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EFFECT OF STRENGTH TRAINING PROGRAMME ON SELECTED STRENGTH PARAMETERS OF WOMEN BASKETBALL PLAYERS

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Abstract:

The purpose of the study was to find out the effect of strength training programme on selected strength parameters of women basketball players. To achieve these purpose thirty women basketball players were randomly selected as subjects. They were divided into two equal groups and each group consisted of 15 subjects. Group I underwent strength training programme for three days per week for twelve weeks and Group II acted as control who did not participate any special training apart from the regular curricular activities. The age of the subjects were ranged between 18 to 24 years. The subjects were tested on selected criterion variables such as strength endurance and leg strength at prior to and immediately after the training period. The selected criterion variable such as strength endurance was measured by bent knee sit-ups and leg strength was measured by using leg lift with dynamometer. The analysis of covariance (ANCOVA) was used to find out the significant difference if any, between groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate. The results of the study showed that the strength training had significantly improved the strength endurance and leg strength of women basketball players.

Key Words: Strength Training, Strength Endurance and Leg Strength

Introduction:

Sport for all has become a very popular slogan all over the world today. In the present day successful sportsman are among the most popular figures in the public like. The newspapers are lavish in their praise of outstanding performances. Sport is a competition for a prize, discipline, effort and for self improvement. It is in the man's blood. Sport is recreation as well as competition. Sport offers the opportunity to succeed. Those who succeed to the highest degree are the champions.

Fitness is a desirable state for anyone who wants to lead a zestful and productive life and realize his fullest potential. It deserves a concise definition. A high level of general fitness relieves man from disease and it also contributes to their psychological well being and other components are also important. Reasonable muscular development, functional flexibility of the joints, adequate vital capacity of the lungs, reserve capacity of the heart and blood vessels and stamina must all be included (Bud Getchell, 1979).

The game basketball is a fast game conducted on a time basis. Basketball is probably the leading ball game in the world as far as action occurrence is concerned. This is one of the reasons why this game has become one of the most popular sports in the world (Vaughan Thomas, 1972). Basketball is a physically demanding sport in which the player must be a complete athlete: strong and explosive while exhibiting fine motor skills when shooting, passing, rebounding, and dribbling. Basketball players must be conditioned to the demands of the sport. Strong basketball players tend to attack the basket more, rebound more, and play tougher on defense.

Training is systematically planned preparation with the help of the exercise method, which realized the main factors of influencing athletes progress. Through systematic training the athletes 'fitness level' and this acquisition of vital knowledge and skill are improved. Training involves constructing an exercise programme to develop an athlete for particular event. This increasing skill and energy capacities are equal consideration (Michael Johnson, 1974). Training differs in accordance with the nature of the activity, type of activity and individual to individual.

Strength training is use of resistance other than the weight of the body to develop specific areas of the body. Generally, it is used to develop muscular strength and power. It also develops muscular endurance, elasticity and co-ordination (Robert W. Anderson, 1957). Weight training is the use of systematic exercises with weight and it is used merely as a mean to increase resistance of the muscle contraction. The primary objective is not to learn to lift as much weight as possible, but to increase strength and power for application to some other sports. The essentials of strength training are regularity and gradual increase in training intensity (principles of over loading) supported by good nutrition and adequate rest. Strength training does not does not slow down muscular movement. It has also been established that increase in muscular speed (Explosive power) accompanies an increase in muscular strength (Edward L. Fox, *et.al., 1989).*

Methodology:

Subjects:

Thirty women basketball players were randomly selected as subjects. The age of the subjects were ranged between 18 to 24 years. They were divided into two equal groups and each group consisted of 15 subjects. Group I underwent strength training programme for three days per week for twelve weeks and Group II acted as control who did not participate any special training apart from the regular curricular activities.

Variables:

The strength endurance and leg strength were selected as criterion variables. The strength training was selected as independent variable. The selected criterion variable such as strength endurance was measured by bent knee sit-ups and leg strength was measured by using leg lift with dynamometer.

Statistical Procedures:

All the subjects of two groups were tested on selected dependent variables at prior to and immediately after the training programme. The analysis of covariance (ANCOVA) was used to analyze the significant difference if any, between the groups on each selected criterion variables separately. In all the cases, .05 level of confidence was fixed to test the significance, which was considered as an appropriate.

Training Programme:

During the training period, the experimental group (Group-I) underwent (n = 15) strength training programme for three days per week (alternative days) for twelve weeks. Everyday the workout lasted for 30 to 45 minutes approximately including warming up and warming down periods. Subjects in Group II as control were instructed not to participate in any strenuous physical exercise and specific training throughout the training programme. However, they performed regular activities as per the curriculum. The subjects underwent the respective programmes as per the schedules under the supervision of the investigator. Each training session was conducted only in the morning time.

Analysis of the Data:

Strength Endurance:

The analysis of covariance on strength endurance of strength training group and control group are analyzed and presented in Table 1.

Table 1: Analysis of Covariance on Strength Endurance of Strength Training Group and Control Group

Test	Strength Training Programme Group	Control Group	Source of Variance	Sum of Squares	Df	Mean Squared	'F' ratio
Pre- test Mean S.D	39.33 0.82	39.00 0.93	Between Within	0.833 21.33	1 28	0.833 0.762	1.09
Post-test Mean S.D	42.67 1.35	38.87 1.89	Between Within	108.3 75.07	1 28	108.3 2.68	40.39*
Adjusted Post-test Mean	42.49	39.04	Between Within	85.71 50.98	1 27	85.71 1.888	45.39*

* Significant .05 level of confidence.

(The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table 1 showed that the pre-test mean values of strength endurance for strength training programme group and control group were 39.33 ± 0.82 and 39.00 ± 0.93 respectively. The obtained 'f' ratio value of 1.09 for pre test scores of strength training programme group and control group on strength endurance was less than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The post-test mean values for strength endurance for strength training programme group and control group were 42.67 ± 1.35 and 38.87 ± 1.89 respectively. The obtained 'f' ratio value of 40.39 for post-test scores of strength training programme group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence. The adjusted post-test mean values of strength endurance for strength training programme group and control group were 42.49 and 39.04 respectively. The obtained 'f' ratio value of 45.39 for adjusted post-test scores of strength training programme group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at .05 level of confidence. The results of this study showed that there was a significant difference between strength training programme group and control group on strength endurance. The mean values of strength training programme group and control group on strength endurance were graphically represented in Figure 1.

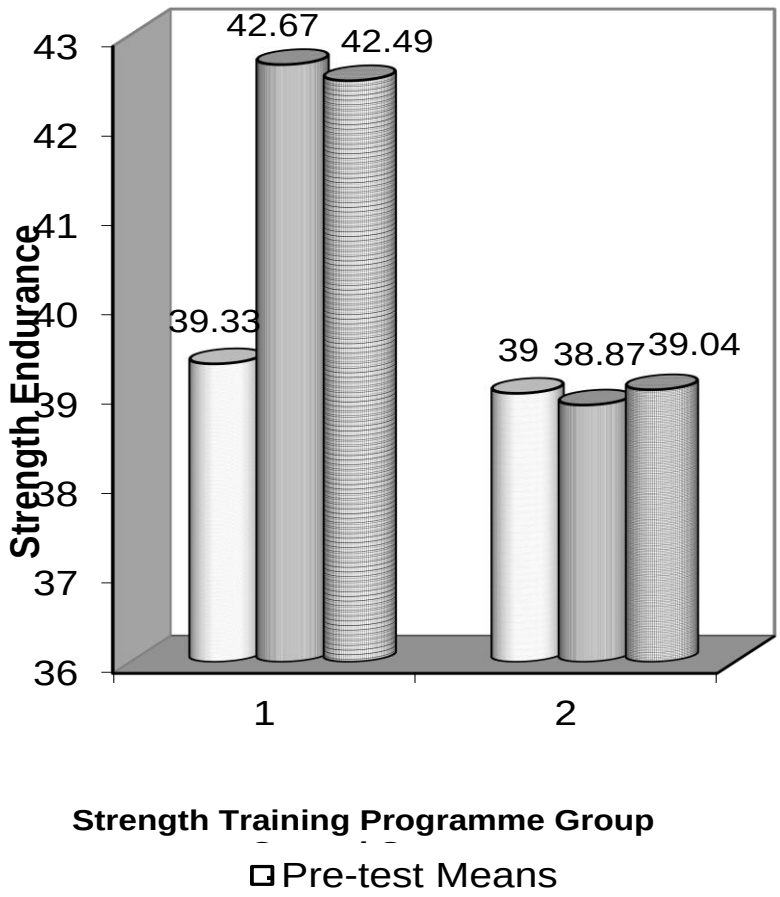

Figure 1: Bar Diagram Showing the Mean Values of Strength Training Programme Group and Control Group on Strength Endurance

Leg Strength:

The analysis of covariance on leg strength of strength training programme group and control group are analyzed and presented in Table - II.

Table 2: Analysis of Covariance on Leg Strength of Strength Training Programme Group and Control Group

	Strength Training Programme Group	**Control Group**	**Source of Variance**	**Sum of Squares**	**Df**	**Mean Square**	**'F' ratio**
Pre- test Mean S.D.	51.13 1.13	50.80 1.21	Between Within	0.83 38.13	1 28	0.83 1.36	0.612
Post-test Mean S.D.	53.80 1.78	51.07 1.28	Between Within	56.03 67.33	1 28	56.03 2.41	23.30*
Adjusted Post-test Mean	53.76	51.11	Between Within	51.52 64.92	1 27	51.52 2.404	21.43

* Significant .05 level of confidence.

(The table values required for significance at .05 level of confidence with df 1 and 28 and 1 and 27 were 4.20 and 4.21 respectively).

Table 2 showed that the pre-test mean values of leg strength for strength training programme group and control group were 51.13 ± 1.13 and 50.80 ± 1.21 respectively. The obtained 'f' ratio value of 0.612 for pre test scores of strength training programme group and control group on leg strength was less than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The post-test mean values for leg strength for strength training programme group and control group were 53.80 ± 1.78 and 51.07 ± 1.28 respectively. The obtained 'f' ratio value of 23.30 for post-test scores of

strength training programme group and control group was greater than the required table value of 4.20 for significance with df 1 and 28 at .05 level of confidence.

The adjusted post-test mean values of leg strength for strength training programme group and control group were 53.76 and 51.11 respectively. The obtained 'f' ratio value of 21.43 for adjusted post-test scores of strength training programme group and control group were greater than the required table value of 4.21 for significance with df 1 and 27 at .05 level of confidence.

The results of this study showed that there was a significant difference between strength training programme group and control group on leg strength. The mean values of strength training programme group and control group on leg strength were graphically represented in Figure 2.

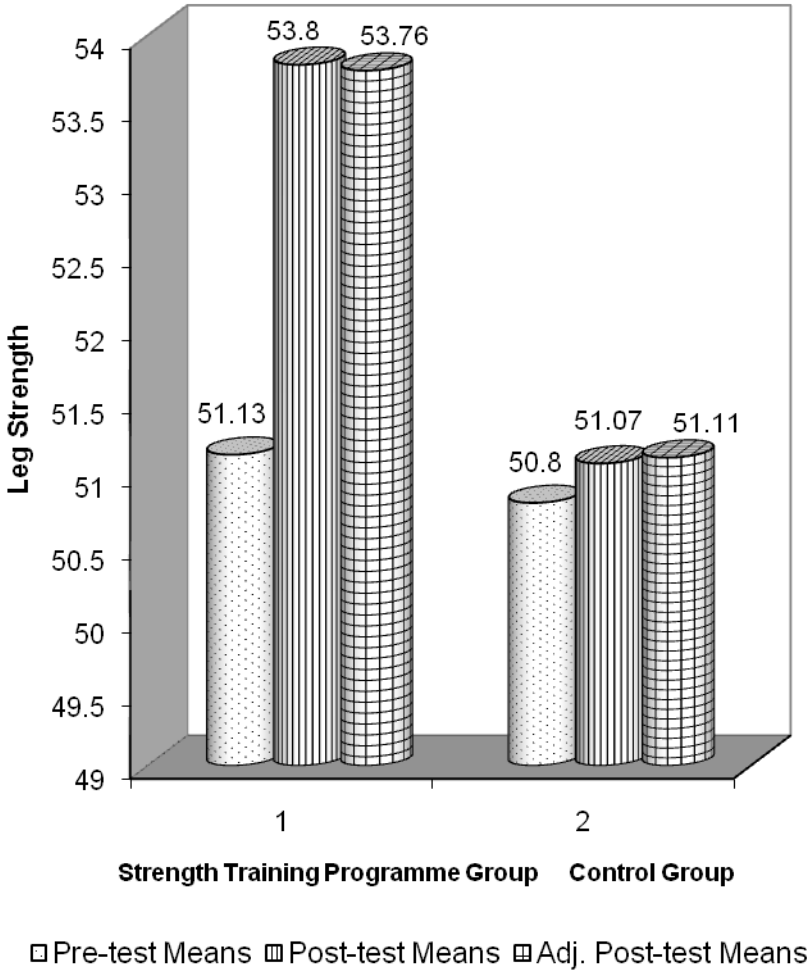

Figure 2: Bar Diagram Showing the Mean Values of Upper and Lower Specific Strength Training Group and Control Group on Leg Strength

Discussion on Findings:

The results of the study showed that there was a significant difference and significant improvement on selected strength parameters such as strength endurance and leg strength between strength training programme group and control group. According to Jones et al., (1996) who conducted the strength training programme on strength and power parameters and the results indicate the both strength and power were increased. Sundaramoorthy (1999) stated that strength endurance and leg strength were improved significantly after the weight training programme. These findings are also in agreement with Kubachka and Stevens (1996), research report stated that strength training improves strength (82.5 %). Buckenmeyar (2000) stated that strength training treatment elicited significant improvement on leg strength. It is inferred from the above literature and from the results of the present study indicated that strength training will improve the strength variables.

Conclusions:

The results of the study showed that there was a significant difference between the strength training programme group and control group on strength endurance and leg strength. And also it was found that there was a significant improvement on strength endurance and leg strength due to strength training.

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