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EFFECT OF JUMP RESISTANCE TRAINING ON SELECTED PHYSICAL VARIABLES OF VOLLEYBALL PLAYERS

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ABSTRACT:

This study was to investigate the effect of jump resistance training on selected physical variables among college female Volleyball players. To achieve the purpose of the study 30 inter-collegiate female Volleyball players were selected from affiliated colleges of VNSGU, Surat. The subjects was randomly assigned to two equal groups (n=15). Group - I underwent Jump resistance training (JRTG) and Group - II was acted as control group (CG). The jump resistance training was given to the experimental group for 3 days per week (Monday, Wednesday and Friday) for the period of eight weeks. The control group was except their routine work. The physical variables of speed, explosive power and agility were measure before and after training period. The data collected from the subjects was statistically analyzed with 't' test to find out significant improvement if any at 0.05 level of confidence. The present study concludes the jump resistance training programme for the 08 weeks could significantly improve the speed, explosive power and agility of female volleyball players.

KEYS WORDS:

Jump Resistance Training, Speed, Explosive Power, Agility, Volleyball

INTRODUCTION:

In volleyball for example, vertical jump and spike power are very much derived from an athlete's strength. Volleyball is highly competitive require a high degree of fitness, coordination and agility. It provides a wide chance for the development of strength, speed, endurance, agility, neuromuscular skills and coordination of all parts of the body by various actions concerned in it, such as running, jumping, bending, stretching and other actions which call for balance and poise. It requires a training regimen which develops muscular strength, power, flexibility and agility all of which must be included to achieve the optimum skill performance from each player (Smith, Timothy, 1982).

1A good vertical jump during the spike and block depends on strength, speed and technique. Understandably, one of the most crucial factors in successful development to increase speed of jumping ability is solid strength preparation.2 Speed-Strength" is the ability of the neuromuscular system to produce tile greatest possible impulse in the shortest possible time. 3Research has shown that if the right type of jumping training is done, the jumping power of the player will definitely increase.Therefore, the purpose of this study is to compare the effect of selected jump resistance training patterns on selected physical variables of volleyball players.

Methods:

Selection of Subjects:

To achieve the purpose of the study; we selected 30 inter-collegiate female volleyball players from affiliated colleges of VNSGU, Surat. The age of the selected participants was between 18 to 22 years.

Selection of Variables and Test:

No	Variables	Test	Units of Measurement
1	Speed	50 m run	1/100th of a Second
2	Explosive Power	Standing Broad Jump	In Meters
3	Agility	'T' test	1/100th of a second

Design:

This is an experimental research with a pre and post-test including a RJTG and a control group. The subjects were randomly assigned in to two equal groups namely, jump resistance training group (JRTG, n=15) and Control group (CG, n=15). The respective training was given to the experimental group the 3 days per weeks (alternate days) for the training period of eight weeks. The control group was not given any sort of training except their routine.

Statistical Analysis:

The data was analyzed using appropriate statistical methods. For statistical analyses, SPSS-20 was used. Descriptive statistics for data scores were applied to find out the difference from the pre to post-test among the participants. Mean, standard deviation, 't' test was applied to find out the significance. The level of significance was set at 0.05 level of confidence.

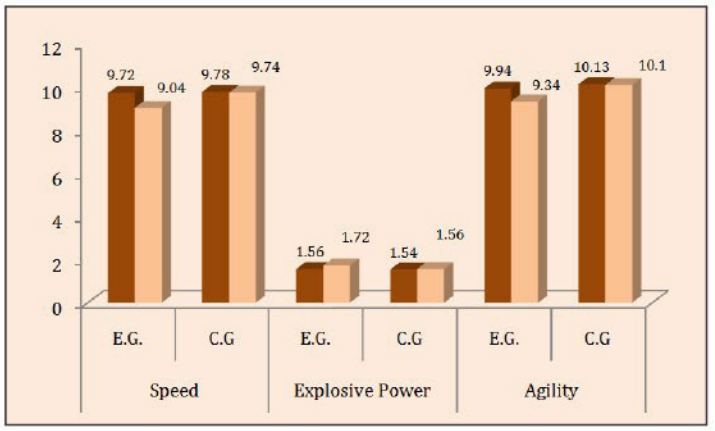
Table – I

Mean, S.D. and 't' value of the Selected Physical Variables of Experimental and Control Group.

Variables	Group	Pre Test		Post Test		't' value	Sig.
		Mean	S.D	Mean	S.D		
Speed	E.G.	9.72	0.84	9.04	0.82	2.77*	0.01
	C.G	9.78	0.82	9.74	0.81	0.14	0.89
Explosive Power	E.G.	1.56	0.15	1.72	0.08	3.81*	0.00
	C.G	1.54	0.14	1.56	0.13	0.12	0.90
Agility	E.G.	9.94	0.66	9.34	0.41	2.97*	0.00
	C.G	10.13	0.89	10.10	0.88	0.09	0.93

***Sig. (p<0.05).**

Obtained 't' ratio of jump resistance training group on speed, explosive power and agility were 2.77, 3.81 and 2.97 respectively. Since the obtained 't' values (p<0.05) were found to be statistically significant. Further the obtained 't' value of control group on speed, explosive power and agility were 0.14, 0.12 and 0.09 respectively. Since the obtained 't' values (p>0.05) were found to be statistically insignificant.



Discussion of Findings:

- The jump resistance training programme improves the speed significantly.
- The jump resistance training programme improves the explosive power significantly.
- The jump resistance training programme improves the agility significantly.

The findings of the present study had similarity with the findings of the investigators referred to this study; Vishnu R.R. (2017),Gomez, P. and Calbet, JAL. (2013), Rodrigo RC et al. (2020) Rajan, K.S. and Sundar, M. (2020) and Cankaya, C.et al. (2018). It is speculated that the observed changes in speed, explosive power, and agility could be appropriately designed for proper jump resistance training for college-level volleyball players.

Conclusion:

On the basis of the results obtained and the interpretation of the data, the present study concludes the jump resistance training programme for the 08 weeks could significantly improve the speed, explosive power and agility of female volleyball players.

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EFFECT OF STRENGTH JUMP TRAINING ON JUMPING PERFORMANCE OF INTERCOLLEGIATE VOLLEYBALL PLAYERS

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Abstract:

The aim of this study was to determine the effect of strength jump training on Jumping Performance of intercollegiate women volleyball players. To achieve the purpose of the study 30 intercollegiate volleyball players were selected randomly from three difference College'sfrom Sarvajanik Education Society, Surat. Subject's age ranged from 18 to 24. Totally (N = 30) were randomly assigned to two equal groups of intercollegiate volleyball players. The groups were named as strength jump training group and control group. Jumping Performance was measured by Standing Vertical Jump and Three Step Approach Vertical Jump. The training group had undergone the training for a period of eight weeks and the post-tests were conducted after the training period. Hence the difference between means of the two groups in the pre-test had to be taken into account after the analysis of the post-test differences between the means. Paired 't' was applied, to test the obtained results on Jumping Performance, level of significance 0.05 was chosen and considered as sufficient for the study. This Strength jump Training group had significant difference on Jumping Performanc eof intercollegiate volleyball players.

Keywords: Strength Jump Training, Jumping Performance, Volleyball players.

Introduction:

Volleyball is an intense anaerobic sport that combines explosive movements with brief intervals of healing, therefore, explosive strength, that is defined as the capability of an person's neuro-muscular system to take place pressure inside the shortest possible time (Gabbett et al. 2007). Volleyball is a sport dominated by strength and power. Players want power in their legs to get excessive in the air and electricity in their upper frame to spike, block, and dig balls. Strengthening volleyball-specific muscle tissues ensures that athletes are in a position to attain their maximum performance ability (Vivekanth, 2019). A good vertical jump during the spike and block depends on strength, speed and technique. Understandably, one of the most crucial factors in successful development to increase speed of jumping ability is solid strength preparation. A vertical jump is a complex motion that calls for the coordination of numerous muscle mass inside the trunk, legs and arms. Knowing that every participant plays greater than two hundred jumps in a volleyball match of five sets, jumping capacity has been identified as one of the key figuring out elements of excessive overall performance in volleyball. (Martinez, 2017). In fact, several studies have shown that vertical jump test results are indicative of the performance level of an athlete. Jumping may be useful in training higher concentric movement speed in jumping, thereby potentially increasing the jumping abilities of athletes. There-fore, to better understand the mechanisms underlying pre-viously reported performance increases, the purpose of this study was to investigate the acute effects of assisted jumping on subsequent muscle activation and bodyweight vertical jump performance.

Methodology:

Selection of Participants:

The purpose of the study was to find out the effect of strength jumping training on the development of jumping performance of volleyball players. To achieve the purpose, thirty (n=30) women volleyball players were selected from three difference College's from Sarvajanik Education Society, Surat. The age ranged from 18 to 25 years. A randomized group design was used for the present study. Totally (N = 30) were randomly assigned to two equal groups (n=15) of intercollegiate

volleyball players. The groups were named as strength jump training group and control group.Pre-test and Post-test randomized group design was used for the purpose of the study.

Jumping Performance:

Pre- test and Post-test randomized group design was used for the purpose of the study. Each player will be measured for maximum standing vertical jump and three step approach vertical jump using a vertical pole with moveable veins that measure vertical touch height.

Training Programme:

The experimental groups will be participated in the training given 3 day in a week for 08 week.Strength jump training will be involvingplyometrics, medicine ball throws and barbell cycling will be done with additional weight. Based on the current performance of the players the training load will be progressive and intensity as well. For proper adaptation of training chains of easy to complex principle will be followed. The control group will be left free to participant in any of the activities of their own choice.

Paired t-tests were used to test the effect of treatment groups
individually between pre and post –tests of all the groups on variables used in the present study.
Paired t-tests were used to test the effect of treatment groups
individually between pre and post –tests of all the groups on variables used in the present study.

Statistical Procedure:

Paired t-tests were used to test the significance of the effect of treatment groups individually between pre and post –tests of all the groups on variables used in the present study. The significant level was set at 0.05 level of confidence.

Results:

Table 1: Mean, Standard Deviation, Mean Difference and 't' values for the scores of the pre**-test and post-test of Standing Vertical Jump**

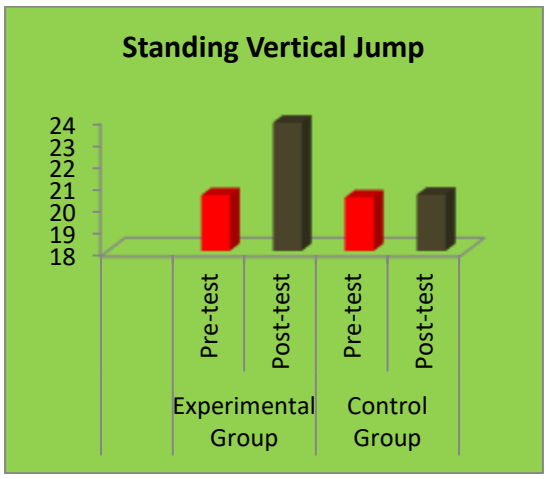
Groups 'T' Value	**Test**	**Test Mean In (cm)**	**S.D**	**Mean Difference**	**Obtained 't' Value 'T' Valu**	**Sig. (2-tailed)**
Experimental Group	Pre-test	20.53	1.40	3.30	18.78	0.00
	Post-test	23.83	1.13			
Control Group	Pre-test	20.43	1.34	0.13	1.91	0.07
	Post-test	20.56	1.33			

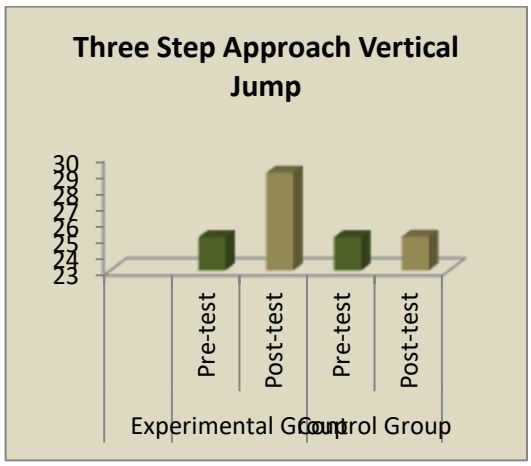
***significant p<0.05.**

Table 2: Mean, Standard Deviation, Mean Difference and 't' values for the scores of the pre**-test and post-test of three step approach vertical jump**

Groups 'T' Value	**Test**	**Test Mean In (cm)**	**S.D**	**Mean Difference**	**Obtained 't' Value 'T' Valu**	**Sig. (2-tailed)**
Experimental Group	Pre-test	25.04	1.15	3.99	24.92	0.00
	Post-test	29.03	0.91			
Control Group	Pre-test	25.05	1.15	0.04	1.97	0.07
	Post-test	25.08	1.18			

***significant p<0.05.**





The statistically significant difference was found between the pre-test and post test means of standing vertical jump of experimental group, as the obtained t-value of 18.78 ($p<0.05$). Similarly, the significant difference was also not found between the pre-test and post-test means of standing vertical jump of control group, as the obtained t-value of 1.91 ($p>0.05$).

Incase of three step approach vertical jump, there was statistically significant difference between the pre-test and post test means of three step approach vertical jump of experimental group, as the obtained t-value of 24.91 ($p<0.05$). Similarly, the no significant difference was found between the pre-test and post-test means of three step approach vertical jump of control group, as the obtained t-value of 1.97 ($p>0.05$).

Discussion:

Results of the analysis of the differences between the pre and post test of the experimental group by 't' test indicated that the players of the experimental group had greatly improved their results in the standing vertical and three step approach vertical jump, during the eight week period. The greatest growth increase of 16.07% was found in the standing vertical jump, then in the three step approach vertical jump 15.93%. Similarly, the no significant effect was found between the pre-test and post-test means of jumping performance of control group.

Conclusions:

The eight week strength jump training program have an impact on the statistically relevant increase in the explosive type strength of the leg muscular, which in turn leads to an increase in the jumping overall performance.

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