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## Effect of weight training exercises on the improvement of arm and leg strength of basketball players

**Satyavati D Wathar and Dr. Sakpal Hoovanna**

### Abstract

The purpose of the study was to realize the effect of selected weight training exercises on the growth of arm and leg strength of Basketball players. To work on the purpose 20 wrestlers who were the students of excellent residential school vijayapura were taken as the subjects. The selected group of subjects was divided into two groups viz. experimental and control. The weight training schedule which was administered on experimental group only, different weight training exercises were given (i.e. standing barbell curls, standing dumbbell curls, dumbel hammer curls, incline dumbbell curls, preacher curls, dumbell concentration curls, lying barbell extension, close grip bench press, triceps dumbell extensions, triceps bench dips, squat, dumbell lunges, standing leg curls, dumbell dead lift, and leg press). This weight training programme were carried out for a period of 8 weeks for one hour every evening, excluding Tuesday, Thursday, Saturday, and Sunday. Control groups was no treatment group and were engaged in their own daily activity programme. As delimited to measure the leg strength of the subjects standing broad jump (SBJ) and to measure the arm strength pull-ups tests were used. For the administration and scoring of these tests item procedure mentioned in AAPHER, youth fitness test (1958) was taken as the model. It was realize from the results of the study that there was significant effect of the weight training exercise on the leg strength as well as arm strength of the selected basketball players.

**Keywords:** Basketball, arm strength, leg strength

### Introduction

Training is mainly an art and like the artist a successful training programme must have two attribute. The first one is creative training, which indicates success in any sports hinges on its ability to respond quickly of flexibly, strength, speed and reliably to player demands and better opportunities. The second attribute is technical mastery of the skills used (Shaker, 2007). Therefore, a systematic and appropriate training programme is a great asset for basketball players.

Weight training is a common type of strength training for developing the strength and size of skeletal muscles. It utilizes the gravity in the form of weighted bars, dumbbells or weight stacks in order to oppose the force generated by muscle through concentric or eccentric contraction. Weight training uses a variety of specialized equipment to target specific muscle groups and types of movement. Sports where strength training is central are bodybuilding, weightlifting, power lifting, and strongman, highland games, hammer throw, shot put, discus throw, and javelin throw. Many other sports use strength training as part of their training regimen, notably: American football, baseball, basketball, football, hockey, lacrosse, mixed martial arts, rowing, rugby league, rugby union, track and field, boxing and wrestling.

Push-Ups. One of the simplest yet most effective exercises for building your arm strength is do regularly do push-ups. To perform push-ups, place your hands shoulder width apart with palms on the ground. Plant your legs with the balls of your feet touching the ground. Having a strong arm is critically essential for a good baseball player. The strength of your arm plays a central role in all baseball positions, including batting, pitching and fielding. You can hit home runs, pitch blazing fast baseballs and field with accurate and quick throws to the home plate, all by virtue of a strong arm. And it is incredibly simple to gain solid strength for your arm, although it requires diligence, hard work and persistence.

In the weight training resistance equipment is used to stimulate muscle growth, increase tone and strength.

The term weight training is also used interchangeably as resistance training. It could be treated as strength training for developing the arm strength of wrestlers, but weight training should not be confused with weight lifting, which is the lifting of heavy weights with the goal of lifting more pounds than the opponent can (Shaw, & Shaw, 2014). The confusion between weight lifting and weight training is probably the reason for the negative feelings about the use of weights in a boys training programme, since weight lifting is usually associated with powerful, muscled men, and has a masculine connotation. Silverter (2000) compared the effect of various resistance and free hand weight training exercise on leg strength, of seventy-nine male students. He calculated that all the training systems cause strength gains in all strength measures. Response to five different weight training frequencies per week 75 male volunteers' high school subjects were randomly assigned to train either one day, two days, four days per week. All groups trained on an identical bench press for nine weeks. The results revealed a highly significant improvement in muscular strength in the group that trained five days per week, sequential strength improvement resulted from increased frequencies of training that means the more frequent the stress, great adaptation will be happen. However, one can use weight training to improve an individual's general fitness and to raise level of performance in particular sports while at the same time adding to his femininity by improving his fatigue and muscle tone, since his muscles are strengthened by carefully selected weight training exercise (Shaker, 2007). It is well known that the services in the field of physical education have improved adequately in the past, but the only factor which perhaps does not seem to have been given adequate attention in the sports training. It is also established beyond doubt that the serious study in this area was never taken in order to spot out the gaps and subsequently bridge them. The scholar in the form of present study is making modest effort in this direction. Thus, the purpose of the study was to find the effect of selected weight training exercise on the development of arm and leg strength of basketball players.

## Methods and Materials

### Subjects

A total of 20 wrestlers who were the students of excellent residential school vijayapura, were taken as the subjects of the study. According to the demand of the study total subjects were divided into two different groups A and B. A was experimental group comprising 10 wrestlers and were engaged in prescribed weight training schedule, whereas group B was control group comprising 10 basketball players, were engaged in their own daily activity programme.

### Tools and Facility

As delimited to measure the leg strength of the subjects standing broad jump (SBJ), and to measure the arm strength pull-ups tests were used. For the administration and scoring of these tests, procedure mentioned in AAPHER youth fitness test (1972) was taken as the model.

### Weight Training Schedule

The pre design weight training program me was carried out for a period of 8 weeks for one hour every evening. In this the time required for conducting pre-test and post-test is excluded. The subjects underwent the weight training program me for thrice in the week that is, on Monday, Wednesday and Friday. Control group was treated as no

treatment and was not subjected to any experimental training. The control group was allowed to engage themselves in their daily routine physical activities.

## Statistical Technique

To find out the effects of weight training exercise on legs and arm strength of wrestlers' student t-test was used between the pre-test and post-test data. The level of significance was set at 0.05 level. All statistical function was performance with the help of SPSS v.23 software.

## Results

In the table given below results of the study is presented.

**Table 1:** Mean, SD and T Value between Pre-Test and Post-Test Score of the Leg Strength for the both Control and Experimental Groups.

SI No	Group	N	Mean	SD	t-value
1	Experimental (Pre-test)	20	1.55	0.20	4.24
2	Experimental (Post-test)	20	2.20	0.30	
3	Control (Pre-test)	20	1.78	0.22	0.13
4	Control (Post-test)	20	1.83	0.19	

\*Significant Tab t0.05(18) = 2.10

Readings of Table 1 showed that there is significant difference existed between pre-test and post-test score of leg strength of experimental group. For control group it was observed from the table that no significant difference existed between pre-test and post-test score of leg strength. It indicates that there is a significant effect of the weight training exercise on the leg strength of the basketball players.

**Table 2:** Mean, SD and T Value between Pre-Test and Post-Test Score of Arm Strength for both Control and Experimental Groups

SI No	Group	N	Mean	SD	t-value
1	Experimental (Pre- test)	20	8.1	2.21	4.80
2	Experimental (Post-test)	20	11.00	2.07 1.68	
3	Control (Pre-test)	20	8.1		1.57
4	Control (Post-test)	20	8.5	1.60	

\*Significant Tab t0.05(18) = 2.10

Readings of Table 2 showed that there is significant difference existed between pre-test and post-test score of arm strength of experimental group. For control group it was documented from the table that no significant difference existed between pre-test and post-test score of leg strength. It indicates that there is a significant effect of the weight training exercise on the arm strength of the basketball players.

## Discussion

The main purpose of the study was to examine the effect of selected weight training exercises on the development of strength ability of basketball players. The secondary objective of the study was to know the effect of the selected weight training exercises on the arm and leg strength of basketball players. Table 1 showed the analysis of leg strength of pre-test and post-test scores of experimental and control groups. The mean values of experimental group was 1.55 (SD 0.20) for the pre-test, and 2.20 (SD 0.32) post-test respectively. The results of the t test showed that difference existed between pre and post test score for experimental group. For control group it was found insignificant, which indicating that there is significant effect of eight weeks weight training exercise for leg strength improvement. Results presented in Table 2

showed the analysis of arm strength of pre-test and post-test scores of experimental and control groups. The mean values of experimental group was 8.30 (SD 2.23) for the pre-test, and 11.10 (SD 2.09) post-test respectively. The results of the t test showed that difference existed between pre and post test score for experimental group. For control group it was found insignificant, which indicating that there is significant effect of eight weeks weight training exercise for arm strength improvement. The findings of the present study indicate significant differences on arm and leg strength of experimental with comparison to control group. Control group findings indicate that there is no significant change in the arm and leg strength of basketball players.

### **Conclusions**

On the basis of the findings of the study following conclusions were made:

- Significant difference was observed between experimental group and no significant between control groups on the variable arm and leg strength.
- It is found that prescribed weight training was effective on the arm and leg strength of the basketball players. Treatment of weight training exercises increase in arm and leg strength.
- Finally, it is concluded that there is significant effect of the 8weeks weight training exercise programme on leg strength as well as arm strength of the basketball players.

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