CHAPTER - V

SUMMARY, CONCLUSIONS AND SUGGESTIONS
CHAPTER 5

5.1 SUMMARY

Basketball is a game of complex skills that refers to wide range of playing abilities like, stance, ball holding, passing, catching, dribbling, shooting, lay-up shot, jump shot, set shot, free throw, rebounding, fakes, screening, tackling, press defence, fast break, offence, dodging, jumping, shifting, and shuffling. To develop the above complex playing skills the Basketball players need physical and physiological capacities like speed, anaerobic endurance, strength, flexibility, agility, coordination, cardiovascular endurance, VO₂ max etc. One of the means and methods to achieve this is a scientific approach of training. Through literatures, periodized resistance training module was observed as easily adaptable and proven method to avoid risk factors such as injury, fatigue, soreness and some bone fractures etc. Periodization refers to specific methods of manipulating training variables to provide variation in volume and intensity. It permits balanced progression by ensuring the appropriate mix put together in a unified plan. While variation itself may play an important role in optimizing strength-related improvements, not all which include a variation component will provide similar results (Stone 1999a). Such a nature of periodization based resistance training has to be implicated as a part of their regular training schedule instead of progressive resistance training in developing the components. With this objective, the present study was carried out titled effects of Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High And Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) on selected physical and physiological variables of Basketball players at intercollegiate level.
To achieve the purpose of the study as subjects, forty-five players who participated in the inter-collegiate level Basketball tournament were selected. The selected subjects were randomly segmented into three groups namely Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) and Control Group (CG Group III). Each group was consisting of fifteen subjects. The subjects of each group were tested on criterion variables namely abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate, (physiological variables), dribbling, passing and shooting (skill performance variables) using standardized criterion measures so as to identify their performance on the variables before inducted in to the treatment. It was considered as pre-test. On completion of pre-test, the subjects of the experimental groups were treated with the respective treatments for three alternate days a week for twelve weeks. In the present study, the subjects belonging to control group were not given any activity since they were also basically Basketball players. After completion of treatment period, all the subjects of three groups were tested on criterion variables as such in the case of pre-test. It was considered as post-test.

The collected data on pre-test and post-test were tested using appropriate statistical technique of univariate and multivariate analysis to test the objective of the present study. The obtained results confirmed positively the effect of Low Volume Circuit Type Resistance Training (LVCTRT - Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT - Group II) on development of physical,
physiological and skill performance variables individually. Further the comparative results explained that both treatment group namely LVCTRT - Group I and PHLVCTRT - Group II performed better in the criterion variables as compared to as compared to Control Group (CG Group III) whereas the performance between the LVCTRT Group I and PHLVCTRT Group II, the performance of PHLVCTRT Group II was found better on criterion variables.

5.2 RESULTS

1. In testing the significance of mean difference on pre-test among the three groups namely Low Volume Circuit Type Resistance Training (LVCTRT - Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT - Group II) and Control Group (CG - Group III), the result indicates that the mean differences on criterion variables (abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength., explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables) and dribbling, passing, shooting (skill variables) used in the study before the respective treatment was insignificant. Thus this analysis confirms that the random assignment of subjects into three groups was successful.

2. In testing the significance of mean difference on post-test among the three groups namely Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) and Control Group (CG
Group III), the result indicates that the mean differences on criterion variables used in the study at the end of the treatment was found to be statistically significant. Thus it was found that there was a significant mean difference among the three groups in the variables used in the study.

3. In testing the significance of mean difference on adjusted post-test means among the three groups namely Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) and Control Group (CG Group III), the result indicates that the mean differences on criterion variables used in the study at the end of the treatment was found to be statistically significant. Thus it was found that there was a significant mean difference among the three groups in the variables used in the study.

4. From the results of comparing the adjusted post-test mean differences between the groups of Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT) Group II with the Low Volume Circuit Type Resistance Training (LVCTRT) Group I it was found that the Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT) Group II produced a significant development than the Low Volume Circuit Type Resistance Training (LVCTRT) Group I in the variables.

5. From the results of comparing the adjusted post-test mean differences between the groups of Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT) Group II with the Control Group (CG) Group III it was found that Periodized High and
Low Volume Circuit Type Resistance Training (PHLVCTRT) Group II produced a significant development than the control group on variables used in the study.

6. From the results of comparing the adjusted post mean differences between the groups of Low Volume Circuit Type Resistance Training (LVCTRT) Group I with the Control Group (CG) it was found that Low Volume Circuit Type Resistance Training (LVCTRT) Group I produced a significant development than the Control Group (CG) on the variables used in the study.

7. In testing the individualized effects of three groups namely Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) and Control Group (CG Group III), it was observed that Low Volume Circuit Type Resistance Training (LVCTRT Group I), Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) produced significant development effect on variables used in the study whereas in the case of control group it was found to be insignificant.

5.3 CONCLUSIONS

In light of the above findings of the present study the following conclusions have been made

1. The Periodized high and low volume circuit type resistance training has produced a significant improvement in abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive
power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables), dribbling, passing and shooting (skill performance variables) of inter-collegiate women Basketball players.

2. The Low volume circuit type resistance training programme has produced a significant improvement in abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables), dribbling, passing and shooting (skill performance variables) of inter-collegiate women Basketball players.

3. The circuit based periodized high and low volume resistance training programme was more effective than the circuit based low volume resistance training programme in improving the abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables), dribbling, passing and shooting (skill performance variables) of inter-collegiate women Basketball players.
5.4 SUGGESTIONS

The following suggestions have been made from the results of the present study:

1. The results of the study shows that both circuit based periodized high and low volume resistance training and low volume resistance training have significant improvement in the criterion variables such as abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables), dribbling, passing and shooting (skill performance variables) of inter-collegiate women Basketball players. Thus both have validated and are useful in developing the criterion variables.

2. As hypothesized by the researcher, that circuit based periodized high and low volume training programme had a higher magnitude of changes in abdominal muscular strength and endurance, grip strength-right hand, grip strength-left hand, lower extremity strength, upper extremity strength, explosive power, speed, anaerobic capacity (physical variables), maximum oxygen consumption, resting heart rate (physiological variables), dribbling, passing and shooting (skill performance variables) of inter-collegiate women Basketball players over the twelve week training period. Hence these training programmes could be performed weekly, bi-weekly or monthly depending upon the individuals’ needs for better benefit.
3. For a personal trainer, it is important to observe from the results of the study that how the volume of exercises and the training variations play a vital role in the modulation of exercises, stress and recovery pattern which ultimately leads to greater variation adaptations. Therefore the circuit based periodized high and low volume resistance training programme is more suitable for training variations.

4. The salient feature of the Periodized High and Low Volume Circuit Type Resistance Training (PHLVCTRT Group II) is that it is free from the muscle soreness and muscle stiffness due to shocks of the exercises on the body. In order to avoid the injuries of the muscle, bones and nerves, the implication of circuit based periodized high and low volume resistance training as a part of their training programme will be more effective.

5. The periodized training programme provides a satisfactory overload to the specific muscle fiber types while other fibers are getting necessary recovery. Thus recovery is in-built in periodized training. Therefore those who want to systematize the training approach can follow this training method.

5.5 Future work

In the following areas the future work can be carried out

1. The present study is mainly concerned with the women players at inter-collegiate level as samples. So the same study can be conducted on players at the university level.
2. In testing the periodization effect on the criterion variables of physical, physiological and skill performance variables, the present study is underlying on the resistance training only. Hence a future study may be conducted to find out the periodization effect using other modules such as aerobic and plyometric on criterion variables used in the present study.

3. In account of physical and physiological adaptations towards the periodization based training, there may be certain differences among men and women. Therefore the same study may be conducted to test the physical and physiological adaptations over the period of twelve weeks of training period using the same criterion variables.

4. The results of the study positively confirm the effects of training modules namely circuit based periodized high and low volume resistance training and low volume resistance training on criterion variables over the treatment period. But it has to clear the progress over the period of treatment on criterion variables, since some of the training module in some variables attains their significant level before the completion of treatment period. Therefore, to find out the progress over the period of treatment on criterion variables and periodical effect of the training modules, the present study can be extended to periodical analysis by every four weeks over the course.

5. As the resistance training has significant effect on stimulating the hormones whereby the muscle hypertrophy takes place, the present study can be extended to variables using hematological and endocrine aspects.