



STRENGTH PARAMETERS RESPONSE DUE TO IMPACT OF THERABAND AND JUMPROPE TRAINING AMONG VOLLEYBALL PLAYERS

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ABSTRACT

The current study was to examine the strength parameter response due to impact of theraband and jump rope training among volleyball players. This research aimed to determine which one is more effective in improving the strength parameters. **Methodology** The purpose of the study was find out the strength parameter response due to impact of theraband and jump rope training among volleyball players. To achieve the purpose study Sixty 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 three equal group consist of twenty each. Groups I underwent TheraBand training and Group II underwent jump rope training in the period of eight weeks and Group III acted as a control group. However, the control group did not undergo any sort of train except there regular activities as per the routine. The strength parameters namely shoulder strength was measured by pull ups test and core strength was measured by plank test respectively. The data collected from the three groups before and after the experimental period were statistically examined for significant improvement by using analysis of covariance. Whenever the 'F' ratio was found to be significant, Scheffe's test was used as post-hoc test 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 theraband training and jump rope training significantly improved strength parameters among volleyball players and it also show that there was no significant difference among control group. Finally, the result of the study shows that TheraBand training shows better performance over strength parameters shoulder strength and core strength when compare to jump rope training and control group among volleyball players.

INTRODUCTION

Volleyball is a team sport. The teams are separated by a large net. It has six players on each side of the net. Each team is allowed twelve substitution players. The game starts when the captain from each team decides which side of the court they will play on, by the toss of a coin, which also determines who will serve (hit) the ball first. The point of the game is to keep the ball in the air. The ball can be played with any part of the body, with a maximum of three strokes a team. If at any point the ball hits the floor, the side that the ball landed on it is a point for the other team. In between plays, the teams must pass the ball under the net. *"In 1895, William Morgan Invents Mintonette"*

THERBAND TRAINING

A Theraband is a rubber or latex resistance band of the highest caliber. It comes in a variety of colors, each of which represents the degree of resistance it offers. From stretching to strength training, a variety of exercises may be performed with this adaptable workout equipment. (Kiyash, 2023)

JUMP ROPE TRAINING

A jump rope or skipping rope, or skip rope is the primary tool used in the game of skipping played by children and among adults, many participants jump over a rope swung so that it passes under their feet and over their heads. This may consist of one participant turning and jumping the rope, or a minimum of three participants taking turns, two of who turn the rope while one or more jumps. Sometimes the latter is played with two turning ropes; this form of the activity is called Double Dutch and is significantly more difficult. Jump-rope rhymes are often chanted at the beginning when the skipper jumps in and ending when the skipper is tripped up. (Loredo and Cooper, 1996).

METHODOLOGY

The purpose of the study was find out the strength parameter response due to impact of theraband and jump rope training among volleyball players. To achieve the purpose study Sixty 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 three equal group consist of twenty each. Groups I underwent TheraBand training and Group II underwent jump rope training in the period of eight weeks and Group III acted as a control group. However, the control group did not undergo any sort of train except there regular activities as per the routine. The strength parameters namely shoulder strength was measured by pull ups test and core strength was measured by plank test respectively. The data collected from the three groups before and after the experimental period were statistically examined for significant improvement by using analysis of covariance. Whenever the 'F' ratio was found to be significant, Scheffe's test was used as post-hoc test to determine which of the paired means differed significantly. In all cases 0.05 level of significance was fixed..

TABLE – I
COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF THERABAND TRAINING GROUP, JUMP ROPE TRAINING GROUP AND CONTROL GROUPS ON SHOULDER STRENGHT

	TBTG	JRTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	11.26	11.25	11.25	BG	0.01	2	0.01	1.00
				WG	71.00	57	0.93	
Post-Test Means	17.30	13.30	11.30	BG	975.00	2	325.00	321.61*
				WG	76.80	57	1.01	
Adjusted Post-Test Means	17.30	13.30	11.30	BG	975.00	2	325.00	6438.33*
				WG	3.78	56	0.50	

Table1 reveals the computation of 'F' ratios on pre test, post test and adjusted post test means of TBTG, JRTG and CG on Shoulder strength.

The obtained 'F' ratio for the pre test means of TBTG, JRTG and CG on shoulder strength was 1.00 Since, the 'F' value was less than the required table value of 3.16 for the degrees of freedom 2and 57, it was found to be not significant at 0.05 level of confidence.

Further, the 'F' ratio for post test means of TBTG, JRTG and CG on speed was 321.61*. Since, the 'F' value was higher than the required table value of 3.16 for the degrees of freedom 2 and 57, hence it was found to be statistically significant at 0.05 level of confidence.

The obtained 'F' ratio for the adjusted post test means of TBTG, JRTG and CG on shoulder strength was 6438.33*. Since, the 'F' value was higher than the required table value of 3.16 for the degrees of freedom 2 and 56, it was found to be statistically significant at 0.05 level of confidence. The results revealed that there was a significant difference in post-test means among TBTG, JRTG and CG in shoulder strength among volleyball players.

Hence the adjusted post-test mean ‘F’-ratio was significant at 0.05 level of confidence for the degree of freedom 2 and 56. From the results of the data, that there was a significant mean difference among theraband training group, jump rope training group and control group.

The results reveals that Shoulder strength improved due to the impact of theraband training group and jump rope group among volleyball players.

TABLE – II

THE SCHEFFE’S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST-TEST MEANS ON SHOULDER STRENGTH

Adjusted Post-Test Means			Mean Difference	Confidence Interval
TBTG	JRTG	CG		
17.30	13.30	-	4.0	0.06
17.30	-	11.30	6.0	
-	13.30	11.30	2.0	

** Significant at 0.05 level of confidence*

Table II revealed that the mean differences between the paired adjusted post test means of all groups.

The mean difference between TBTG and JRTG and CG, were 4.0,6.0 and 2.0 respectively. The values of mean difference of adjusted post-test means were higher than the required confidence interval value of 0.06 and it was found to be significant at 0.05 level of confidence.

From these results, it was inferred that Sixteen weeks of TBTG produced significant improvement in shoulder strength of volleyball players than JRTG and control group.

FIGURE - I

ADJUSTED POST-TEST DIFFERENCES OF THE THERBAND TRAINING , JUMP ROPE TRAINING GROUP AND CONTROL GROUPS ON SHOULDER STRENGTH



TABLE - III

**COMPUTATION OF ANALYSIS OF COVARIANCE OF MEAN OF THERBAND TRAINING
JUMP ROPE TRAINING GROUP AND CONTROL GROUPS ON
CORE STRENGTH**

	TBTG	JRTG	CG	Source of Variance	Sum of Squares	df	Means Squares	F-ratio
Pre-Test Means	2.33	2.34	2.33	BG	0.002	2	0.001	0.99
				WG	2.55	57	0.03	
Post-Test Means	2.48	2.39	2.34	BG	1.22	2	0.40	12.51*
				WG	2.47	57	0.03	
Adjusted Post-Test Means	2.49	2.39	2.34	BG	1.15	2	0.38	1611.82*
				WG	0.01	56	0.01	

Table III reveals the computation of 'F' ratios on pre test, post test and adjusted post test means of TBTG, JRTG and CG on core strength.

The obtained 'F' ratio for the pre test means of TBTG, JRTG and CG on core strength was 0.99. Since, the 'F' value was less than the required table value of 3.16 for the degrees of freedom 2 and 57, it was found to be not significant at 0.05 level of confidence.

Further, the 'F' ratio for post test means of TBTG, JRTG and CG on core strength was 12.15*. Since, the 'F' value was higher than the required table value of 3.16 for the degrees of freedom 2 and 57, hence it was found to be statistically significant at 0.05 level of confidence.

The obtained 'F' ratio for the adjusted post test means of TBTG, JRTG and CG on core strength was 1611.82*. Since, the 'F' value was higher than the required table value of 3.15 for the degrees of freedom 2 and 56, it was found to be statistically significant at 0.05 level of confidence. The results revealed that there was a significant difference in post-test means among TBTG, JRTG and CG in core strength among volleyball players.

From the results of the data, that there was a significant mean difference among theraband training group, jump rope training group and control group.

The results reveals that core strength improved due to the impact of theraband training group and jump rope group among volleyball players.

TABLE - IV

**THE SCHEFFE'S TEST FOR THE DIFFERENCES BETWEEN THE ADJUSTED POST-TEST
MEANS ON CORE STRENGTH**

* Significant at 0.05 level of confidence

Adjusted Post-Test Means			Mean Difference	Confidence Interval
TBTG	JRTG	CG		
2.49	2.39	-	0.1	0.03
2.49	-	2.34	0.15	
-	2.39	2.34	0.05	

* Significant at 0.05 level of confidence

Table IV revealed that the mean differences between the paired adjusted post test means of all groups.

The mean difference between TBTG and JRTG and CG, were 0.1, 0.15 and 0.05 respectively. The values of mean difference of adjusted post-test means were higher than the required confidence interval value of 0.03 and it was found to be significant at 0.05 level of confidence.

From these results, it was inferred that Sixteen weeks of TBTG produced significant improvement in core strength among volleyball players than JRTG and control group

FIGURE - II
ADJUSTED POST-TEST DIFFERENCES OF THE THERABAND TRAINING GROUP, JUMP ROPE TRAINING GROUP AND CONTROL GROUPS ON CORE STRENGTH



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 theraband training and jump rope training produce improvement in strength parameters such as namely shoulder strength and core strength. According to the study (Datar, N.A., and Devi, T.P., 2019). Strengthening exercise program with thera-band showed significant improvement in the outcome variables on strength and activities of daily life involving shoulder, arm and hand. To other related study (Rusmi *et al.*, 2023) increased arm muscle power by applying resistance band training on Palopo swimming athletes. Thus, there is a significant relation between Resistance band training towards the arm muscle power of Palopo freestyle swimming athletes. According to the study (Duzgun, I *et al.*, 2010) the results indicate that a jump-rope training program is a good conditioning method for overhead athletes because of its potential benefits to shoulder strength. TP did not improve the conventional ratio in the D experimental group. However, STP produced a large effect size. To other related study (Mascarin *et al.*, 2017) the experimental group presented an improvement in ball velocity in standing position throwing. According to the study (Wang, G *et al.*, 2022). The presented experimental method helps to improve the success rate in athlete's jump. The core strength training methods used in the experimental group in jumping were superior to the traditional training methods used in the control group. To other related study (Bora, H., & Dağlıoğlu, Ö. 2022). As a result, it can be said that the core strength training program applied to volleyball players has a positive effect on speed, anaerobic power and static balance scores. According to the study (Lestari, *et al.*, 2020) providing core stability exercise increase the core muscles strength of male volleyball athletes in the volleyball unit of student activities at Bali Vocational Polytechnic. To other related study (Eshghi, *et al.*, 2022). Eight weeks of 11 + S warm-up programme improved the glenohumeral muscle imbalance by increasing the functional deceleration ratio (FDR) of shoulder muscles in young male volleyball players.

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 theraband training significantly improved strength parameters shoulder strength of Volleyball players.

It was also very clear that eight weeks of jump rope training improved strength parameters 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 TheraBand training shows better improvement over strength parameters shoulder strength and core strength when compared to jump rope training and control group among volleyball players.

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