Chapter - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Despite of tremendous advancement in sports facilities, training methods and techniques, physical educator and coaches are still confronted with various problems that call for their immediate attention.

The effect of any training program may become negative if the training program is not managed properly. Both the structure of loading and the training ratio must be carefully planned if negative effects as a result of training itself are to be avoided. The principle faults in the training process is the improper management of recovery, through rapid increase of load, too great an extent of load, too high intensity of duration, excessive and forceful tactical schooling in training program. The coaches or trainers must ensure adequate recovery before the athlete is exposed to the subsequent loading. Means of accelerating recovery in normal training and in the event of possible overstressing should be understood and applied. Close observation of the athlete for early identification of symptoms of overstressing may help to eliminate the possibility of serious damage to the athlete fitness status in the long term.

Hence the proper management of conditioning program which is basic form of athletics training in preparing him scientifically and systematically for his sporting perfection, plays markedly significant role in achieving highest sports performance.
Physiological and motor fitness changes in the human body could be brought about by different types of conditioning programmes such as jogging, calisthenic, circuit training etc to bring about changes in certain duration of time.

Of all training methods, circuit training is considered one of the best training method by many of the coaches and trainers for achieving highest level of physical conditioning for an athlete within shortest possible span. The idea of circuit training was first put into practice at Leeds University in 1953 by Greham T. Adamson. The aim of circuit training is to improve muscular endurance, strength and circulo-respiratory endurance by progressive loading based on the individual's capacity. This was unique contribution of Adamson (1972) to the programming of physical education during the late fifties. Circuit training is a form of general fitness training based on sound physiological principles. The major advantages of circuit training are economy of time inherent in the organising of the circuit, small amount of space, equipment required and ease in supervising program. Another advantage of circuit training is that bad weather does not effect the circuit schedule since all the stations can be arranged indoor as well.

By circuit training we understand, a training method in which certain experiences of various types are carried out with or without apparatus and are arranged in a circuit. As in interval training the number of repetitions and duration of rest have to be fixed earlier. Circuit training is usually done at the end of a training session.
A number of studies have been cited in the second chapter of the thesis where in different coaches and trainers have used circuit training programs to improve general fitness of their athletes of various disciplines.

Keeping in view different approaches of trainer and coaches using circuit training as a mode of conditioning program to improve the motor fitness of their athletes, the researcher found an ample scope to provide a well accepted C.T. program with proper proportion of stress, recovery and adoption investigated through scientific procedures. The suggested circuit training through this project would go a long way in the development of physiological and motor fitness conditions of male subjects in general and athletes in particular. The suggested C.T. model would also provide to retain optimum level of motor fitness during transitional period.

Keeping in views the merits of circuit training the present study was designed to find out the effect of variated circuit training programs and their post training effect on selected physiological and motor fitness variables of high school boys. It was hypothesized that there would be a significant difference in the effect of three models of circuit training i.e. five days a week, four days a week and alternative days a week given to through experimental groups for ten weeks on selected physiological and motor fitness variables. It was also hypothesized that there would be a significant difference in the carried over effect of circuit training given to three experimental groups for ten weeks on selected physiological and motor fitness variables. As measured with an internal of two weeks each for ten weeks after the training was suspended. To accomplish the objective of the study, random control group experimental design
was formulated. Fifty six male students studying in ninth, tenth and eleventh classes of Ramjas School, R.K. Puram, New Delhi were selected randomly to act as subjects. It was ensured by medical examiner that all the subjects were fit to undergo the stresses of training Load. The subjects were evenly divided into four unequated groups and named as groups A, B, C, and D. The group A was subjected to circuit training program five days a week continuously, group B, four days a week continuously group C, alternative days and group D acted as control group. The circuit training was arranged in seven stations in a circle, each of which had a different kind of exercise i.e., Bench press, skipping on the spot, leg raising in laying position, bench stepping, Good morning exercise and squat and jump. The schedule of exercises was prepared and given to the experimental group with a revised work load after every two weeks of experimentation. After every two weeks of circuit training, test on selected physiological and motor fitness components on all the three training groups along with control group were conducted to collect the data. After final testing on the completion of tenth weeks of training schedule, the experimental treatment was suspended. However, testing process of selected physiological and motor fitness variables was continued for another ten weeks with an interval of two weeks each to find out the deconditioning trends of the subjects. The data thus collected was tabulated for computerization. Analysis of covariance statistical technique was applied to find out the comparative effect of variated circuit training on each of the variables among four groups.
CONCLUSIONS

From the results and subsequent analysis of data, the following conclusions have been drawn.

1. None of the circuit training model could yield significant changes on physiological variables i.e. Resting Systolic, Diastolic blood pressure and in their haemoglobin blood contents.

2. A significant difference was observed in four experimental groups on speed variable as a result of varied circuit training program in favour of group A after tenth week of experimental treatment.

3. A significant difference was observed in four experimental groups on agility variable as a result of varied circuit training in favour of group A after fourth week of experimental treatment and further this effect was retained up to the tenth week of training.

4. A significant difference was observed in four experimental groups on endurance variable as a result of varied circuit training program in favour of group B after tenth week of experimental treatment.

5. A significant difference was observed in four experimental groups on flexibility variable as a result circuit training in favour of groups A and C after tenth week of experimental treatment.

6. A significant difference was observed in four experimental groups on Explosive strength variable as a result of varied circuit training in favour of group A after tenth week of experimental treatment.

The varied circuit training treatment to three groups was suspended after tenth week and testing process of four groups including experimental groups was
continued until tenth weeks with an interval of two weeks for all the criterion variables. The data was analysed through the application of ANCOVA. On the basis of results following conclusions were drawn.

1. None of the groups exhibited any change in their resting Systolic, Diastolic Blood pressure and Haemoglobin blood contents variables as no significant difference was observed among four groups on these variables throughout ten weeks period.

2. The achieved speed motor fitness by group A as a result of circuit training was retained up to sixth week duration of stop in training.

3. The achieved agility motor fitness by group A as a result of circuit training was retained up to tenth week duration of stop in training.

4. The achieved endurance motor fitness by group B, as a result of circuit training was retained up to eight week of stop in training.

5. The achieved flexibility motor fitness by group C was carried over up to tenth week of stop in training. However, the difference in flexibility was eliminated between groups B and C as group B further improved its flexibility even after training was suspended.

6. The achieved explosive strength motor fitness variable by group A was retained throughout ten week of stop in training over control group and also over group B up to second week. In group B and C less deconditioning was observed which eliminated the significant difference of explosive strength between group A and these groups.
**RECOMMENDATIONS**

1. The coaches and trainers may use five days a week circuit training model for the development of speed, agility and leg explosive strength as this has been found an ideal ratio of stress, recovery and adaptation.

2. The coaches and trainers may follow four days a week circuit training model for the development of general endurance as this has been found an ideal combination of stress recovery and adaptation.

3. For the development of flexibility components either alternative days or five days a week circuit training program may be used by the coaches and trainers.

4. Based on the results, it is recommended that circuit training should be designed for minimum of ten weeks duration.

5. The study may be replicated by including more experimental variables.

6. The similar study may also be conducted on other age groups as well as athletics groups.

7. Similar studies may also be conducted on other training methods.