Chapter V

Summary, Conclusion and Recommendations
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5.1. SUMMARY

Circuit training is defined as moving quickly from one exercise station to another and completing a prescribed number of exercises in a given time schedule. In other reading circuit training is a form of body conditioning or resistance training using high-intensity aerobics. It aims to develop strength and muscular endurance. “An exercise circuit” is a single go of all prescribed exercises in the program in a given time period. This program was developed by R.E. Morgan and G.T. Anderson in 1953 at the University of Leeds in England. Circuit training is the most efficient way to enhance the muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility.

Aerobic exercises increase the body’s heart rate and hence improve overall fitness and flexibility. Circuit training can be either used to increase cardiovascular fitness, muscle strength or both. Aerobic circuit training primarily focuses on improving an athlete’s cardiovascular fitness. Whereas, circuit training aims to develop strength and muscular endurance. Some exercises which may be used in aerobic circuit training include jogging, using an exercise bike and rowing. Aerobic exercise is defined as a physical exercise that improves cardiovascular fitness. Performing aerobic exercises will usually have a positive effect on flexibility as well. Circuit training is an effective way of increasing cardiovascular fitness because it involves a number of different exercises which focus on different parts of the body. This allows an athlete to work at peak intensity for a longer period of time. The goal of circuit training is to perform as many repetitions of exercises in a certain amount of time. These types of exercises generally are not used in pure aerobic circuit training routines but they can still be a useful addition. Strength training exercises must be carefully used during aerobic circuit training to
avoid overstraining a muscle. There are five important components of Physical fitness: Cardio-respiratory endurance, Muscular Endurance, Muscle strength, flexibility and Body Composition. This study is purely emphasizing on developing muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility and to see the changes in other related components while doing aerobic circuit training.

Cardio respiratory endurance is considered to be the most important physical fitness component to take part in all the sports activities. This is because, with reserve oxygen an activity can be performed with undue fatigue for a longer period of time. An improved cardio respiratory system helps for an increase in blood pressure and cardiac output. These changes in this system aid to respond to the challenges and demands by an individual. When exercise is performed on a consistent schedule, adaptations are formed in the cardio respiratory system. Day-to-day tasks are performed more easily as a result of adaptation. It means that the body is getting more fit to face any challenges in our life. In other words, the cardio-respiratory endurance is the ability of the heart to pump blood rich oxygen for the functioning of our muscles. Performing regular endurance exercise gives improvement to the metabolism and on the cellular level which in turn improves the body’s ability to use and produce energy more efficiently. The numbers of capillaries in the muscles are increased. This supplies the body with more oxygen and allows waste to be eliminated more quickly. The metabolic changing factors are the muscles which are trained to make most fuel and oxygen so that they can work more effectively.

Aerobic fitness is a measure of the ability to sustain prolonged efforts, it determines the degree of fatigue that almost everybody experiences in his daily life. Higher the aerobic fitness lesser the fatigue level. Aerobic fitness indicates such capabilities as walking, running and climbing and other strenuous activities. Therefore, it is an important basic requirement for many sports and other recreational
activities. A high level of aerobic fitness during the growing years indicates good development of the muscles, bones, and cardio respiratory system. Good aerobic fitness is related to the ability to tolerate the environmental stresses too. Aerobically trained individuals can exercise longer duration under all circumstances when compared with untrained persons. Since cardio respiratory endurance plays a vital role in every sports person’s life, cardio aerobic circuit training schedule was designed to improve the cardio respiratory endurance and other related components such as muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility to produce better results in the performance level.

Since the scholar was interested to find out the effect of Circuit Training and Cardio Aerobic Circuit Training on selected motor fitness components of University sportsmen. This study was taken up, As it is felt that the need of these components or Vital to achieve the desired goal, the entire study was dealt carefully in this two training. In order to achieve the purpose of this study, forty five sportsmen were selected from various departments of Bharathiar University, Coimbatore, Tamilnadu, who were the participants of inter collegiate tournaments in various teams sports. Their age was ranging between eighteen to twenty five years. The subjects selected (N=45) were randomly divided into three equal groups consisting of fifteen (n=15) subjects in each group. Experimental Group I- has been named as Circuit Training Group (CTG), Experimental Group II- has been named as Cardio Aerobic Circuit Training Group (CACTG), and Group III has acted as Control Group (CG). The subjects were tested on selected motor fitness components - muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility before the training and readings were recorded in their respective units as pre-test score. After the Pre-test Group I- was treated with Circuit Training (CTG), Group II- was treated with Cardio Aerobic Circuit Training (CACTG) and Control Group (CG)
did not undergo any specific training. All the experimental groups were given respective training for one hour per day for six days a week for a period of twelve weeks. After the completion of twelve weeks of training, all the three groups were tested again on selected motor fitness components and the readings were recorded in their respective units as post-test scores. The pre and post-test scores collected were analyzed with the analysis of covariance to study the comparative effect among the three groups. The significance on difference of pairs of adjusted final group mean was tested for significance by applying Scheffe’s post hoc test. Further, the group mean gain has been recorded by various groups in pre-test and post-test was tested for significance by applying paired ‘t’ test. Based on the analysis of the data and results the following conclusions were drawn.

5.2 CONCLUSIONS

Based on the findings and within the limitations of the study the following conclusions were drawn.

1. The Circuit Training (CTG) had significant improvement over the period of twelve weeks training on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen.

2. The Cardio Aerobic Circuit Training (CACTG) had significant improvement over the period of twelve weeks training on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen.

3. The Control Group (CG) did not show any significant improvement over the period of twelve weeks on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen.
4. Comparing the effect of Circuit training, Cardio Aerobic Circuit Training (CACTG) and Control Group. It was concluded that both the experimental groups (CTG, CACTG) were produced significant improvement over the period of twelve weeks training on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen than the Control Group.

5. Comparing the effect of Circuit training and Cardio Aerobic Circuit Training (CACTG). It was concluded that Circuit training (CTG) group have produced significant improvement over the period of twelve weeks training on muscular strength, explosive power, anaerobic capacity and flexibility better than the Cardio Aerobic Circuit Training group (CACTG). Cardio Aerobic Circuit Training (CACTG) produced significant improvement over the period of twelve weeks training on muscular strength endurance, cardio respiratory endurance and agility of University Sportsmen better than the Circuit training (CTG) group.

6. In overall analysis of the results of this study it was concluded that Circuit training was the suitable training to develop muscular strength, explosive power, anaerobic capacity and flexibility of University Sportsmen.

7. Further from the results of this study it was concluded that Cardio Aerobic Circuit Training was the suitable training to develop muscular strength endurance, cardio respiratory endurance and agility of University Sportsmen.
5.3 RECOMMENDATIONS

Based on the results of the study, the following recommendations have been made.

1. In the present study, the effect of Circuit Training and Cardio Aerobic Circuit training on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen, the physical education teachers, trainers and coaches can prefer this type of training so as to achieve their aim in time.

2. Study can be conducted by combining Circuit Training and Cardio Aerobic Circuit Training in same session on muscular strength, muscular strength endurance, explosive power, cardio respiratory endurance, anaerobic capacity, agility and flexibility of University Sportsmen.

3. Study can be conducted by using Circuit Training and Cardio Aerobic Circuit Training in concurrent and periodization nature to combined and specific sports in different categories.

4. It is recommended that the Circuit Training and Cardio Aerobic Circuit Training may be use for other set of populations by modifying the load, repetition and volume.

5. It is recommended that the combined Circuit Training and Cardio Aerobic Circuit Training may be given to the high level performance during the competition periods also.

6. It is recommended that this type of training can be undertaken based on the nature of sports and level of playing on motor fitness components.