Chapter V
SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

In the history of sports there have been many exercise methods which existed and vanished in the later years. However, the one which has survived over the decades even centuries is resistance training. Resistance training is so vital in everyday life because it can help to maintain the muscular balance of the body.

Volume, intensity and density mainly affect the demand of athlete’s encounter in training. Although these three components may complement each other, an increased emphasis on one may cause an increased demand on the athletes. For instance, if the coach intends to maintain the same demand in training and the need of the sport require developing endurance, then he or she must increase volume. The coach then has to decide how this will affect density and how to decrease intensity. If the coach decides to evaluate overall demand in training by varying intensity, then he or she needs to forecast how this new situation will affect the volume or density of training. The planning and direction in training is a function of the three main components. The coach must guide the evolution of the curve of these components, especially volume and intensity, in direct relationship with the athlete’s index of adaptation, phase of training and the competition schedule. Furthermore, in the science of knitting the training components may facilitate a correct peaking for the main competition.

The main purpose of the study is to assess the effect of different resistance training protocols on selected physical, physiological and biochemical variables in male students. To achieve this purpose, sixty male students studying at Pandit Jawaharlal Nehru College of Agriculture & Research Institute, Karaikal, Union Territory of Pondicherry who were having compulsory physical education program (0+1 course) in their curriculum selected were selected as subjects. The age of the subjects ranged from 20 to 25 years and they were randomly divided into four groups of fifteen each (n=15). Group I, II and III were considered as experimental group and group IV as control group. Initial tests were taken on selected physical, physiological
and bio chemical variables for all the subjects and the collected data is considered as pre-test data. All the three experimental groups were given their respective training for the period of sixteen weeks. For the first twelve weeks the subjects were trained for three non consecutive days per week and for the next four weeks the subjects were trained on alternate days. Group I were given resistance training with high intensity low volume. Group II performed resistance training with low intensity high volume. Group III performed resistance training with manipulated intensity-volume. Group IV served as control group. The subjects were tested on selected criterion variables after sixteen weeks of training program as post tests. The collected data on selected variables were subjected to statistical treatment using Analysis of Covariance (ANCOVA) and the following conclusions are drawn.

**Conclusion**

**Physical Fitness Variables**

The results of the study indicates that all the three experimental groups namely high intensity with low volume group, low intensity with high volume group and manipulated intensity-volume group has significant improvement in physical fitness variables and the control group did not show any significant result. This indicates that the training program is having a positive influence towards physical fitness variables on the subjects. Further the results also reveal that manipulated intensity-volume group and high intensity low volume group has shown significant improvement in speed, explosive power, and muscular strength. Low intensity high volume group shows significant improvement on muscular endurance.

**Physiological Variables**

The results of the study clearly indicates that the experimental groups and control group has no significant improvement on the selected physiological variables namely resting pulse rate, VO$_2$ max and systolic pressure which may be due to short duration of the training program. In the present study the training have been given only for a period of sixteen weeks. Physiological system requires longer duration of continuous training to achieve proper adaptation.
Biochemical Variables

The results of the study indicate that all the three experimental groups namely high intensity-low volume group, low intensity-high volume and manipulated intensity-volume group have significant improvement in biochemical variables and the control group did not show any significant result. This indicates that the training program is having a positive influence on selected biochemical variables. The results also reveal that low-intensity with high volume group and manipulated intensity-volume group has significantly reduced total cholesterol, LDL, and triglycerides. HDL level has increased significantly for low-intensity with high volume group when compared with high intensity low volume group and manipulated intensity-volume group.

Recommendations

1. From the present study it is concluded that manipulated intensity-volume group and high intensity low volume group has significantly improved speed, explosive power and muscular strength. Hence it is recommended that the coaches, physical educators and trainees can make use of this training program to improve the performance in sports.

2. The present study also reveals that the low-intensity high volume group and manipulated intensity-volume group has significantly increased HDL and reduced total cholesterol, LDL and triglycerides. Hence it is recommended to the fitness experts to adopt this finding to improve the fitness of their clients.

3. A similar study may be undertaken on physiological parameters which are not considered in this research study.

4. A similar study may be conducted on female subjects.

5. A similar study may be conducted on subjects with different age group and on subjects of different sports and games.
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