CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.0 SUMMARY

Physical fitness should be an important part of all people’s life no matter what age or gender. A healthy lifestyle is something that will not only help us to live longer but will help the years we live to be more enjoyable. Everyone needs good nutrition and physical activity to give their bodies the best possible chance of health and longevity. Exercise is an essential component of fitness during which endorphins are released which helps teens deal with stress. Thus, being fit can be a way for teens to let off stress. Physical activity is a healthy outlet for problems like anger and stress that tend to plague teenagers during the difficult transition into adulthood. (Avraham ben Yaakov 2010).

In this competitive world, many people find it hard to dedicate time for physical activities and exercises, although one of their first priorities is to stay in perfect shape. Men are burdened with lots of responsibilities. They have to play versatile roles in life as a family leader, official leader, a societal member and so on.

Many people waste their healthy youth to gaining wealth and then have to spend their wealth to regain their health”. It’s true especially in Indian scenario, the condition of male adults is even worse. Day and night they run in search of money for the sake of their family’s well being. In such a busy life style it is rarely possible for them to allocate time for fitness. Even if they provide space in their schedule they blindly prefer to do resistance training.

Different types of exercises provide different benefits to the body. To develop all-round fitness and health, combining both aerobic and resistance training into the weekly routine may produce changes. This could be done in a
couple of ways either by performing aerobic work and resistance training on separate days or combining them in the same workout. In particular, resistance training improves the functional performance of the neuromuscular system, the system of muscles and nerve pathways that directs and controls movement.

Resistance training produces increased strength, superior movement performance and general fitness, including enhanced function of the respiratory, cardiac and metabolic systems. Other improvements include an increase in muscle mass, strengthening of connective tissue and supportive tissue as well as improvements in posture and physique. Structuring a resistance training program with Burke Spencer’s Fitness Partner encourages the lifetime physical activity in students aged 8+ to improve neural motor skills and strength, to improve bone development by increasing bone density, to improve the strength of bone connective tissue to strengthen the heart muscle and to improve muscle energy capacity.

Aerobic training increases the aerobic capacity of an individual. Aerobic capacity describes the functional status of the cardio respiratory system including the heart, lungs & blood vessels. Aerobic capacity is defined as the maximum volume of oxygen consumed by one’s muscle during exercise (Bouchard, 2009) it is a function both of one’s cardio respiratory performance and of the ability of the muscles to extract the oxygen and fuel delivered to them. Higher aerobic capacity means higher the level of aerobic fitness.

Regular aerobic training improves the efficiency of the complete respiratory system. The respiratory pathways and the area for exchange of gases are constantly used and increased blood flow is present in these areas. This improves the efficiency of the respiratory system.

To develop all-round fitness and health, both aerobic and resistance training can be included in the weekly schedule. This can be done in a number of ways,
depending on how many days in a week are available for working out and also based on personal preferences. So by doing three aerobic and two to three resistance workouts a week, one can enjoy the benefits of both of these types of exercises. The advantage of combining aerobic and resistance training into the same workout, that will be able to exercise less often; however, because of time limitations, have to compromise with how much work can be performed for each exercise component. According to the National Association of Strength and Conditioning (2008), it does not matter whether resistance training is done before aerobic workout or the other way round. Authors Steven Fleck and William Kraemer in their book "Designing Resistance Training Programs" suggest that performing aerobic work after cardio may slightly improve the ability to work out with weights as will be less fatigued.

Traditional hatha Yoga is a holistic yogic path, including moral disciplines, physical exercises that are asanas and pranayama and meditation. hatha represents opposing energies that is hot and cold (fire and water, following the same concept as the yin-yang), male and female, positive and negative. Hatha yoga attempts to balance mind and body via physical exercises or “asanas”, controlled breathing and the calming of the mind through relaxation and meditation. Asanas teach poise, balance and strength and are practiced to improve the body’s physical health and calmness of the mind in preparation for meditation in the pursuit of enlightenment.

To achieve the purpose of the study 80 male students were randomly selected from Sankara College of arts and science, Coimbatore, Tamilnadu. Their age ranged between 17 and 22 years. The selected subjects were randomly divided into four equal groups consisting of twenty each. No attempt was made to equate the groups. Experimental group I underwent yoga and resistance training (YRT), experimental group II underwent aerobic and resistance training (ART),
experimental group III underwent combination of yoga, aerobic and resistance training (CYART) for a period of 12 weeks. Group IV acted as control group (CG) and it was not treated with any specific training programme other than their regular work.

The physical fitness variables (speed, agility, muscular strength endurance and flexibility), physiological variables (VO$_2$ max, Systolic blood pressure, diastolic blood pressure and resting heart rate), biochemical variables (low density lipoprotein, high density lipoprotein, fasting glucose and post prandial glucose) were selected for the study. The above variables were tested with appropriate tests.

The investigator was interested to know the positive changes in physical fitness, physiological and bio-chemical variables of male students, by using varied combinations of training.

1. Yoga and Resistance Training Group (YRTG)
2. Aerobic and Resistance Training Group (ARTG)
3. Combination of Yoga, Aerobics and Resistance Training Group (CYARTG)

The collected data were analyzed with ‘t’ test to find out the individual effect from base line to post test if any. Further Analysis of Covariance (ANCOVA) was used to determine the significant difference between the treatment means. Whenever the ‘F’ ratios were found to be significant, Scheffe’s post hoc test was applied to test the significant difference between the paired adjusted means. The level of significance was fixed at 0.05 level for physical, physiological and bio-chemical variables for this study and it was considered sufficient for the present study.
5.1 CONCLUSIONS

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

1. Within the limitations and on the basis of the findings of the study, it was very clear that twelve weeks of yoga and resistance training programme produced significant changes in physical variables (speed, agility, muscular strength endurance and flexibility), physiological variables (maximal oxygen consumption, systolic blood pressure, diastolic blood pressure and resting heart rate) and bio chemical variables (low density lipoprotein, high density lipoprotein, fasting glucose and post Prandial glucose) of college male students.

2. Further, twelve weeks of Aerobic and Resistance training programme produced significant changes in physical variables (speed, agility, muscular strength endurance and flexibility), physiological variables (maximal oxygen consumption, systolic blood pressure, diastolic blood pressure and resting heart rate) and bio chemical variables (low density lipoprotein, high density lipoprotein, fasting glucose and post prandial glucose) of college male students.

3. Further, it was inferred that combinations of yoga, aerobic and resistance training programme for the period of twelve weeks produced significant changes in physical variables (speed, agility, muscular strength endurance and flexibility), physiological variables (maximal oxygen consumption, systolic blood pressure, diastolic blood pressure and resting heart rate) and bio chemical variables (low density lipoprotein, high density lipoprotein, fasting glucose and post Prandial glucose) of college male students.

4. The combinations of yoga, aerobic and resistance training for the period of twelve weeks was found to be the most superior training to produce significant changes in physical variables (speed, agility, muscular strength
endurance and flexibility), physiological variables (maximal oxygen consumption, systolic blood pressure, diastolic blood pressure and resting heart rate) and biochemical variables (low density lipoprotein, high density lipoprotein, fasting glucose and post prandial glucose) than the other two modes of yoga and resistance training and aerobic with resistance training group.

5. Yoga and resistance training group was found to be the better training to produce significant changes in physical variables (muscular strength endurance and flexibility), physiological variables (systolic blood pressure and diastolic blood pressure) and biochemical variables (low density lipoprotein, fasting blood glucose and post prandial glucose) than the aerobic and resistance training group.

6. Aerobic and resistance training group was found to be the appropriate training to produce significant changes in physical variables (speed and agility) physiological variables (maximal oxygen consumption and resting heart rate) and biochemical variables (high density lipoprotein), better than the yoga and resistance training.
5.2 RECOMMENDATIONS

1. In the present study, individual effect of three different modules of training are explained positively on the performance of physical variables (speed, agility, muscular strength endurance and flexibility), physiological variables (maximal oxygen consumption, systolic blood pressure, diastolic blood pressure and resting heart rate) and biochemical variables (high density lipoprotein, low density lipoprotein, fasting glucose and postprandial glucose). Having the significant influence of these three different modules of the training programme, it is recommended to physical education teachers, coaches and trainers to prepare this type of training, so as to make it effective and reach their aim in time.

2. Modification in training schedule could be made in different combinations of yoga with other training modalities, combination of yoga player a vital role in developing the basic components, so that yoga could be given an important role in the training schedule.

3. The same training modules will be implemented for specific sports participants with same variables.

4. Combinations of training are essential to give a facelift to another older training technique, as combination of yoga, aerobic and resistance has been reached quite extensively. The coaches and physical education teacher, trainers could personals can use this training strategy for development of specific fitness components.

5. Yoga and aerobic are activities which could be performed by anyone, without equipments. Their effect with resistance training had been proved. Hence, it is suggested to the persons in the field of physical training to include yoga and aerobics in their training schedule.
6. The combination of other types of exercises may also be recommended to the physical educationist and coaches to develop physical fitness, physiological and biochemical variables.

7. Yoga, aerobic and resistance training may be recommended to be included in the training programme for the improvement of muscular strength endurance and reduction of low density lipoprotein and post prandial glucose.

5.3 FUTURE WORK

1. In the present study, the three different modules of training were prepared and used in three different groups. Further studies may be conducted on remaining important variables.

2. Yoga based combination of training could prepared and implemented for specific sports participants.

3. In addition, to study the changes from base line to post treatment, a study could be conducted to evaluate periodical progress over the period of training on physical, physiological and biochemical variables.

4. The study could be conducted on different training modules on psychological variables.