Effects of Short Term and Regular Resistance Training in the Development of Flexibility, Leg Explosive Power and Dribbling of the Male Basketball Players

Muniraju. M. G[1] & Dr. S.Suthakar[2]

[1]*Research Scholar, Department of Physical Education, Karpagam University, Coimbatore, Tamilnadu, India.*
[2]*Head (i/c), Department of Physical Education, Karpagam University, Coimbatore, Tamilnadu, India.*

Abstract

   To achieve the purpose of the study sixty intercollegiate male basketball players were selected from St.Claret College Jalahalli, Bangalore. The subjects age was ranged from 18-23 years. There were divided in to three equal groups in each 20 players. The first group underwent the (short term training and skill training group) N-20, the second group underwent the(regular resistance training and skill training group) N-20, the third group acted as a control group (N-20) and they did not perform any specific Training. The subjects were assessed by the flexibility (sit and reach test), leg explosive power (vertical jump test) and dribbling ability (Knox basketball test).conducted before and after the 12 weeks of training the regimen. Analysis of variance was used to analyse the data. The result showed that all the training treatments elicited significant improvement in all variables. The short term and skill training group showed significantly greater improvement in all the variables then the other two groups of short term and skill training group and the control group.

Introduction

There are many different methods in strength training. One form of resistance exercise that has drawn attention is the short term training. Evidence of increasing interest is becoming more apparent with the rise of internet references. This form of training has been presented as a safe and effective means of building strength in both the beginning and advanced weight training (Westcott, 1999). Short term training, originated in 1982 by Ken Hutchins, was developed in an osteoporosis study with older women because of the need to utilize a safer speed for the subjects to perform the resistance exercises. The result was the beginning of a new resistance training technique, which also known as the short term training**.** In a standard Nautilus training protocol, 8-12 repetitions are performed (Westcott, 1999). Each repetition represents a two-second concentric action, a one-second pause, followed by a four-second eccentric action. The total time for the set requires approximately 55-85 seconds in completion. The short term protocol represents 4-6 repetitions consisting of a 10-second concentric phase followed by a four-second eccentric phase. This protocol also requires about 55-85 seconds in completion. One possible advantage of the short term training is involvement of

less momentum, resulting in a more evenly applied muscle force throughout the range of motion.

Methodology

The study was formulated as Pre and Post test random group design, in which sixty subjects were divided into three equal groups. The subjects were assigned at a random as one from the three groups, in which the first group(N-20,STT group) performed the short term training with skill training, the second group(N-20,RRT group) performed the regular resistance training with the skill training and the third group (N-20,control group) and they did not perform any specific training. The variables such as flexibility was measured by the sit and reach test, the leg explosive power was measured by the vertical jump test and dribbling ability was measured by Knox Basketball Test. The test was occurred before and after 12 weeks regimen.

Analysis of data and result of the study

A paired sample of student's t-test was used to determine the significance of the mean differences between the Pre-test to Post-tests values of a variable in the same group. Analysis of variance (ANOVA) was used to know the significant differences among the groups. Statistical significance was accepted as $p \leq 0.05$ level of confidence.

Correspondence
Dr.S.Suthakar
E-mail: suthakar.ku@gmail.com, Ph. +9199650 65096

Table I. Result of t-test between Pre-test and Post- test of short term training and the skill training group

Variables	Pre test		Post test		Sed	MD	t-value
	Mean	SD	Mean	SD			
Flexibility	31.55	1.43	34.25	0.83	0.37	2.70	7.30*
Leg explosive power	28.50	1.83	32.25	1.87	0.59	3.75	6.36*
Dribbling ability	6.97	1.23	8.88	0.55	0.30	1.91	6.37*

From the results of the above table, it can be seen that, the Pre-test and Post-test differ statistically in the flexibility, leg explosive power and dribbling ability scores (t=7.30, 6.36, 6.37, $p \leq 0.05$) greater than the table value 2.093 at 95% level and it was significant.

Table II. Result of t-test between Pre-test and Post test of regular resistance training and the skill training group

Variables	Pre-test		Post test		Sed	MD	t-value
	Mean	SD					
Flexibility	31.85	1.24	35.00	2.07	0.53	3.15	5.94*
Leg explosive power	30.50	2.31	34.95	2.25	0.72	4.45	6.18*
Dribbling ability	7.54	1.44	9.42	0.36	0.33	1.88	5.70*

From the results of the above table, it can be seen that, the Pre-test and Post-test differ statistically in flexibility, leg explosive power and dribbling ability scores (t=5.94, 6.18, 5.70, $p \leq 0.05$) greater than the table value 2.093 at 95% level and it was significant.

Table III. Result of t-test between Pre-test and Post-test of control group

Variables	Pre-test		Post test		Sed	MD	t-value
	Mean	SD					
Flexibility	31.75	1.18	32.05	1.28	0.39	0.30	0.76
Leg explosive power	29.25	3.43	30.90	3.51	1.10	1.65	1.50
Dribbling ability	7.69	1.38	8.35	0.51	0.33	0.66	2.00

From the results of the above table it can be seen that, the Pre-test and Post-test did not differ statistically in flexibility, leg explosive power and dribbling ability scores (t=0.76, 1.50, 2.00, $p \leq 0.05$) lower than the table value 2.093 at 95% level and it was not significant.

Table IV. Results of ANOVA test of the three groups (short term and skill training, regular resistance and skill training group, control group) at the inter-collegiate basketball players in respect of leg flexibility scores

	Source of variation	Degrees of freedom	Sum of squares	Mean sum of squares	F-value
Pre-test	Between groups	2	0.94	0.47	0.39
	Within groups	57	69.50	1.21	
Post-test	Between groups	2	94.03	47.02	20.26*
	Within groups	57	132.25	2.32	

Table IV shows that the Pre-test means of flexibility for the short term and skill training, regular resistance and skill training group, control groups were 31.55+ 1.43, 31.85+ 1.24 and 31.75+ 1.18 respectively. The obtained F ratio value of 0.39 for Pre-test scores of three groups on the flexibility was less than the required table value 3.15, hence it was not significant. The Post-test means of flexibility for the short term and skill training, regular resistance and skill training group, control groups were 34.25+ 0.83, 35.00+ 2.07 and 32.05+ 1.28 respectively. The obtained F ratio value of 20.26* in the post-test scores of three groups on flexibility was greater than the required table value 3.15 was significant with df 2 and 57 at 0.05 level of confidence.

Table V. Results of ANOVA test of the three groups (short term and skill training, regular resistance and skill training group, control group) at the inter-collegiate basketball players in respect to leg explosive power scores

	Source of variation	Degrees of freedom	Sum of squares	Mean sum of squares	F-value
Pre-test	Between groups	2	40.84	20.42	2.84
	Within groups	57	409	7.18	
Post-test	Between groups	2	170.10	85.05	11.60*
	Within groups	57	417.59	7.33	

Table V shows that the Pre-test means of leg explosive power for the short term and skill training, regular resistance and skill training group, control groups were 28.50+ 1.83,30.50+ 2.31and 29.25+ 3.43 respectively. The obtained F ratio value of 2.84 in the pre-test scores of three groups on leg explosive power was less than the required table value 3.15, hence it was not significant. The Post-test means of leg explosive power for the short term and skill training, regular resistance and skill training group, control groups were 32.25+ 1.87, 34.95+ 2.25 and 30.90+ 3.51 respectivily. The obtained F ratio value of 11.60* in the Post-test scores of three groups on leg explosive power was greater than the required table value 3.15 was significant with df 2 and 57 at 0.05 level of confidence.

Table VI. Results of ANOVA test of the three groups (short term and skill training, regular resistance and skill training group, control group) at the inter-collegiate basketball players in respect of dribbling ability scores

	Source of variation	Degrees of freedom	Sum of squares	Mean sum of squares	F-value
Pre-test	Between groups	2	5.66	2.83	1.47
	Within groups	57	109.82	1.93	
Post-test	Between groups	2	11.45	5.73	23.88*
	Within groups	57	13.84	0.24	

Table VI shows that the Pre-test means of dribbling ability for the short term and skill training, regular resistance and skill training group, control groups were 6.97+ 1.23,7.54+ 1.44and 7.69+ 1.38 respectively. The obtained F ratio value of 1.47 in the pre-test scores of three groups in the dribbling ability was less than the required table value 3.15, hence it was not significant. The post-test means of dribbling ability for the short term and skill training, regular resistance and skill training group, control groups were 8.88+ 0.55,9.42+ 0.36and 8.35+ 0.51 respectively. The obtained F ratio value of 23.88* in the post-test scores of three groups on dribbling ability was greater than the required table value 3.15 was significant with df 2 and 57 at 0.05 level of confidence.

Conclusion
1. The short term and skill training group performed significantly better than the regular resistance and skill training group and control group in flexibility, leg explosive power, dribbling ability.
2. The regular resistance and Skill training group performed significantly better than the control group in flexibility, leg explosive power, dribbling ability.
3. The short term and skill training group and regular resistance and Skill training groups were improved in the development of physical fitness variable and skill performance variable on male basketball players.

References
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