



ISSN 2278 – 0211 (Online)

An Effective Approach through Strength, Endurance and Skill Training Program Combinations on Muscular Strength and Endurance and Explosive Power of Male Basketball Players

K. M. Ashok Kumar

Research Scholar, Department of Physical Education,
Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India

Dr. S. Suthakar

Head I/C, Department of Physical Education,
Karpagam Academy of Higher Education, Coimbatore, Tamil Nadu, India

Dr. R. Ashok Kumar

Director, Department of Physical Education, NGM Arts & Science College, Coimbatore, Tamil Nadu, India

Abstract:

The purpose of the study was to find out the effective approach through combinations of strength, endurance and skill training program on male basketball players. To achieve the purpose of the study, 60 male basketball players were selected from Excel group of Institutions Namakkal, Tamil Nadu, India. The selected subjects age ranged between from 18 – 25 years. The subjects were tested by modified sit ups (Muscular Strength and Endurance), Vertical Jump (Explosive Power). Pre-test and post test data were collected before and after of the twelve week of training period. In this competitive world own country had come up in sports recent days, many of them had focused on young achiever in sports. The players need good basic fitness for his or her future sports and games achievement. Based on this, the following performance related variables were selected for this present study. 't' ratio and Anova was applied to find out the significant difference between the pre and post test in the selected variables. The results reveal the training programme showed significant improvement on the selected dependent variables of male basketball players.

Keywords: SEWST -strength and endurance training with skill training; SEWOST-strength and endurance training without skill training, muscular strength and endurance and explosive power.

1. Introduction

Basketball game was played between two teams of five players each on a rectangular court, usually indoors. Each team tries to score by tossing the ball through the opponent's goal, an elevated horizontal hoop and net called a basket. The only major sport strictly of U.S. origin, basketball was invented by James Naismith (1861–1939) on or about December 1, 1891, at the International Young Men's Christian Association (YMCA) Training School (now Springfield College), Springfield, Massachusetts, where Naismith was an instructor in physical education.

A team can score a field goal by shooting the ball through the basket during regular play. A field goal scores three points for the shooting team if the player shoots from behind the three-point line, and two points if shot from in front of the line. A team can also score via free throws, which are worth one point, after the other team was assessed with certain fouls. The team with the most points at the end of the game wins, but additional time (overtime) is issued when the score is tied at the end of regulation. The ball can be advanced on the court by bouncing it while walking or running or throwing it to a teammate. It is a violation to lift or drag one's pivot foot without dribbling the ball, to carry it, or to hold the ball with both hands then resume dribbling.

2. Objectives of the Study

1. To find out whether the strength and endurance training with skill training would significantly improve the muscular strength and explosive power of male basketball players.
2. To find out whether the strength and endurance training without skill training would significantly improve the muscular strength and explosive power of male basketball players.

1.1. Hypothesis

1. It was hypothesis that the strength and endurance training with skill training would significantly improve the muscular strength and endurance and explosive power of male basketball players.
2. It was hypothesis that the strength and endurance training without skill training would significantly improve the muscular strength and endurance and explosive power of male basketball players.
3. It was hypothesis that the strength and endurance training with skill training would significantly improve better than the strength and endurance training without skill training and control group on muscular strength endurance and explosive power of male basketball players
4. It was hypothesis that the strength and endurance training without skill training would significantly improve better than the control group on muscular strength endurance and explosive power of male basketball players

3. Methodology

The purpose of the study was to find out effective approach through strength, endurance and skill training program combinations on muscular strength and endurance and explosive power of male basketball players. Sixty male basketball players were selected from Excel group of Institutions Namakkal, Tamilnadu erode district inter collegiate level (age, height, weight: 20.3 ± 2.4 ; 170 ± 4.6 ; 65 ± 3.8). The selected subjects were randomly divided into three equal groups from various colleges affiliated to Anna university, Chennai. The subjects were assigned as one of the three groups, in which the first group ($n=20$, SEWST group) has performed strength and endurance training with skill training, the second group ($n=20$; SEWOST group) performed strength and endurance training without skill training, the third group ($n=20$, CG group) did not performed any specific training but played basketball game daily. The physical variables of muscular strength and endurance and explosive power were selected for this study. To find the muscular strength and endurance for modified sit ups test were used and leg explosive power for vertical jump test were used. To find the mean difference between pre- test to post test 't' ratio was used. Anova were used to find out the mean difference among the groups.

Variables	Pre test mean \pm SD	Post test mean \pm SD	M. D	SEM	't'-ratio 2.093
Muscular strength endurance (Nos)	15.65 \pm 0.67	17.45 \pm 0.51	1.8	0.15560	11.568
Leg Explosive power(Cms)	14.27 \pm 0.69	17.35 \pm 0.87	3.08	0.13216	23.26

Table 1: Significance of mean gains / losses between pre and post test of strength and endurance training with skill training on muscular strength and endurance and leg explosive power of male basketball players
*Significant at 0.05 level (2.09)

Table -1 shows the SETWST group Muscular strength endurance pre test mean ($15.65 \pm$ S.D 0.67) and post test mean was ($17.45 \pm$ S.D 0.51). The difference between the mean value was 1.80 and leg explosive power pre test mean ($14.27 \pm$ S.D 0.67) and post test mean was ($17.35 \pm$ S.D 0.87). The difference between the mean value was 3.08. The obtained 't' ratio's for pre and post test mean difference in strength and endurance training with skill training on Muscular strength endurance (11.56) Leg Explosive power (23.26) respectively. The obtained 't' ratio was when compared with the table value of 2.09 for the degrees of freedom (1, 19), it was found to be statistically significant at 0.05 level of confidence for the experimental group.

Variables	Pre test mean \pm SD	Post test mean \pm SD	M. D	SEM	't'-ratio 2.093
Muscular strength endurance (Nos)	15.65 \pm 0.67	17.00 \pm 0.64	1.35	0.15000	9.00*
Leg Explosive power(Cms)	14.27 \pm 0.69	16.45 \pm 0.62	2.1	0.13705	15.87*

Table 2: Significance of mean gains / losses between pre and post test of strength and endurance training without skill training on muscular strength and endurance and leg explosive power of male basketball players
*Significant at 0.05 level (2.09)

Table -2 shows the SETWST group Muscular strength endurance pre test mean ($15.65 \pm$ S.D 0.67) and post test mean was ($17.00 \pm$ S.D 0.64). The difference between the mean values was 1.35 and leg explosive power pre test mean ($14.27 \pm$ S.D 0.69) and post test mean was ($16.45 \pm$ S.D 0.62). The difference between the mean value was 2.1. The obtained 't' ratio's for pre and post test mean difference in strength and endurance training with skill training on Muscular strength endurance (9.00) Leg Explosive power (15.87) respectively. The obtained t ratio was when compared with the table value of 2.09 for the degrees of freedom (1, 19), it was found to be statistically significant at 0.05 level of confidence for the experimental group.

Variables	Pre test mean \pm SD	Post test mean \pm SD	M. D	SEM	't'-ratio 2.093
Muscular strength endurance (Nos)	15.65 \pm 0.67	15.65 \pm 0.93	0.0	0.29019	0.000
Leg Explosive power(Cms)	14.27 \pm 0.69	14.70 \pm 0.69	0.43	0.14177	2.998

Table 3: Significance of mean gains / losses between pre and post test of strength and endurance training without skill training on muscular strength and endurance and leg explosive power of male basketball players
*Significant at 0.05 level (2.09)

Table -3 shows the SETWST group Muscular strength endurance pre test mean (15.65 \pm S.D 0.67) and post test mean was (15.65 \pm S.D 0.93). The difference between the mean values was 0.00 and leg explosive power pre test mean (14.27 \pm S.D 0.69) and post test mean was (14.70 \pm S.D 0.69). The difference between the mean value was 0.43. The obtained 't' ratios for pre and post test mean difference in strength and endurance training with skill training on Muscular strength endurance (0.00) Leg Explosive power (2.99) respectively. The obtained t ratio was when compared with the table value of 2.09 for the degrees of freedom (1, 19), it was found to be statistically significant at 0.05 level of confidence for the experimental group.

Variables	Source of variance	Sum of squares	df	Mean squares	F-ratio 3.15
Muscular strength endurance (no)	B/G	0.000	2	0.000	0.000
	W/G	25.650	57	0.450	
Leg explosive power (cms)	B/G	0.000	2	0.000	0.000
	W/G	27.713	57	0.486	

Table 4: Analysis of variance on pre test means among SETWST, SETWOST and CG on muscular strength and endurance and leg explosive power of male basketball players
*Significant at 0.05 level (3.15)

The F-ratio needed for significant difference among the means for df 2,57 was 3.15 at 0.05 level of confidence. The observed F-ratio for the pre test means were: 0.00 on muscular strength endurance and 0.000 on Leg explosive power respectively. Since the observed F-ratios on these variables failed to reach the critical value of 3.15. It was found that the observed means difference among the three groups on the variables used in the study before the treatment were not statistically significant. Thus the non-significant F-ratios found in the pre test means difference provided a confidence that samples came from the same population and are free from sampling bias.

4. Conclusions

1. It was concluded that the strength and endurance training with skill training improved the physical fitness components on muscular strength and endurance and leg explosive power of male basketball players.
2. It was concluded that the strength and endurance training without skill training improved the physical fitness components on muscular strength and endurance and leg explosive power of male basketball players.
3. It was concluded that the strength and endurance training with skill training improved the physical fitness components on muscular strength and endurance and leg explosive power better than the strength and endurance training without skill training and control group of male basketball players.
4. It was concluded that the strength and endurance training without skill training improved the physical fitness components on muscular strength and endurance and leg explosive power better than control group of male basketball players.

5. References

1. Noyes, FR, Barber-Westin, SD, Smith, ST, Campbell, T, and Garrison, TT, J Strength Cond Res 26(3): 709–719, 2012
2. Stone WJ and Steingard PM (1993) Year-round conditioning for basketball. Clinics in Sports Medicine 12:173-191.
3. MacLean JC (1984) Refinement of time-motion study procedures. Unpublished Master's Thesis, University of New Brunswick.
4. McInnes SE, Carlson JS, Jones CJ and McKenna MJ (1995) The physiological load imposed on basketball players during competition. Journal of Sports Sciences 13:387-397.
5. McArdle WD, Katch FI and Katch VL (1991) Exercise Physiology: Energy Nutrition and Human Performance. (3rd edn.) London: Lea and Febiger.
6. S. Suthakar, Dr. A. Pushparajan Effects of Silambam and Karate with Yogic Training on Agility and Arm Explosive Power of Collegiate Male Students international journal of innovative research and development. Volume 3, Issue 4, April 2014; ISSN 2278 – 0211.