TABLE – 10

ANALYSIS OF COVARIANCE ON ANAEROBIC POWER OF DIFFERENT GROUPS

(Scores in Watts)

Test	G – 1 AS	G – 2 RS	G – 3 IS	G – 4 CG	SV	SS	Df	MS	'F' Ratio
Pre-test									
Mean	974.67	981.33	974	970.67	Between	898.33	3	299.44	1.78
S.D.	15.98	12.46	9.10	13.35	Within	9400	56	167.86	
Post Test									
Mean	1006	1000	987.33	966	Between	14085	3	4695	21.89*
S.D.	17.65	14.64	14.38	11.21	Within	12013.33	56	214.52	
Adjusted Post Test									
Mean	1006.53	993.52	988.56	970.73	Between	9655.11	3	3218.37	108.67*
					Within	1628.82	55	29.61	

* Significant at .05 level of confidence
(The table values required for significance at .05 level of confidence for 3 and 56 and 3 and 55 are 2.78 and 2.77 respectively).

4.1.9 Results on Anaerobic Power

Pre - Test: The mean and Standard deviation of the pre-test anaerobic power scores of G1, G2, G3 and G4 were 974.67 ± 15.98, 981.33 ± 12.46, 974 ± 9.10 and 970.67 ± 13.35 respectively. The obtained pre-test F value of 1.78 was lesser than the required table F value of 2.78.

Hence the pre-test mean value of Acceleration Sprinting, Repetition Sprinting, Interval Sprinting and Control group on anaerobic power before start of the respective treatments were found to be insignificant at 0.05 level of confidence for the degrees of

freedom 3 and 56. Thus this analysis confirms that the random assignment of subjects into four groups were successful.

Post-test: The mean and Standard deviation of the post- test anaerobic power scores of G1, G2, G3 and G4 are 1006 ± 17.65, 1000 ± 14.64, 987.33 ± 14.38 and 966 ± 11.21 respectively. The obtained post test F value of 21.89 was greater than the required table F value of 2.78.

Hence the post- test means value of anaerobic power show significant at 0.05 level of confidence for the degrees of freedom 3 and 56. Thus the results obtained proved that the interventions namely Acceleration Sprinting, Repetition Sprinting and Interval Sprinting on anaerobic power produced significantly different improvements among the four groups.

Adjusted Post-test: The mean and Standard deviation of the adjusted post-test anaerobic power scores of G1, G2, G3 and G4 are 1006.53, 993.52, 988.56 and 970.73 respectively. The obtained adjusted post-test F value of 108.67 was greater than the required Table F value of 2.77.

Hence the adjusted post-test mean values of anaerobic power show significant at 0.05 level of confidence for the degrees of freedom 3 and 55. Since the observed F value on adjusted post test mean among the groups such as on anaerobic power produced significantly different improvements among the four groups.

In order to find out which intervention programme used in the present study was the source for the significance of adjusted mean was tested by Scheffe's post hoc test. The results of the same are presented in the table-10 (a)

TABLE - 10 (a)

SCHEFFE'S POST HOC TEST MEAN DIFFERENCES ON ANAEROBIC POWER AMONG FOUR GROUPS

(Scores in Watts)

G – 1 AS	G – 2 RS	G – 3 IS	G – 4 CG	Mean Differences	Confidence Interval Value
1006.53	993.52	-	-	13.01*	7.02
1006.53	-	988.56	-	17.97*	7.02
1006.53	-	-	970.73	35.80*	7.02
-	993.52	988.56	-	4.96	7.02
-	993.52	-	970.73	22.79*	7.02
-	-	988.56	970.73	17.83*	7.02

* Significant at .05 level of confidence.

4.1.10 Results of Post-Hoc Test on Anaerobic Power:

The comparison of group 2 and 3 show insignificant improvement on anaerobic power, because the obtained mean difference value on 4.96 was lesser than the confidential value of 7.02.

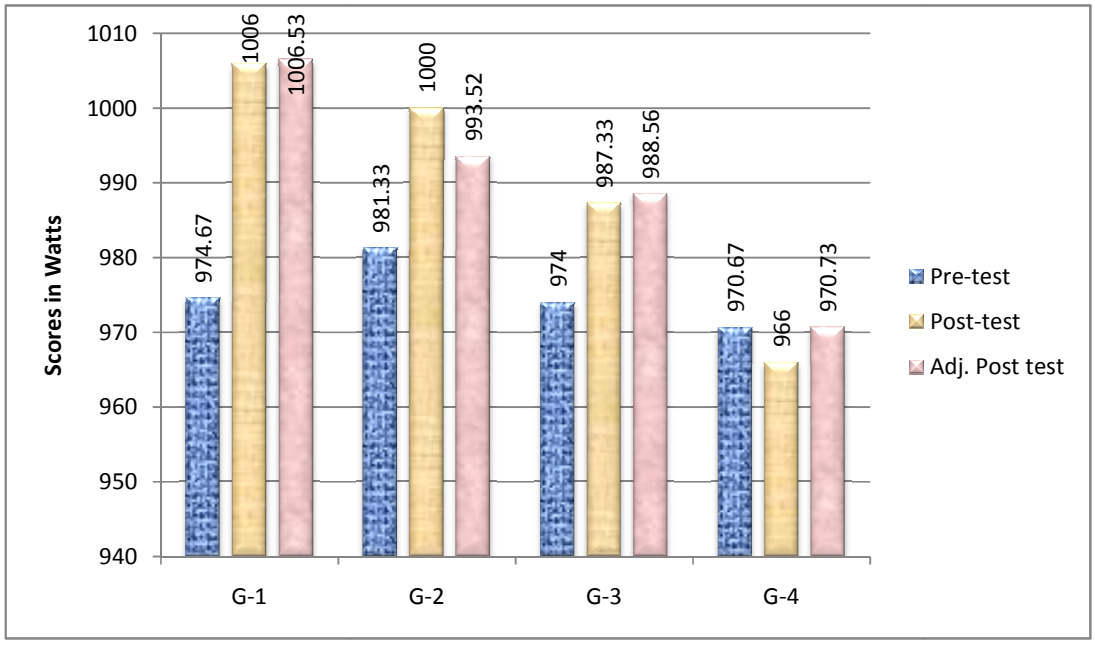
All the remaining comparisons show significant improvement on the anaerobic power parameter, because the obtained mean differences values of the comparisons were 13.01, 17.97, 35.80, 22.79 and 17.83 higher than the confidential interval value. Hence all the above comparisons were significant at 0.05 levels.

The results indicate that for anaerobic power the Acceleration Sprinting dominated than the Repetition and Interval Sprinting. Further the Repetition Sprinting improved better than the Interval Sprinting. The least improvement was observed in the Interval Sprinting.

FIGURE – 5

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON ANAEROBIC POWER

(Scores in Watts)



G-1 Acceleration Sprinting

G-2 Repetition Sprinting

G-3 Interval Sprinting

G-4 Control Group

TABLE – 11

ANALYSIS OF COVARIANCE ON AGILITY OF DIFFERENT GROUPS

(Scores in Seconds)

Test	G – 1 AS	G – 2 RS	G – 3 IS	G – 4 CG	SV	SS	Df	MS	'F' Ratio
Pre-test									
Mean	6.20	6.16	6.18	6.19	Between	0.01	3	0.0047	0.90
S.D.	0.07	0.07	0.08	0.07	Within	0.29	56	0.0052	
Post Test									
Mean	5.99	6.06	5.89	6.18	Between	0.68	3	0.2264	38.82*
S.D.	0.10	0.06	0.06	0.07	Within	0.33	56	0.0058	
Adjusted Post Test									
Mean	5.98	6.07	5.89	6.17	Between	0.67	3	0.2241	57.41*
					Within	0.21	55	0.0039	

* Significant at .05 level of confidence.
(The table values required for significance at .05 level of confidence for 3 and 56 and 3 and 55 are 2.78 and 2.77 respectively).

4.1.11 Results on Agility

Pre - Test: The mean and Standard deviation of the pre-test agility scores of G1, G2, G3 and G4 were 6.20 ± 0.07, 6.16 ± 0.07, 6.18 ± 0.08 and 6.19 ± 0.07 respectively. The obtained pre-test F value of 0.90 was lesser than the required table F value of 2.78.

Hence the pre-test mean value of Acceleration Sprinting, Repetition Sprinting, Interval Sprinting and Control group on agility before start of the respective treatments was found to be insignificant at 0.05 level of confidence for the degrees of freedom 3 and 56. Thus this analysis confirms that the random assignment of subjects into four groups were successful.

Post-test: The mean and Standard deviation of the post- test agility scores of G1, G2, G3 and G4 are 5.99 ± 0.10, 6.06 ± 0.06, 5.89 ± 0.06 and 6.18 ± 0.07 respectively. The obtained post test F value of 38.82 was greater than the required table F value of 2.78.

Hence the post- test means value of agility show significant at 0.05 level of confidence for the degrees of freedom 3 and 56. Thus the results obtained proved that the interventions namely Acceleration Sprinting, Repetition Sprinting and Interval Sprinting on agility produced significantly different improvements among the three groups.

Adjusted Post-test: The mean and Standard deviation of the adjusted post-test agility scores of G1, G2, G3 and G4 are 5.98, 6.07, 5.89 and 6.17, respectively. The obtained adjusted post-test F value of 57.41 was greater than the required table F value of 2.77.

Hence the adjusted post-test mean value of agility show significant at 0.05 level of confidence for the degrees of freedom 3 and 55. Since the observed F value on adjusted post test mean among the groups such as on agility produced significantly different improvements among the four groups.

In order to find out which intervention programme used in the present study was the source for the significance of adjusted mean was tested by Scheffe's post hoc test. The results of the same are presented in the table-11 (a)

TABLE - 11 (a)

SCHEFFE'S POST HOC TEST MEAN DIFFERENCES ON AGILITY AMONG DIFFERENT GROUPS

(Scores in Seconds)

G – 1 AS	G – 2 RS	G – 3 IS	G – 4 CG	Mean Differences	Confidence Interval Value
5.98	6.07	-	-	0.09*	0.08
5.98	-	5.89	-	0.09*	0.08
5.98	-	-	6.17	0.19*	0.08
-	6.07	5.89	-	0.19*	0.08
-	6.07	-	6.17	0.10*	0.08
-	-	5.89	6.17	0.29*	0.08

* Significant at .05 level of confidence.

4.1.12 Results of Post-Hoc Test on Agility

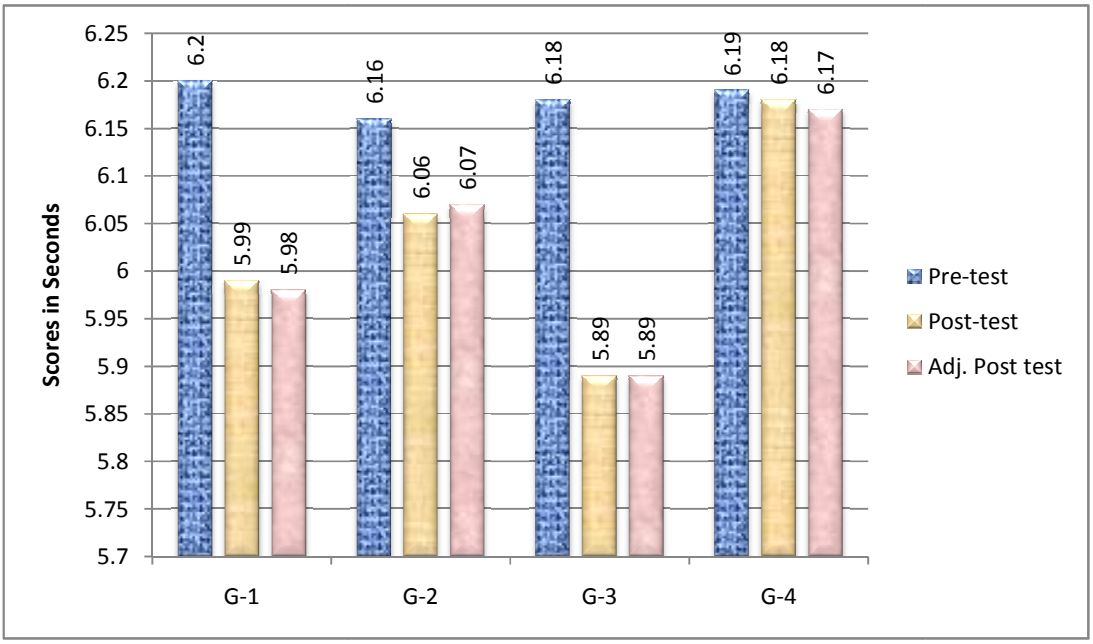
All the above comparisons show significant improvement on the agility, because they obtained mean difference values of all the comparisons were 0.09, 0.09, 0.19, 0.19, 0.10 and 0.29 which were higher than the confidential interval value of 0.08. Hence all the above comparisons were significant at 0.05 levels.

The results indicate that for agility the Interval Sprinting dominated than the Acceleration and Repetition Sprinting. Further the Acceleration Sprinting was found to be better than the Repetition Sprinting. The least improvement was observed in the Repetition Sprinting.

FIGURE – 6

COMPARATIVE BAR CHART OF PRE-TEST, POST-TEST AND ADJUSTED POST TEST OF DIFFERENT GROUPS ON AGILITY

(Scores in Seconds)



G-1 Acceleration Sprinting

G-2 Repetition Sprinting

G-3 Interval Sprinting

G-4 Control Group

4.2. DISCUSSIONS OF FINDINGS

There was a significant difference among Acceleration sprinting, Repetition Sprinting, Interval Sprinting and Control group on selected speed parameters owing to the twelve weeks training interventions of College men students, and the significant improvement were noticed on selected speed parameter between the experimental groups 1, group 2 and group 3.

4.3. SPEED PARAMETERS

4.3.1 Speed

Speed is a complex ability that is necessary to perform fast motor actions in the shortest possible time; it depends on central nervous motor programmes, which are activated by intense will power. Speed is an important factor in almost all court and field games. In the present study, in order to enhance the speed performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting (pre-test 6.81 $\pm$ 0.07 post test 6.60 $\pm$ 0.08), Repetition Sprinting (pre-test 6.78 $\pm$ 0.08 post test 6.66 $\pm$ 0.08), Interval Sprinting (pre-test 6.80 $\pm$ 0.05 post test 6.73 $\pm$ 0.05). The result of the present study clearly indicates that among the three experiments, the Acceleration sprinting dominates than the other training, whereas the control group did not show any significant improvement on speed.

Sharin, et al., 1997, conducted a study on the effect of Reaction Training vs Sprint Training on Speed and Power. Female soccer players (N=23) participated in reaction, sprint training or control programme. They found that that traditional sprint training was

effective to increase reaction and movement time. Hence the results lend support of the above mentioned earlier study.

Hence the above mentioned study lends support to the results of the present study.

4.3.2 Speed Endurance

Speed endurance is the ability to continue to perform movements symmetric and asymmetric and replicated efficiently and effectively for long periods at high speeds without a drop in the level of efficient performance. It refers to the capacity to extend the magnitude of time where an almost maximal speed can be maintained. During speed endurance activities, accumulation of blood lactate agitates the cross-bridge formation and excitation-contraction coupling. Developing speed endurance is a matter of appropriate training combined with suitable diet, as well as preparation for the specific event in which the athlete will take part. Most training methods include running for set periods of time, followed by sufficient rest and recovery. In order to enhance the speed endurance performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting (pre-test 17.93 $\pm$ 0.19 and post test 17.79 $\pm$ 0.17), Repetition Sprinting (pre-test 17.95 $\pm$ 0.18 post test 17.84 $\pm$ 0.15), Interval Sprinting (pre-test 17.92 $\pm$ 0.22 post test 17.63 $\pm$ 0.21). The result of the present study clearly indicates that among the three experiments, the Interval sprinting dominates than the other training, whereas the control group did not show any significant improvement on speed endurance.

Rania Mohamed Abdallah Ghareeb, 2011, conducted a study on effect of training program for speed endurance development on serum beta-endorphin, lactic acid; lactate dehydrogenate enzyme and numerical achievement level of 1500 meters Running Female

Competitors. The researcher concluded that the suggested training program improve the numerical achievement of 1500 m running female competitors through the positive effect on lactic acid production and LDH response with decreasing beta- endorphin concentration in blood which indicates reduction of the stressful effect of 1500m running.

Hence the above mentioned study lends support to the results of the present study.

4.3.3 Explosive Power

Explosive power is often used by athletes who need to generate a quick burst of maximal effort. The types of exercises used to build this quick, explosive power are movements that are require a maximum or near maximum power output from the athlete in a short amount of time. Explosive power training routines are one way to increase power output. The goal of explosive power is to ultimately move heavy weights very quickly. But to get to that point safely, without risking injury, it's important to start with light weights and slow controlled movements. In order to enhance the explosive power performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting (pre-test 33.13 $\pm$ 1.46 and post test 35.13 $\pm$ 1.46), Repetition Sprinting (pre-test 32.60 $\pm$ 1.06 and post test 33.93 $\pm$ 0.80), Interval Sprinting (pre-test 32.20 $\pm$ 1.42 and post test 33.27 $\pm$ 1.22). The result of the present study clearly indicates that among the three experiments, the Acceleration sprinting dominates than the other training, whereas the control group did not show any significant improvement on explosive power.

Aliasghar Zarezadeh-Mehrizi, Mohsen Aminai, Mohammadtaghi Amiri-khorasani, 2013, conducted a study on the effects of traditional and cluster resistance training on explosive power in soccer players during pre-seasonal preparation. The researcher

concluded that as CT probably increases power in the soccer players, it might be a convenient alternative for TT as a means of developing power in soccer players.

Hence the above mentioned study lends support to the results of the present study.

4.3.4. Elastic Power

Elastic power is the combination of speed of contraction and speed of movement. It is most important in explosive events — sprints, jumping and throwing. The more elastic power, the more energy can be stored and released in the muscles and tendons and it will improve and will become more efficient and faster. Visualize the muscular-tendon system as an elastic band. While stretching it, energy will be stored (eccentric phase) and that energy is regained at shortening (concentric phase). Muscle fibres should be able to store more elastic energy and transfer more quickly and powerfully from the eccentric to the concentric phase. In order to enhance the elastic power performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting pre-test 10.53 $\pm$ 0.19 and post test 10.83 $\pm$ 0.24, Repetition Sprinting 10.52 $\pm$ 0.12 and post test 10.74 $\pm$ 0.13, Interval Sprinting pre-test 10.51 $\pm$ 0.15 and post test 11.10 $\pm$ 0.22. The result of the present study clearly indicates that among the three experiments, the Acceleration sprinting dominates than the other training, whereas the control group did not show any significant improvement on elastic power.

Aliasghar Zarezadeh-Mehrizi, Mohsen Aminai, Mohammadtaghi Amiri-khorasani, 2013, conducted a study on the effects of traditional and cluster resistance training on explosive power in soccer players during pre-seasonal preparation. The researcher concluded that as CT probably increases power in the soccer players, it might be a convenient alternative for TT as a means of developing power in soccer players.

Hence the above mentioned study lends support to the results of the present study.

4.3.5. Anaerobic Power

The anaerobic energy system is composed of two parts: short term energy and the breakdown of glycogen to lactic acid. The maximal all out effort that this energy system can sustain for several seconds is called as anaerobic power. It is strongly related to explosive movements. Increasing anaerobic capacity has been shown to have a number of health benefits, including better athletic performance and increased metabolism. There are a number of methods for increasing anaerobic capacity. One is to train at high intensity for as long as possible, which is usually only a few minutes. Another method is to train at a relatively constant effort, such as by riding an exercise bike, and then increase the intensity of the workout at various intervals. In order to enhance the anaerobic power performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting (pre-test 974.67 $\pm$ 15.98 and post test 1006 $\pm$ 17.65), Repetition Sprinting (pre-test 981.33 $\pm$ 12.46 and post test 1000 $\pm$ 14.64), Interval Sprinting (pre-test 974 $\pm$ 9.10 and post test 987.33 $\pm$ 14.38). The result of the present study clearly indicates that among the three experiments, the Acceleration sprinting dominates than the other training, whereas the control group did not show any significant improvement on anaerobic power.

Abdul Rahim Khodajo, Asghar Nikseresht, Ebrahim Khoshnam, 2014 conducted a study on the effect of strength and plyometric training on anaerobic power, explosive power and strength quadriceps femoris muscle in soccer players. The results showed that

both strength and plyometric training improves physical fitness in soccer players. Therefore, recommended that both types of training program to prepare their benefit.

Hence the above mentioned study lends support to the results of the present study.

4.3.6. Agility

Agility refers to an athlete's ability to change direction quickly and appropriately while maintaining maximal speed, balance, and power. An athlete requires many different characteristics to reach optimal agility levels. There are three main components of agility that need to be trained in order to achieve maximal agility sports performance. The first quality an athlete needs to posses is to have optimal agility, it allows the athlete to transfer power from the feet and legs to the upper body and transfer that energy from the upper body back down to the lower body. This will help make changes of direction go more smoothly, next the balance or body control, athlete must be in control of their body at all times in order to make the right moves for their sport and finally the flexibility, which enables the athlete to move their body in an efficient manner through the required range of motion. In order to enhance the agility performance of men students, the study was conducted with various experiments. The results of this study clearly indicated that there was significant improvement from pre-test to post test study among three group, viz., Acceleration Sprinting (pre-test 6.20 $\pm$ 0.07 and post test 5.99 $\pm$ 0.10), Repetition Sprinting (pre-test 6.16 $\pm$ 0.07 and post test 6.06 $\pm$ 0.06), Interval Sprinting (pre-test 6.18 $\pm$ 0.08 and post test 5.89 $\pm$ 0.06). The result of the present study clearly indicates that among the three experiments, the Interval sprinting dominates than the other training, whereas the control group did not show any significant improvement on agility.

Buchheit, Mendez-Villanueva, Quod, Quesnel, Ahmaidi, 2010, conducted a study on "Improving acceleration and repeated sprint ability in well-trained adolescent handball players: speed versus sprint interval training. The purpose of the study was to compare the effects of speed/agility (S/A) training with sprint interval training (SIT) on acceleration and repeated sprint ability (RSA) in well-trained male handball players. They concluded that well-trained handball players, 4 wk of SIT is likely to have a moderate impact on intermittent endurance capacity only, whereas speed and agility training is likely to improve acceleration and repeated sprint performance.

Hence the above mentioned study lends support to the results of the present study.

4.4. DISCUSSION ON HYPOTHESES

1) The first hypothesis stated that different Sprint training would significantly improve on selected speed parameters of College men students better than the control group.

   The results of the study showed that different sprint training produced significant improvement on the selected speed parameter viz. Speed, speed endurance, explosive power, elastic power, anaerobic power and agility better than the control group. Hence the researcher's first hypothesis was accepted based on the results of the present study.

2) The second hypothesis stated Acceleration sprinting would produce significant improvement on selected speed parameters better than the Repetition sprinting and Interval Sprinting.

   The results of the study showed that Acceleration Sprinting produced significant improvement on speed, explosive power, elastic power and

anaerobic power better than the Repetition and Interval Sprinting. Hence the researcher's second hypothesis was accepted on the above said variables but rejected in the case of speed endurance and agility.

3) The third hypothesis stated that Repetition sprinting would produce significant improvement on selected speed parameters better than Acceleration Sprinting and Interval Sprinting.

The results of the study showed that repetition sprint produced significant improvement on speed, and anaerobic power, than the interval sprinting. Hence the researcher's third hypothesis was accepted on the above two variables for Repetition Sprinting, but rejected in the case of speed endurance, explosive power, elastic power and agility. However it did not produce superior effect on speed, and anaerobic power, while comparing with the acceleration sprinting.

4) The fourth hypothesis stated that Interval Sprinting would produce significant improvement on selected speed parameters better than Acceleration Sprinting and Repetition Sprinting.

The results of the study showed that interval sprint produced significant improvement on speed endurance and agility than the Acceleration and repetition sprinting. Hence the researcher's fourth hypothesis was accepted on the above said variables and rejected in the case of Speed, explosive power, elastic power, and anaerobic power while comparing with Acceleration Sprinting and Repetition Sprinting.

CHAPTER V
SUMMARY CONCLUSIONS AND RECOMMENDATIONS

5.1 SUMMARY

Speed is the ability to move quickly across the ground or move limbs rapidly to grab or throw. Speed is not just how fast someone can run (or cycle, swim etc.), but is dependent on their acceleration (how quickly they can accelerate from a stationary position), maximal speed of movement, and also speed maintenance (minimizing deceleration). Movement speed requires good strength and power, but also too much body weight and air resistance can tend to slow down the person. In addition to a high proportion of fast twitch muscle fibers, it is vital to have efficient mechanics of movement to optimize the muscle power for the most economical movement technique. The purpose of the study is to find out the comparative effects of Acceleration Sprinting, Repetition Sprinting and Interval Sprinting on selected speed parameters among College men students. To achieve this purpose of the study, 60 College students of B.Sc Physical Education, Madras Christian College, Tambaram, Chennai, Tamilnadu, India, with their age being 18 to 21 years, were chosen. The study was formulated as pre and post-test random group design, in which 60 students were divided into four equal groups. The experimental group – 1 (n = 15 AS group) underwent Acceleration Sprinting, the experimental group – 2 (n = 15 RS group) underwent Repetition Sprinting, the experimental group – 3 (n = 15 IS group) underwent Interval Sprinting and control group - 4 (n= 15, CG) did not undergo any specific training.

In this study, three different training approaches were adopted as independent variables, i.e., Acceleration Sprinting (AS), Repetition Sprinting (RS) and Interval Sprinting (IS). The following speed parameters namely speed, speed endurance, elastic power, explosive power, anaerobic power and agility were selected as dependent variables. The present study was undertaken primarily to assess the effects of Acceleration Sprinting, Repetition Sprinting and Interval Sprinting on selected speed among College men students. As far as the speed parameters were concerned the speed, speed endurance, explosive power, elastic power, anaerobic power and agility were tested and measured by 50 meters run (in seconds), 150 meters run (in seconds), vertical jump (in centimeters), Bunny-Hop test (in meters) and Maragaria Kalamen Anaerobic power Test (in watts) and shuttle run (in seconds) respectively. The pre and post-test random group design was used as experimental design for 60 students selected as subjects; the selected subjects were divided into four groups of 15 subjects each. ANCOVA was used to find out significant adjusted post-test mean difference of four groups with respect to each parameter and Scheffe's post hoc test was used to find out pair-wise comparisons between groups with respect to each parameter.

5.2 CONCLUSION

1) The tendency towards speed, explosive power, anaerobic power and elastic power showed greater improvement on Acceleration Sprinting than the Repetition Sprinting and Interval Sprinting. Furthermore, the speed endurance and agility on Acceleration Sprinting showed better results than the Repetition Sprinting.

2) The speed endurance and agility produced significant improvement on Interval Sprinting than the Acceleration Sprinting and Repetition Sprinting. Further the

speed, explosive power, elastic power and anaerobic power on Interval Sprinting showed least improvement when compared with Repetition Sprinting.

3) Repetition Sprinting produced better improvement on speed, anaerobic power, elastic power and explosive power than the Interval Sprinting.

5.3 RECOMMENDATIONS

Manifestations of speed in sports are always characteristic in their maximum intensity. There are different manifestations of speed in training, e.g. the speed of a sprinter, thrower, jumper or any other event or sport. Sports performance is conditioned by performing a given movement with maximum speed possible. The principle of training maximal net power output is an important part of training performing speed. Development of speed abilities is one of the most difficult tasks of training. (www.fsps.muni.cz). There are many training programmes accessible to develop sprint performance, to name a few – Acceleration Sprinting, Assisted Sprinting, Resisted Sprinting, Repetition Sprinting, Hollow sprinting, Interval Sprinting etc. Out of the many training mentioned above, only three training programmes have been used for this study and they are, Acceleration Sprinting, Repetition Sprinting and Interval Sprinting. One of the reasons for choosing these training programmes is that they are easily adapted under any circumstances. Yet another reason for the choice of these three training programme is that they are cost effective.

Based on the results of the study, the following recommendations were deduced.

1) These training programmes can be adopted for Intermediate level students.

2) Similar studies can be extended for school children by reducing the volume of their training.

3) Similar training progamme can be executed for college women students with lesser number of parameters.

4) These training programmes could be effective if employed on an elite group.

5) Selection of athletes for university, state, national level representation can be done by assessing them through these training programmes.

6) These training programmes can prove to be a topic of interest for young researchers to pursue their research.

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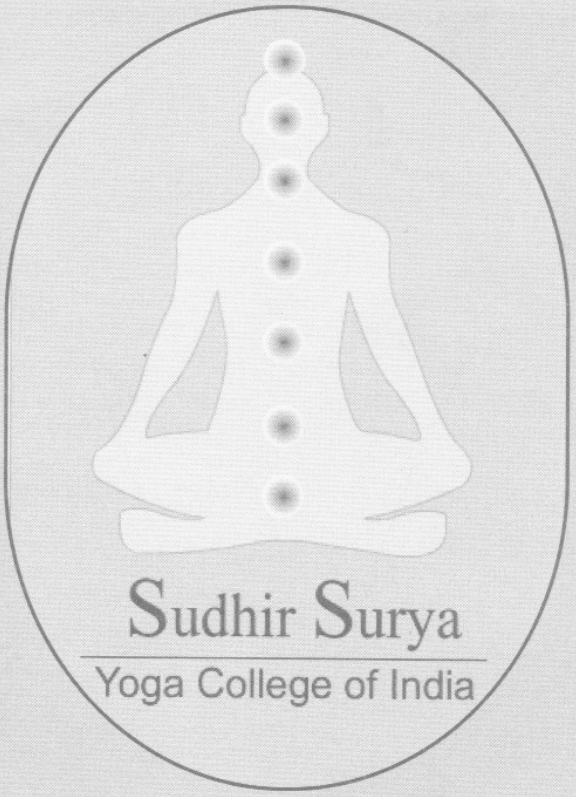

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Contents

EFFECTS OF DIFFERENT SPRINT TRAINING ON SPEED

Mr. James Zachariah, Research Scholar, Department of Physical Education, TNPESU, Chennai.
Dr. D.Maniazhagu, Assistant Professor, Department of Physical Education, Alagappa University.

ABSTRACT

The purpose of the study was to find out the effects of different sprint training on speed. To achieve this, one hundred and twenty untrained healthy college men students of Madras Christian College, Chennai, were selected as subjects at random and their age were ranged between 18 to 21 years. The selected subjects were divided into four equal groups of thirty subjects each, as experimental group I, II, III and control group. Group I underwent Interval sprint (IST), Group II underwent Repetition sprint (RST) and Group III underwent Acceleration sprint (AST) for three days per week for twelve weeks. Group IV acted as control that did not participate in any training. Speed was selected as criterion variable. All the subjects of four groups were tested on speed at prior to and immediately after the training programme. The analysis of covariance was used to analyze the significant difference, if any among the groups. Since, four groups were compared, whenever they obtained 'F' ratio for adjusted post test was found to be significant, the Scheffe's test to find out the paired mean differences, if any. The .05 level of confidence was fixed as the level of significance to test the 'F' ratio obtained by the analysis of covariance. The results of the study indicated that the selected sprint training porgramme produced significant improvement on speed.

KEY WORD: Speed 2. Interval sprint 3. Repetition sprint 4. Acceleration sprint 5. Margaria kalaman test, 6. ANCOVA.

INTRODUCTION:

Sports training is a programme of exercise designed to improve the skills and increase the energy capacities of an athlete for a particular event. These basic training procedures will serve better when utilized with modification suited to individuals or a group dealt with. The training programme should look into improving the performance of the athletes and at the same time should prevent from injury. The **Repetition sprint** involves several repetitions of sprints over distances between 60 and 220yards at absolute maximum speed. Because the heart beats so fact (around 200 beat/min or higher) during this type of training, a heart expansion stimulus does not normally take place since the heart does not fill to its maximum during the diastolic or resting period. As a result, an increased stroke volume of the heart is not generally produced. Instead, the primary effect of sprint training is the development of the ATP-CP energy system. The **Interval sprint** consists of sprinting for 50 yards and jogging for 60 yards after each for distances up to 3 miles. In other words, for each 440 yards, the athlete would combine four 50-yards sprints with four 60-yards jogs. Because of early fatigue (generally after the first several sprint), this type of training not only keeps the athlete from running at his or her maximal print speed, but it also causes the athlete to gradually extend his or her recovery jogging time. Therefore, the major training effect is primarily aerobic endurance. The **Acceleration sprint** develops almost exclusively speed and strength. It involves 50 to 110 yards of jogging. Followed by 50 to 110yards of fast striding, and finally 50 to 110 yards of sprinting, following a recovery (via walking) distance of 50 to 110 yards, the procedure should be repeated. In this study an attempt is made to find out the effect of different sprint training on speed.

METHODS AND TOOLS

The selected subjects were divided into four equal groups of thirty subjects each. Group I underwent Interval sprint (IST), Group II underwent Repetition sprint (RST) and Group III underwent Acceleration sprint (AST) for three days per week for twelve weeks. Group IV acted as control that did not participate in any training. Speed was selected as criterion variable. All the subjects of four groups were tested on speed at prior to and immediately after the training programme. Speed tested through 50 mts run test the unit of the measurement in seconds.

TRAINING PROGRAMME

The control group was not exposed to any training. The experimental groups I, II and III were subjected to twelve week of Interval sprint, Repetition sprint and Acceleration sprint of different sprint training respectively. Then training was given for three days per week (alternative days). Every training session lasted for 90 to 120 minutes. The training program was scheduled between 6.30 am and 8.00 am. The subjects underwent their respective training programme. Intensity is the effort involved in performing a given task. In the Sprint training, intensity is controlled by the rate of exercise performed. Training load was fixed with the application of progressive method. The Intensity of different sprint training can be increased by the fluctuation of repetition and sets of exercise.

TABLE -I

ANALYSIS OF CO-VARIANCE ON SPEED OF DIFFERENT GROUPS

(Scores in seconds)

Test	EXP.I	EXP.II	EXP.III	Control Group	Source of Variance	Sum of Squares	df	Mean Squares	Obtained 'F' Ratio
Pre Test									
Mean	7.118	7.116	7.118	7.119	B	0.0002	3	0.0001	0.012
					W	0.5860	116	0.0051	
Post Test									
Mean	7.066	7.048	7.013	7.117	B	0.1679	3	0.0560	12.984*
					W	0.5000	116	0.0043	
Adjusted Post Test									
Mean	7.066	7.049	7.013	7.116	B	0.1653	3	0.0551	18.6728
					W	0.3394	115	0.0030	

* Significant at .05 level of confidence.

(The table values required for significance at .05 level of confidence for 3 and 116 and 3 and 115 are 2.684 and 2.685 respectively).

The table I show that the pre-test mean values on speed of interval sprint, repetition sprint, acceleration sprint and control groups are 7.118, 7.116, 7.118 and 7.119 respectively. The obtained 'F' ratio of 0.012 for pre-test scores is less than the table value of 2.684 for df 3 and 116 required for significance at .05 level of confidence on speed. The post-test mean values on speed of interval sprint, repetition sprint, acceleration sprint and control groups 7.066, 7.048, 7.013 and 7.117 respectively. The obtained "F" ratio of 12.984 for post-test