Flexibility in cm	Pre-Test	20.36	3.07	0.233	8.851	38.058*
	Post- Test	29.21	3.08			

*Significance at 0.05 levels (2.09)

Table 1 displayed the results of 't' value of Speed(15.501), Flexibility (38.058). The obtained tabulated t value was 2.09 statistically significant. It was found that statistically significant at 0.05 level of confidence. It was observed that the mean significant improvement in Speed (2.90p< 0.05), Flexibility (8.85p< 0.05).

Table 2
The tabulation shows the mean values between pre and post test of resistance training and jump rope training without skill training among intercollegiate male volleyball players

Parameters	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Speed In Seconds	Pre-Test	16.61	1.54	0.152	1.441	9.557*
	Post- Test	15.17	1.70			
Flexibility in cm	Pre-Test	20.71	2.88	0.828	6.901	8.346*
	Post- Test	27.61	5.46			

*Significance at 0.05 levels (2.09)

Table 2 displayed the results of 't' value of Speed (9.557), Flexibility (8.346). The obtained tabulated t value was 2.09 statistically significant. It was observed that the mean significant improvement in Speed (1.441 $p< 0.05$), Flexibility (6.901 $p< 0.05$).

Table 3
The tabulation shows the mean values between pre and post test of control group among intercollegiate male volleyball players

Parameters	Test	Mean	Std. Deviation	S.E.M	M.D	't' value
Speed In Seconds	Pre-Test	16.89	1.92	0.070	0.124	1.778
	Post- Test	16.77	1.99			
Flexibility in cm	Pre-Test	20.51	1.98	0.083	0.151	1.832
	Post- Test	20.66	1.88			

*Significance at 0.05 levels (2.09)

Table 3 displayed the results of 't' value of Speed (1.778), Flexibility (1.832). The obtained tabulated t value was 2.09 statistically not significant.

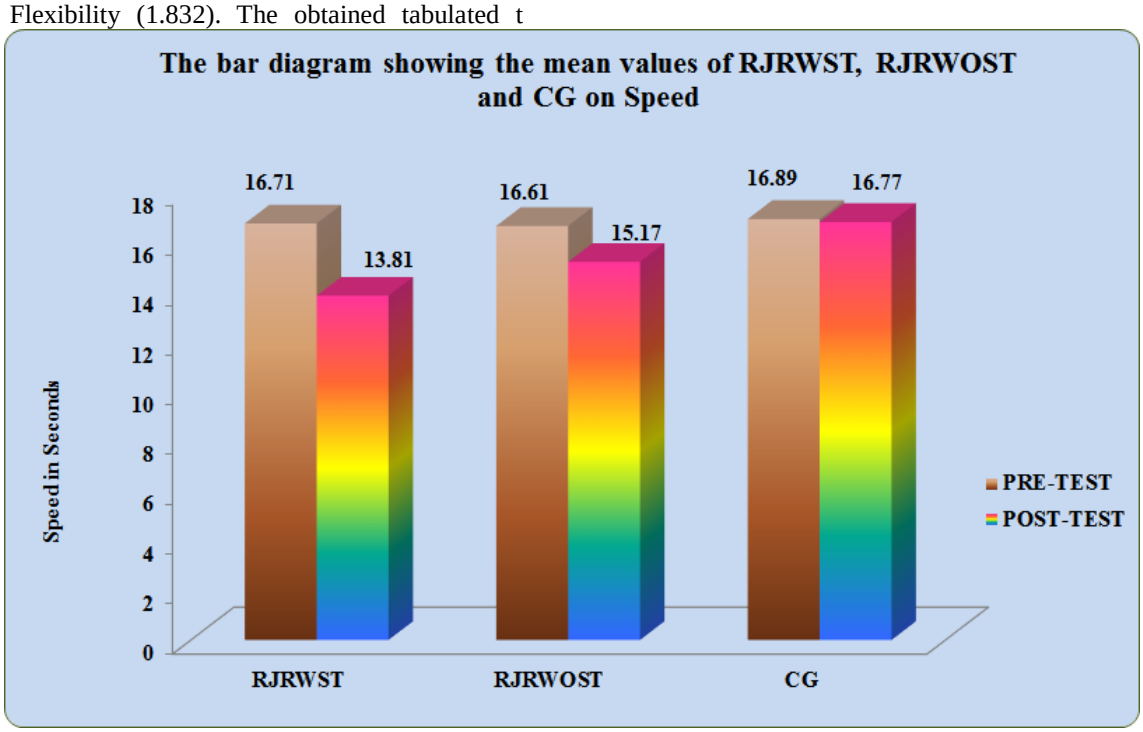

Figure I

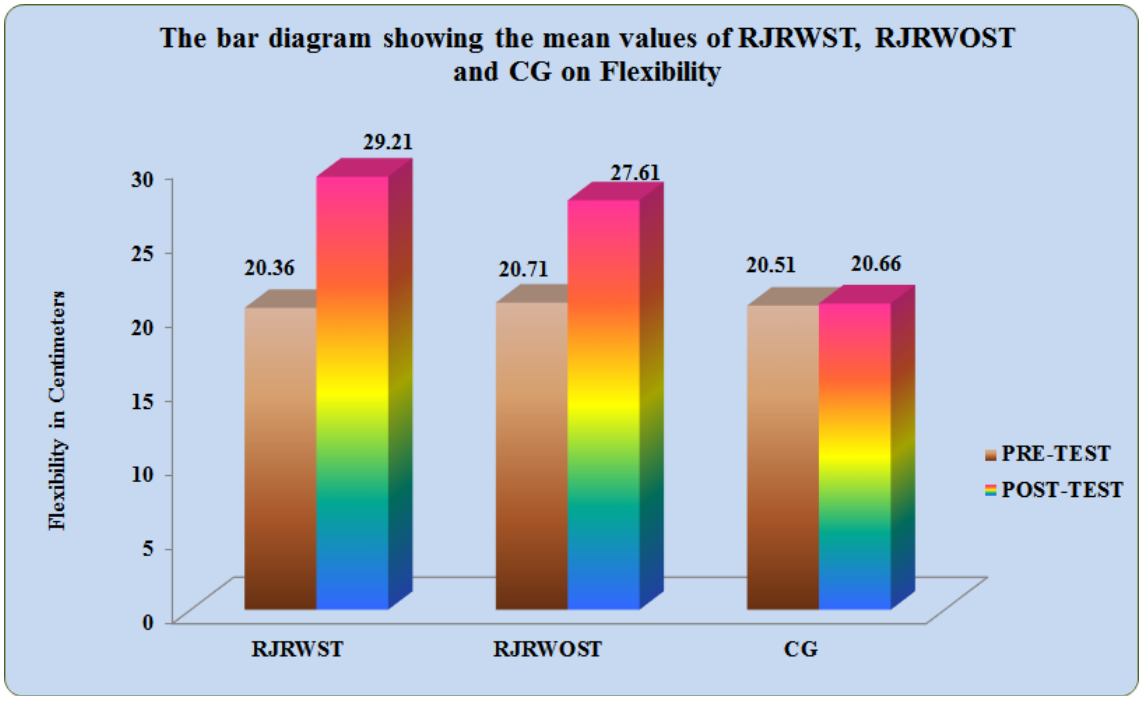

Figure II

Table 4

Analysis of variance on pre - test means values among the rjrwst, rjrwost and cg onspeed and flexibilityamong intercollegiate volleyball male players

Parameters	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Speed In Seconds	Between	0.80	2	0.396	0.133	0.878
	Within	170.84	57	2.998		
Flexibility in cm	Between	1.24	2	0.618	0.087	0.919
	Within	409.76	57	7.190		

*Significance at 0.05 levels (3.16)

Table 4 viewed that the obtained 'F' value for the RJRWST, RJRWOST AND CG on Speed (0.133), and Flexibility (0.087). The obtained tabulated f value was 3.16 statistically not significant differences at the 95 % confidential level and the degrees of freedom (2, 57). It was found that statistically show insignificant. So the treatment was successful.

Table 5

Analysis of variance on pre - test means values among rjrwst, rjrwost and cg of training on speed and flexibility among intercollegiate volleyball male players

Variables	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Speed In Seconds	Between	87.63	2	43.811	14.950*	0.000
	Within	167.05	57	2.932		
Flexibility in cm	Between	826.44	2	413.218	29.059*	0.000
	Within	810.56	57	14.221		

*Significance at 0.05 levels (3.16)

Table 5 viewed that the obtained 'F' value for the RJRWST, RJRWOST AND CG on Speed (14.950) and Flexibility (29.059). The obtained tabulated f value was 3.16 statistically not significant differences at the 95 % confidential level and the degrees of freedom (2, 57). It was found that statistically show significant, at 0.05 level.

Table 6

Analysis of variance on pre – test and post -test means values among rjrwst, rjrwost and cg of training on speed and flexibility among intercollegiate volleyball male players

Variables	Source of Variance	Sum of Squares	DF	Mean Square	F	Sig.
Speed In Seconds	Between	78.24	2	39.118	96.50*	0.000
	Within	22.71	56	0.406		
Flexibility in Cm	Between	834.91	2	417.451	85.19*	0.000
	Within	274.43	56	4.901		

*Significance at 0.05 levels (3.16)

Table 6 viewed that the obtained 'F' value for the RJRWST, RJRWOST AND CG onSpeed(96.50), and Flexibility (85.19).The obtained tabulated f value was 3.16 statistically significant differences at the 95 % confidential level and the degrees of freedom (2, 56). It was found that statistically show significant improvement.

Table 7

The scheffe's post hoc test for the differences between adjusted post test means of rjrwst, rjrwost and cg on speed

RJRWST	RJRWOST	CG	Mean Differences	Confidence Interval Value
13.83	15.29	---	1.46*	0.571
13.83	---	16.62	2.79*	0.571
---	15.29	16.62	1.33*	0.571

* Significant at 0.05 level of confidence

Table 7 shows the adjusted post hoc test mean values of RJRWST group, RJRWOST group and CG. The mean difference required for the confidential interval was significant was 0.571. To Comparing the RJRWST group and RJRWOST group, the mean differences between the two groups were 1.46. Hence RJRWST group were showed better improvement on Speed. To comparing the RJRWST group and CG, the mean differences between the two groups were 2.79. Hence RJRWST group were showed better improvement on Speed. To comparing RJRWOST group and CG, the mean differences between the two groups were 1.33. Hence RJRWOST group showed better improvement on Speed. FinallyRJRWST group showed better than the RJRWOST and CG on Speed.

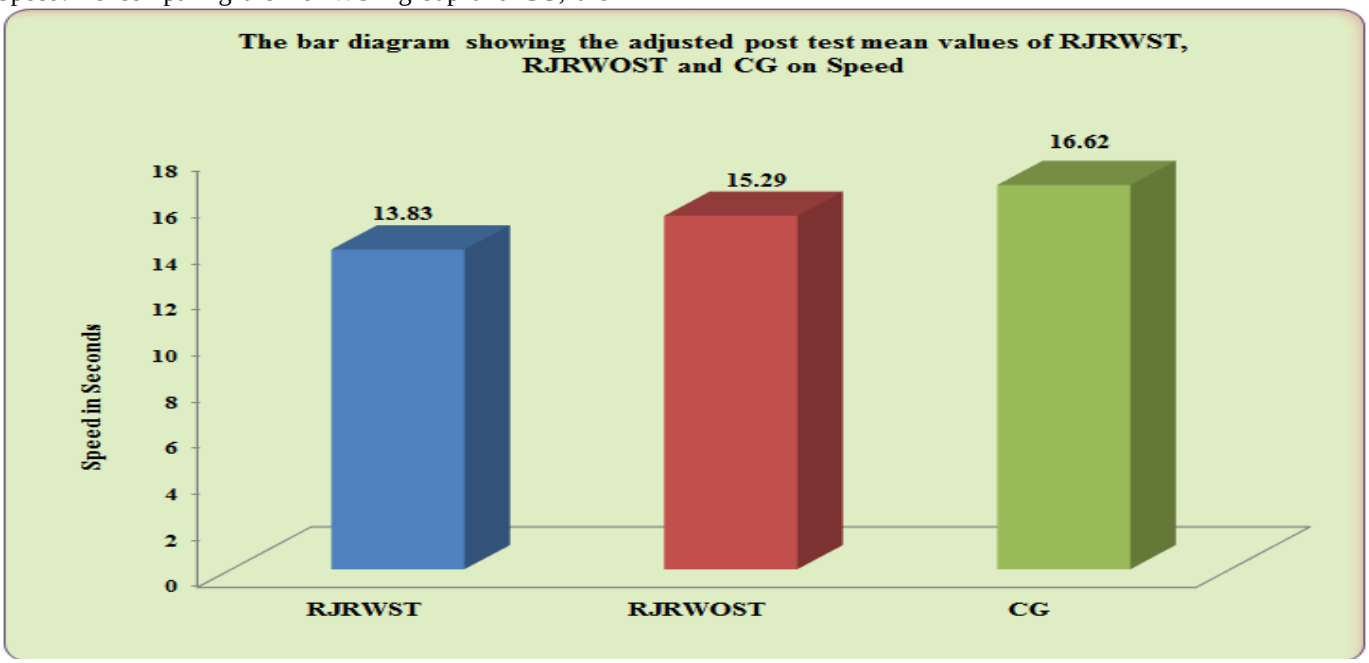

Figure III

Table 8
The scheffe's post hoc test for the differences between adjusted post test means of rjrwst, rjrwost and cg on flexibility

RJRWST	RJRWOST	CG	Mean Differences	Confidence Interval Value
29.40	27.40	---	2.00*	1.985
29.40	---	20.67	8.73*	1.985
---	27.40	20.67	6.73*	1.985

* Significant at 0.05 level of confidence

Table 8 shows the adjusted post hoc test mean values of RJRWST group, RJRWOST group and CG. The mean difference required for the confidential interval to be was 1.985. To Comparing the RJRWST group and RJRWOST group, the mean differences between the two groups were 2.00. Hence RJRWST group were showed better improvement on Flexibility. To comparing the RJRWST group and CG, the mean differences between the two groups were 8.73. Hence RJRWST group were showed better improvement on Flexibility. To comparing RJRWOST group and CG, the mean differences between the two groups were 6.73. Hence RJRWOST group showed better improvement on Flexibility. FinallyRJRWST group showed better than the RJRWOST and CG on Flexibility.

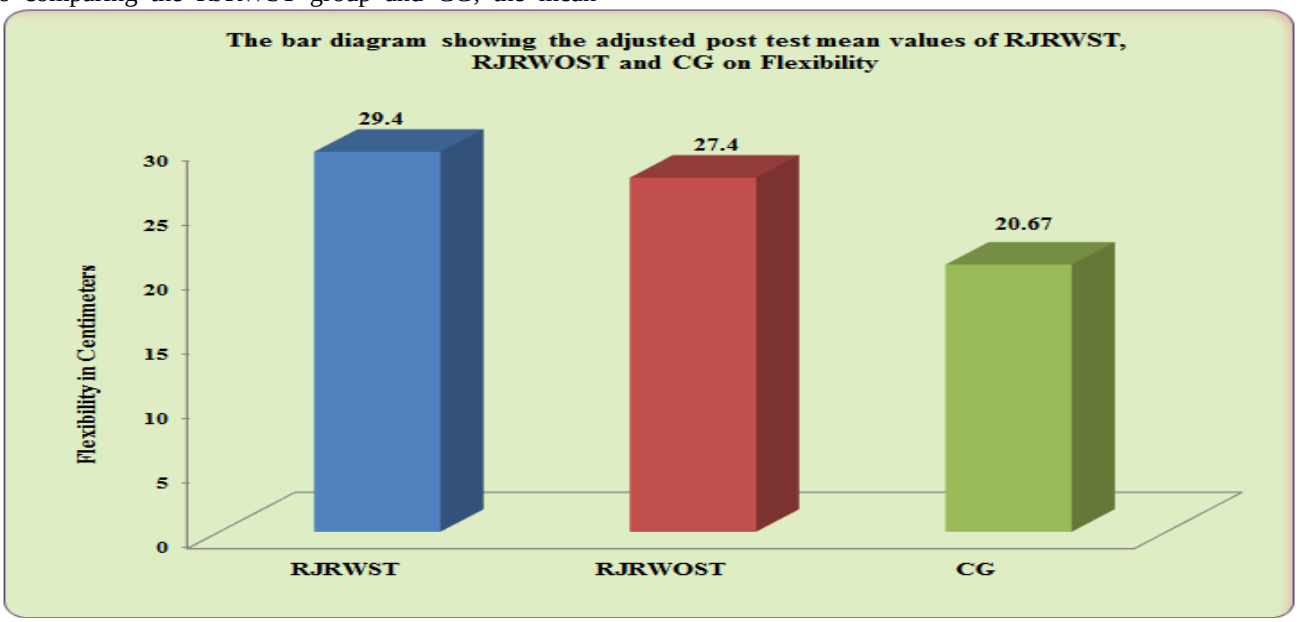

Figure IV

Discussion on Present Study

This study confirms that improvement in Speed and Flexibility among effect of Resistance training and jump rope training without skill trainings of intercollegiate Male Volleyball players.

Discussion of the Study

In analyzing the Speed and Flexibility for two different training groups of Resistance training and jump rope training with skill training and Resistance training and jump rope training without skill training, over the period of twelve weeks of training, the obtained results favored the intercollegiate Volleyball Male players who practiced with the Resistance training and jump rope training with skill training on Speed and Flexibility of intercollegiate Male Volleyball players. The obtained results display similar effect among the other two training modules after the completion of 12 weeks of training period. The results on Speed and Flexibility were discussed below.

Speed

The Resistance training and jump rope training with skill training, Resistance training and jump rope training without skill training significantly showed improvement the Speed from pre test to post test. The present study demonstrated that an increase in Speed of 17.42%, 8.68% and 0.74% was estimated with 50 Yds Dashd test for the Resistance training and jump rope training with skill training, Resistance training and jump rope training without skill training and control group respectively. The Resistance training and jump rope training with skill training significantly showed improvement the Speed by 17.42% better than the RJRWOST 8.68% and control group 0.74%. The Resistance training and jump rope training without skill

training improved the Speed by 8.68% better than the control group.

Flexibility

The Resistance training and jump rope training with skill training, Resistance training and jump rope training without skill training significantly showed improvement the Flexibility from pre test to post test.

The present study demonstrated that an increase in Flexibility of 43.50%, 33.34% and 0.74% was estimated with Sit and Reach test for the Resistance training and jump rope training with skill training, Resistance training and jump rope training without skill training and control group respectively. The Resistance training and jump rope training with skill training significantly showed improvement the Flexibility by 43.50% better than the RJRWOST 33.34% and control group 0.74%. The Resistance training and jump rope training without skill training improved the Flexibility by 33.34% better than the control group.

Result of the Study

1. The present study showed the results due to Resistance training and jump rope training with skill training significantly improved Speed and Flexibility of intercollegiate Male Volleyball players.
2. The present study showed the results due to Resistance training and jump rope training without skill trainingsignificantly improved Speed and Flexibility of intercollegiate Male Volleyball players.
3. The present study showed the results due to Resistance training and jump rope training with skill training significantly improved Speed and Flexibility better than the Resistance training and jump rope training without skill trainingand control group of intercollegiate Volleyball Male players.
4. The present study showed the results due to Resistance training and jump rope training without skill trainingsignificantly improved theSpeed and Flexibilitybetter than the control of intercollegiate Male Volleyball players.

Conclusion

1. It was concluded that the Resistance training and jump rope training with skill training significantly improved Speed and Flexibility of intercollegiate Male Volleyball players.
2. It was concluded that the Resistance training and jump rope training without skill training significantly improved Speed and Flexibility of intercollegiate Male Volleyball players.
3. It was concluded that the Resistance training and jump rope training with skill training significantly improved Speed and Flexibility better than the Resistance training and jump rope training without skill training and control group of intercollegiate Male Volleyball players.
4. It was concluded that the Resistance training and jump rope training without skill training significantly improved the Speed and Flexibility better than the control of intercollegiate Male Volleyball players.

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