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# **INFLUENCE OF STRENGTH TRAINING ON SELECTED PHYSICAL VARIABLES OF COLLEGE LEVEL VOLLEYBALL PLAYERS**

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## **ABSTRACT :**

The purpose of the study was to investigate the influence of strength training on selected physical variables of college level volleyball players. To achieve the purpose of the present study 30 Men students were selected as samples from Selvam College of Technology and Selvam College of Arts and Science, Namakkal. The age group is between 18 to 24 years. The selected subjects were divided into two equal groups of each 15 namely experimental group and control group. The group-I strength training for three days per week for six weeks, whereas the group II acted as control who maintained their daily routine activities and no special training was given to them. The following physical variables namely arm strength, leg strength and muscular strength endurance were selected as criterion variables. The measured by using 1-RM Bench Press, Half Squat, Sit Ups test is used. The collected data were analyzed statistically through analysis of 't' ratio to find out the significant difference, if any between the groups. The 0.05 level of confidence was fixed to test the level of significance which was considered as an appropriate. The results of the study showed that there were significant differences exist between strength training group and control group on Arm Strength, Leg Strength and Muscular strength endurance. And also strength training group showed significant improvement on Arm Strength, Leg Strength, and Muscular strength endurance when compared to control group.

Keywords: Strength training, Arm strength, Leg Strength and muscular strength endurance.

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## **Introduction :**

Sports training are a basic preparation of the sportsman for better performance through physical exercise. It is based on scientific principles of aiming at education and performance enrichment sports activities consists of motor movement and action and their success depends to a great extent on how correctly they are performed. Techniques of training and improvement of tactical efficiencies plays a vital role in training process.

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## **Strength Training**

Strength training for volleyball players is essential to improve muscle strength, explosive power, and core stability while reducing the risk of injury. Various strength training workouts can concentrate on specific muscles and boost optimal performance, such as squats, deadlifts, presses, and lunges. Regarding strength training, it is essential to consider factors such as intensity level, reps, sets, rest periods, and weight.

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## **Methodology**

The purpose of the study was to investigate the influence of strength training on selected physical variables of college level volleyball players. To achieve the purpose of the present study 30 men students were selected as samples from Selvam College of Technology and Selvam College of Arts and Science, Namakkal. The age group is between 18 to 24 years. The selected subjects were divided into two equal groups of each 15 namely experimental group and control group. The Group-I strength training for three days per week for six weeks, whereas the Group II acted as control, who maintained their daily routine activities and no special training was given to them. The following physical variables namely Arm Strength, Leg Strength, and Muscular Strength Endurance were selected as criterion variables. The measured by using 1-RM Bench Press, Half Squat, and Sit Ups. The following variables and test items have been selected to measure the criterion variables.

**Table – I**  
**Test Selection**

S.No	Variables	Test Items
1	Arm Strength	1-RM Bench Press
2	Leg Strength	Half Squat
3	Muscular strength endurance	Sit- Ups

### Training Schedule

The six-week training package is set up for this study. The strength training is given. The training was given to the subjects for three days in a week (Monday, Wednesday and Friday) for six weeks.

**Table – II**  
**Strength Training Programme Schedule**

Exercises	Repetition	Sets	Rest in between
Pull-ups	8 -10	2	30 seconds
Medicine ball throw	8 -10	2	30 seconds
Bur fee	8 -10	2	30 seconds
Inclined pushup	8 -10	2	30 seconds
Overhead medicine ball throw	8 -10	2	30 seconds
Skipping	8 -10	2	30 seconds
Depth jump	8 -10	2	30 seconds
Pull-over pass with medicine ball	8 -10	2	30 seconds
Abdominal crunches	8 -10	2	30 seconds

### Statistical Technique

The data collected from the two groups namely strength training group and control group on selected physical variables were statistically analyzed by using 't' ratio in order to determine the differences if any among the groups at pre-test & post-test. The calculated 't' ratio is tested for significance at 0.05 level of confidence.

## Results and Discussions

The effect of independent variables on each of the dependent variables were determined by 't' ratio separately and presented below.

**Table – III**  
**Calculation of 't' ratio between the Pre and Post test scores on Arm Strength, Leg Strength, and Muscular Strength Endurance for the Experimental Group and Control Group**

Variables	Group	Test	Mean	Standard Deviation	Std Error	MD	't' ratio
Arm Strength	Experimental	Pre	4.86	1.95	0.95	1.67	13.29*
		Post	6.53	1.88	0.88		
	Control	Pre	5.33	2.41	0.62	0.07	
		Post	5.26	1.66	0.43		
Leg Strength	Experimental	Pre	2.10	0.79	0.20	0.11	3.86*
		Post	2.21	0.76	0.19		
	Control	Pre	2.32	0.84	0.217	0.02	
		Post	2.30	0.82	0.213		
Muscular strength endurance	Experimental	Pre	28.66	11.38	2.93	3.74	5.87*
		Post	32.40	9.69	2.50		
	Control	Pre	22.20	8.63	2.23	0.34	
		Post	21.86	8.39	2.16		

\* Significance at 0.05 level of confidence

Table-III shows that the mean and standard deviation values of pre-test were 4.86 and 1.95 respectively. The mean and standard deviation values of post-test were 6.53 and 1.88. The mean difference was 1.67. The obtained 't' value of 13.29 is higher than the table value of 2.145. Through this analysis it was found that the practice of strength training for a period of six weeks has improved the arm strength significantly. For the control group the obtained 't' value is 0.20, it less than the table value of 2.145, it was found to be statistically insignificant. It clearly indicates that the control group has not improved the arm strength.

The mean and standard deviation values of pretest were 2.10 and 0.79 respectively. The mean and standard deviation values of post-test were 2.21 and 0.76. The mean difference was 0.11. The obtained 't' value of 3.86 is higher than the table value of 2.145. Through this analysis it was found that the practice of strength training for a period of six weeks has improved the leg strength significantly. For the control group the obtained 't' value is 1.35, it less than the table value of 2.145, it was found to be statistically insignificant. It clearly indicates that the control group has not improved the leg strength.

The mean and standard deviation values of pre-test were 28.66 and 11.38 respectively. The mean and standard deviation values of post-test were 32.40 and 9.69. The mean difference was 3.74. The obtained 't' value of 5.87 is higher than the table value of 2.14. Through this analysis it was found that the practice of strength training for a period of six weeks has improved the Muscular strength endurance significantly. For the control group the obtained 't'

value is 0.58, it less than the table value of 2.14, it was found to be statistically insignificant. It clearly indicates that the control group has not improved the Muscularstrength endurance.

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### Conclusions :

1. It was concluded that there was significant improvement in selected physical variables of college level volleyball players.
2. On testing the post-test means between experimental and control groups, significant mean difference was found on variables used in this study.
3. The study reveals that strength training would improve the arm strength, leg strength, and muscular strength endurance significantly at 0.05 level of confidence.

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