CHAPTER V
The term 'sports' as referred to recreational activities in the fast. Most of the sports started on this basis. The people who wanted to spend their time apart from their regular way of life and to share pleasure among them came out in the open air and engaged themselves in the physical activities. The ancient Greeks, the pioneers of sports, demonstrated various physical activities during their leisure time and festival time in public places. It was quite natural that the spectators who watched these activities got motivated and started doing these activities for their own sake. In the long run, this term changed. Now sports are not recreational but professional. Now all countries fight for medals in the so called Olympics, which is also considered an achievement equal to scientific inventions. There is no doubt that this could be possible only because of dedicated, sincere, all-out hard work of the experts in the field of physical education, sports science, etc... hard work in the ground and in the laboratory has resulted in wonders. With the knowledge of different training methods, physiology of human organism and psychological factors the sports have become highly professional. The individual interested in sports, makes up his mind to attain top level performance as per the latest trends. As a result the authorities and interested sports bodies have started concentrating on nurturing interest in sports from young age so that the sports persons attain the top-level performance in course of time.

The present study is an effort to suggest a method to develop the required components to achieve the goal with the help of training. The purpose of this present study is to find out the effect of resistance training, plyometric training, and complex (combination of resistance training and plyometric training) training on training outcomes of volleyball players.

To achieve these purpose 40 students from Sports School and College of Arts and Science were randomly selected from Ramakrishna Mission Vidyalaya institutions in coimbatore district of Tamil nadu. The subjects' age
ranged from 17 to 21 years. They were randomly divided into 4 groups of 10 each and assigned to resistance training, plyometric training, and complex training. This resistance group started with four sets of ten repetitions at 40% of 1RM during first three sessions and progressed to four sets of ten repetitions at 60% of 1RM and 60 seconds rest in the second three sessions, four sets of eight repetitions at 80% of 1RM with 50 seconds rest, and in the last three sessions it was four sets of six repetitions at 100% of 1RM with 40 seconds rest in between the set. The leg press exercises were also done with four three sessions the plyometric group performed five plyometric exercises — depth jump, the split squat jump, rim jump, box to box depth jump, and medicine ball on the wall. The depth jump height started three sets of six repetitions at 40 centimeters bench height with a rest of 30 seconds in between sets in the second three sessions. The plyometric-resistance training group performed a combination of the two training programmes (plyometric-resistance training programme) but the volume and intensity of the work was reduced by 25%. And the control group did not participate in any of designed training programme but they were under regular practice which is part of their routine programme. The three training groups namely, resistance training group, plyometric training group, and complex training group, were treated with their respective designed training protocols twice a week for 6 weeks. All the subjects were tested on the selected physical variables of anaerobic power by 50 yard run, muscular strength by 1RM squat, and explosive power by vertical jump. The skill performance variables of jump service and attack-hit in volleyball were assessed with the help of three experts as judges. The test was conducted prior to and after completion of 6 weeks of training.

Analysis of covariance (ANACOVA) was applied to compare the effect of selected physical and skill performance variables of volleyball players for this study. The level of significance to test ‘f’ ratio obtained by the analysis of covariance was fixed at 0.05 level of confidence. Whenever the obtained ‘f’ ratio was found to be significant for adjusted post-test means, the Scheffes post-hoc test was used to determine which of the paired mean difference was significant.
CONCLUSION

Based on the results of this study the following conclusions were drawn.

1. Plyometric training produced a significant development on anaerobic power, explosive power, and jump service and attack-hit more than the resistance training.

2. Resistance training produced a significant development on muscular strength better than complex training and plyometric training.

3. Complex training produced a significant development on anaerobic power, explosive power (vertical jump), jump service and attack-hit better than plyometric training and resistance training individually.

RECOMMENDATION

From the findings of this study, it is recommended that the selected intensities of resistance, plyometric, and complex training could be utilized as useful methods to improve the physical variables such as anaerobic power, muscular strength, and explosive power among volleyball players.

To enhance vertical jump performance for volleyball players the complex training (combination of resistance and plyometric training) could be used.

To attain the maximum strength, which is basically essential for volleyball players, the resistance training is the best method.

With regard to the skill performance such as jump service and attack-hit of volleyball the player needs explosive power, which could be enhance by the complex training.

For the development of the anaerobic capacity of the volleyball players the plyometric training is the best one.

The results of this study provide insight into several aspects for the improvement of player's explosiveness and muscular strength. However,
strength and conditioning coaches must notice that in this study the combination of plyometric and weight training was significantly more beneficial in increasing vertical jump height, muscular strength and skills jump service and attack-hit in volleyball.

To train and enhance this transitional phase requires a resistance and plyometric programme as used in this study.

Therefore, interested coaches and physical educationist must be able to incorporate both elements in their training regimens. Such a program challenges an athlete to develop and apply strength through a wide range of multiple joint movements at progressively higher velocities. It trains the athlete to think in terms of applied strength, speed and technique. A high magnitude of explosive strength is the result.

The results of this study claim that training must incorporate special exercises that focus on power development once the strength levels have been improved.

The intensity and training volume followed the progressive overload principle in the present study. Weight intensity and the volume of training were built up; gradually allowing the subjects to adjust effectively, especially the subjects who followed the plyometric training protocols. Variation of intensity within each week of training seems to have helped subjects who participated in all the training groups.

Despite the fact that execution of plyometric training and weight training is not generally recommended on the same day, the present study indicates that this might not be true if adequate recovery is allowed in between.

It seems that 6 weeks is an adequate period for the improvement of vertical jumping and muscular strength if the training protocols maintain the appropriate intensity and volume.

In this study, 2 days of training per week has proven to be an effective training frequency for improving the vertical jump performance and muscular
strength. However, this cannot be accomplished during the in-season period. Such training protocols should be incorporated in the pre-season or post-season training periods.

The results of this study concern individuals players aged 17 to 21 years. It is possible that elite athlete in power sports would not exhibit the same magnitude of improvement with the training protocols used here. It is possible that more advanced athletes need a different manipulation of training intensity and volume and selection of exercises.

SUGGESTION FOR FUTURE RESEARCH

1. The same study may be conducted with a change of intensity at adult level.

2. The same may be conducted at different age group for boys and girls.

3. The resistance training and plyometric training may be recommended for the improvement of muscular strength and explosive power in general.

4. A similar study may be conducted with more intensity for twelve weeks.

5. A similar study may be conducted with a change of training protocol for other games like basketball and football.

6. A similar study may be conducted with a change of training protocol for elite athlete especially for throws, and jump events.