

Effect of Strength Training on Selected Physical Fitness Variables among Sprinting performance on Athletes

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ABSTRACT

Strength training or resistance training involves the performance of physical exercises that are designed to improve strength and endurance. It is often associated with the lifting of weights. It can also incorporate a variety of training techniques such as bodyweight exercises, isometrics, and plyometrics. The objective of the study is to find out the Effect of Strength Training on Selected Physical Fitness Variables among Sprinting performance on Athletes. Hypothesis: There may not be any significant difference between pre test and post test on selected physical fitness among springing Athletes in relation to strength training program. Methodology: To achieve the purpose of the study, thirty college level sprinting athletes were selected from in and around Hyderabad District in the age group of 18 to 22 years. Tools Used: The fitness variables such as Muscular endurance, Flexibility and Balance were selected as dependent variables. The mean value of experimental group on muscular endurance, flexibility and balance were 14.55, 25.66 and 13.50 respectively. Findings of the Study: The present study experiment the effect of strength training program on physical fitness parameters of college level men sprinting athletes. The result of the study indicated that the strength training program improved the physical fitness parameters such as muscular endurance, flexibility and balance. Conclusions It was concluded that the practice of strength training helped to improve selected physical fitness variables of athletes. Keywords: Strength Training, Muscular endurance, Flexibility and Balance.

Introduction

Strength training or resistance training involves the performance of physical exercises that are designed to improve strength and endurance. It is often associated with the lifting of weights. It can also incorporate a variety of training techniques such as bodyweight exercises, isometrics, and plyometrics. Training works by progressively increasing the force output of the muscles and uses a variety of exercises and types of equipment. Strength training is primarily an anaerobic activity, although circuit training also is a form of aerobic exercise.

Strength training can increase muscle, tendon, and ligament strength as well as bone density, metabolism, and the lactate threshold; improve joint and cardiac function; and reduce the risk of injury in athletes and the elderly. For many sports and physical activities, strength training is central or is used as part of their training regimen. Strength training is important for athletes across all sports. Strength training is an important factor in annual training planning for maximal velocity in modern sprint races. In the last decade an increase in the use of strength training in young athletes' training has been noted, especially at the perfection of training in athletes aged 18 to 22 years. The main goal of this training stage is to realize athletes' technical potential in strength training in order to avoid injuries. Another study confirmed the beneficial role of strength training for young athletes in their future ultimate performance during adulthood. In the period when motor abilities mature and advanced mastery is achieved, strength training can influence the structural make-up of the young

athlete's body, especially in terms of the quantity and quality of muscle tissues leading to muscular hypertrophy.

A number of studies have demonstrated the significance of both maximal strength and speed strength training in sprinters' performance. The basic principles of strength training involve repeated overloading of a group of muscles, typically by contracting the muscles under heavy resistance and returning to the start position for several repetitions until failure. The basic method of resistance training uses the principle of progressive overload, in which the muscles are overloaded by working against as high resistance as they are capable of. They respond by growing larger and stronger.

The Objective of the Study

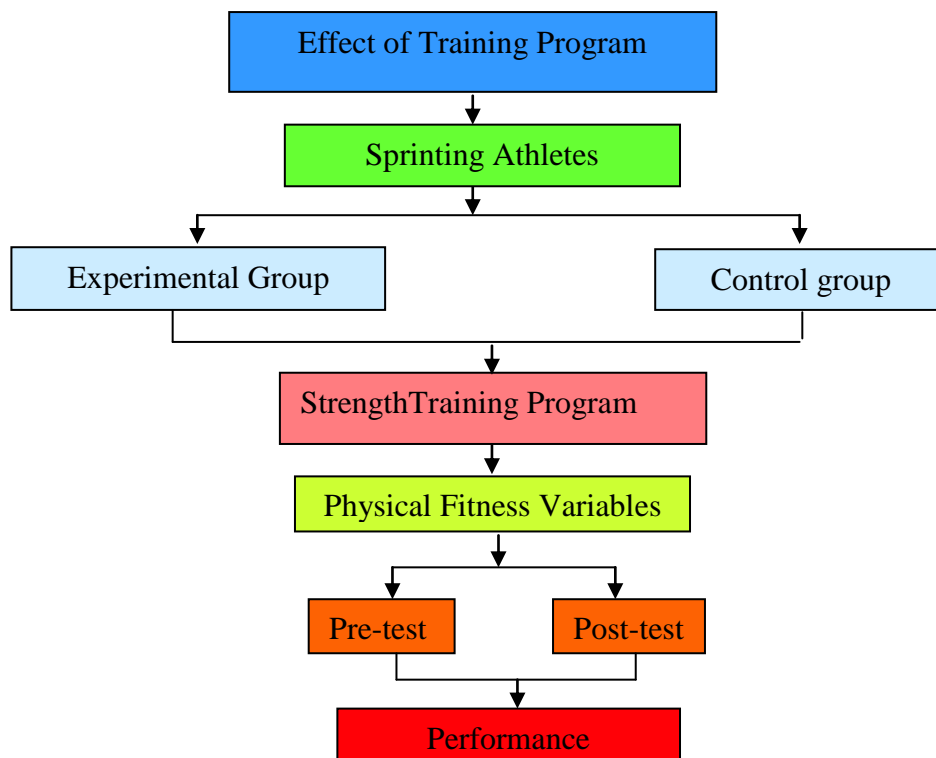
The objective of the study is to find out the Effect of Strength Training on Selected Physical Fitness Variables among Sprinting performance on Athletes

Hypothesis:

There may not be any significant difference between pre test and post test on selected physical fitness among springing Athletes in relation to strength training program.

Design of the study

The diagrammatic presentation was presented hereunder.



Methodology:

The purpose of the study is to find out the effects of strength training program on selected physical fitness variables among college level men sprinting athletes. To achieve the purpose of the study, thirty college level sprinting athletes were selected from in and around Hyderabad District in the age group of 18 to 22 years. The subjects were randomly assigned in to two equal groups namely, Experimental Group & Control Group. Experimental group is Strength training group (STG) (n=15) and Control group (CG) (n=15). A pilot study was conducted to assess the initial capacity of the

subjects in order to fix the load. The respective training was given to the experimental group the 5 days per weeks (alternate days) for the training period of six weeks. The control group was not given any sort of training except their routine.

Tools Used:

The fitness variables such as Muscular endurance, Flexibility and Balance were selected as dependent variables. Muscular endurance was tested by Sit-ups test unit measurement in points, Flexibility was tested by Sit and reach test unit of measurement in centimetres and Balance was tested by balance backward test unit of measurement in seconds.

Training Program:

The Strength training program was conducted for 45 minutes for session in a day, 5 days in a week for a period of 6 weeks duration. These 45 minutes included 10 minutes warm up, barbell squat, the deadlift and the bench press. The resistance was individualized in such a manner that each athlete could perform 3 to 6 repetitions of the exercise in 3-4 sets. The training protocol directed at the development of power included the following exercises: barbell jump squats, the clean and jerk, a dynamic bench press. The number of repetitions in particular sets ranged from 3 to 6 performed within 3-4 sets. In both groups the training loads increased progressively throughout the experiment, changing the intensity as well as the number of sets and in for 25 minutes and 10 minutes warm down. Every two weeks of training 5% of intensity of load was increased from 65% to 80% of work load. The volume of Strength training prescribed based on the number of sets and repetitions. The equivalent training is the length of the time each action in total 5 day per weeks.

Statistical Analysis:

The collected data before and after training period of 6 weeks on the above said variables due to the effect of Strength training was statistically analyzed with dependent 't' test to find out the significant improvement between pre and post-test. In all cases the criterion for statistical significance was set at 0.05 level of confidence. ($P < 0.05$)

Results & Discussions

Computation of 't' Ratio on Selected Physical Fitness Variables of College Level Men Sprinting Athletes on Experimental Group and Control Group

Group	Variables		Mean	Std. Deviation	t ratio
Experimental Group	Muscular Endurance	Pre – Test	22.26	3.86	14.55*
		Post - Test	28.23	3.13	
	Flexibility	Pre – Test	20.80	3.58	25.66*
		Post - Test	24.73	3.53	
	Balance	Pre – Test	16.54	5.70	13.50*
		Post - Test	19.78	5.49	
Control Group	Muscular Endurance	Pre – Test	22.46	3.48	1.524
		Post - Test	23.00	3.18	
	Flexibility	Pre – Test	19.93	3.75	1.247
		Post - Test	20.33	3.55	
	Balance	Pre – Test	16.00	2.80	1.847
		Post - Test	16.48	2.62	

Discussion of the Study:

The Table above reveals the computation of mean, standard deviation and 't' ratio on selected fitness parameters namely muscular endurance, flexibility and balance experimental group. The obtained 't' ratio muscular endurance, flexibility and balance were 14.55, 25.66 and 13.50 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were greater than the table value it was found to be statistically significant. Further the computation of mean, standard deviation and 't' ratio on selected physical parameters namely muscular endurance, flexibility and balance control group. The obtained 't' ratio on muscular endurance, flexibility and balance were 1.524, 1.247 and 1.847 respectively. The required table value was 2.14 for the degrees of freedom 1 and 14 at the 0.05 level of significance. Since the obtained 't' values were lesser than the table value it was found to be statistically not significant.

Findings of the Study:

The present study experiment the effect of strength training program on physical fitness parameters of college level men sprinting athletes. The result of the study indicated that the strength training program improved the physical fitness parameters such as muscular endurance, flexibility and balance. Hence, However, there was a significantly changes of subjects in the present study the muscularendurance, flexibility and balance was significantly improved of subject in the group may be due to the in strength training program. Reported that six weeks impact of strength training program, the group improved significantly on all functional fitness components. Evaluated that aerobic exercise has positive effect on improvement of cardiovascular endurance, muscular strength, muscular strength and flexibility.

Conclusions

It was concluded that the practice of strength training helped to improve selected physical fitness variables of athletes. There was a significant improvement took place on selected physical fitness parameters due to the effect of six weeks strength training program of college level men sprinting athletes. There was a significant difference exists between experimental and control groups on selected fitness parameters such as muscular endurance, flexibility and balance of college level men sprinting athletes.

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