CHAPTER - V

SUMMARY, CONCLUSION AND RECOMMENDATIONS

Summary

Health is a state of perfect physio-psychological balance and harmony between body, mind and soul. The physiological health is the balanced state that exists when all the systems function harmoniously so that the body is resistant to ill health. The psychological balance is the harmony between the mind and body so that the mind remains strong at all times not affecting the body. Hence the human being is a psychosomatic unit. The mind influences the body and vice-versa. When the physical or mental or emotional well-being is disturbed health is disturbed. So a holistic approach is needed. Players are no exemption to this rule. A holistic approach is required both when aiming top competitive results as well as when seeking a sense of well being and deeper unity of mind, body and spirit.

Now a days sports are highly competitive and challenging one's body and mind. The modern world which is a world of competition and achievements, is also a world of stress. Stress is the adaptive physiological response of the human organism to internal and external forces and events which disturb the homeostatic balance of the individual. The imbalance may be caused by psychic, physical and social agents or conditions. Sports competitions involving individuals and teams are full of stress encounters. Players are exposed to stress much more than the average individuals. Besides the stress from study, family and personal problems, players have an added load of tremendous daily training which both physically and mentally exhaust the body. Another source of stress over load comes from anxiety, failure and its consequences.

The effect of stress on the endocrine mechanism is vital. Psychological stress and physical exertion induce hypothalamic secretion of
Corticotropin Releasing Factor that stimulates the interior pituitary to release Adreno Corticotrophin Hormone which in turn causes the adrenal cortex to release cortisol stress hormone to initiate the stress reduction response. Cortisol is a major stress hormone produced in the adrenal glands. It is essential to cope during the time of stress. Without proper cortisol response, one cannot effectively meet the daily challenges of life. Cortisol levels exhibit a natural raise in the morning and fall at night. If this rhythm is disturbed all functions of the body especially circulatory and metabolic function will be affected. The stress hormone response is more important to improve stress tolerance capacity. The stress tolerance refers to the amount of stress one can tolerate before breaking down under the pressure of stress without any damage. It can be improved by imparting yogic practices and aerobic exercises.

As a holistic science concerned with all aspects of human functioning, yoga science provides a unifying frame work by which stress can be understood and tolerated. Generally players are unconscious of those mental, emotional, perceptual processes which habitually create stress. Yoga involves a systematic method by which one can begin to expand his/her awareness of these processes and thus begin to gain control over them. So, in a very practical sense, Yoga gives the tools and techniques by which one can expand one's conscious awareness into the unconscious parts of the mind in order to become aware of the patterns and habits which lead to stress.

Aerobic exercise literally means exercise with oxygen. The term aerobic exercise refers to energetic physical activity that requires high level of oxygen over an extended number of minutes. Aerobic exercise directly affects the physiology of a human being. It helps a lot in the maintenance of physical and physiological health and at the same time helps in the prevention of so many body problems such as obesity, arthritis and muscular cramp and develops a healthy body and healthy mind. The process of aerobic exercise is very simple. It involves rhythmical action that moves
the body over a distance or against gravity as occurs in jogging, bicycling, skipping, steps climbing, swimming, running or certain calisthenics. It is a kind of complete physical work without the feeling of fatigue. Hence the study is entitled “Effects of training in Yogic practices and aerobic exercises on stress hormone, circulatory and metabolic responses among college players”.

The stress hormone cortisol response is the main crux of players. The relevances of yogic practices and aerobic exercises are now increasingly realised in stress tolerance. Hence the study aimed to learn the effectiveness of yogic practices and aerobic exercises on stress, stress hormone and its associated circulatory and metabolic responses on over stress players.

To realize these objectives the following hypotheses were formulated

1. Practicing yoga had significant and positive influence on stress level, stress hormone, circulatory and metabolic responses.

2. Practicing aerobic exercises had significant positive influences on stress level, stress hormone, circulatory and metabolic responses.

3. As far as treatment of yogic practices and aerobic exercises were compared, yogic practices had high level impact on stress level, stress hormone, circulatory and metabolic responses.

The present study is significant on the following aspects. The results of the study help the players to improve their psychological, physiological and physical capacities which make them more fit and healthy. The study provides suitable training schedule for effective performance. The results of the study help the player while performing tough task in high level competitions. The findings provide a great sense of understanding of yoga
practices and aerobic exercises in formulating yoga camp, fitness and remedial programmes. In general the study was focussed on attaining the well-being of the players needed for optimum performance.

For testing these hypotheses the Subjective Well Being Inventory (SWBI), a standardized questionnaire was administered to 420 male college players from Thiru. Vi. Ka. Government Arts College, affiliated to Bharathidasan University, Tiruchirappali, Tamilnadu. Their age ranged from 18 to 25 years. The players’ socio economic, hereditary and environmental factors were not taken into consideration. They were instructed to give true responses to all the questions. Based on their score 56 over stress subjects were identified. Of the 56 over stress subjects 45 subjects were randomly selected for this study. The selected subjects were divided into three groups namely Control group, Aerobic exercise group and Yogic practices group. The aerobic exercise and yogic practices groups underwent aerobic exercises and yogic practices respectively for an experimental period of 12 weeks, six days a week, where as the control group was not given any sort of special training. The criterion measures selected for this study were Stress hormone-Cortisol, Resting heart rate, Systolic blood pressure, Diastolic blood pressure, Blood sugar, Serum cholesterol and Serum protein. The criterion measures were tested before and after 12 weeks of experimental period and the initial and final scores of all the three groups were obtained. The SWBI questionnaire was administered after the experimental period, the final score (stress level) of all the three groups were also obtained.

To study the outcome between yogic practices group and aerobic exercise group along with control group and to find out the significant mean differences the analysis of co-variance statistical technique was employed. Further, the scheffe’s post-hoc test was used to identify which group is shown up for the significant mean difference among these three groups.
Findings

1. The initial mean difference of blood cortisol level among the three groups had no significant difference while the final mean difference of blood cortisol level among the three groups had a significant difference.

2. The adjusted mean difference of blood cortisol level had significant difference among the three groups.

3. The mean difference of blood cortisol level between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant difference.

4. The initial mean difference of resting heart rate among the three groups had no significant difference while the final mean difference of resting heart rate among the three groups had a significant difference.

5. The adjusted mean difference of resting heart rate had significant difference among the three groups.

6. The mean difference of resting heart rate between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant difference.

7. The initial mean difference of systolic blood pressure among the three groups had no significant difference while the final mean difference of systolic blood pressure among the three groups had a significant difference.

8. The adjusted mean difference of systolic blood pressure had significant difference among the three groups.
9. The mean difference of systolic blood pressure between control group & aerobic exercise group, control group & yogic practices group and yogic practices group & aerobic exercise group had significant difference.

10. The initial mean difference of diastolic blood pressure among the three groups had no significant difference while the final mean difference of diastolic blood pressure among the three groups had a significant difference.

11. The adjusted mean difference of diastolic blood pressure had significant difference among the three groups.

12. The mean difference of diastolic blood pressure between control group & aerobic exercise group, control group & yogic practices group and yogic practices group & aerobic exercise group had significant difference.

13. The initial mean difference of blood sugar level among the three groups had no significant difference while the final mean difference of blood sugar level among the three groups had a significant difference.

14. The adjusted mean difference of blood sugar level had significant difference among the three groups.

15. The mean difference of blood sugar level between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant different.

16. The initial mean difference of serum cholesterol level among the three groups had no significant difference while the final mean difference of serum cholesterol level among the three groups had a significant difference.
17. The adjusted mean difference of serum cholesterol level had significant difference among the three groups.

18. The mean difference of serum cholesterol level between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant difference.

19. The initial mean difference of serum protein level among the three groups had no significant difference while the final mean difference of serum protein level among the three groups had a significant difference.

20. The adjusted mean difference of serum protein level had significant difference among the three groups.

21. The mean difference of serum protein level between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant difference.

22. The initial mean difference of stress level among the three groups had no significant difference while the final mean difference of stress level among the three groups had a significant difference.

23. The adjusted mean difference of stress level had significant difference among the three groups.

24. The mean difference of stress level between control group & aerobic exercise group, control group & yogic practices group and aerobic exercise group & yogic practices group had significant difference.
Conclusion

Within the limitations, the results of the present study seem to permit the following conclusion on overstress male subjects.

The training effect of yogic practices evidenced significant influences over the stress level, stress hormone cortisol level, circulatory and metabolic responses. Particularly by positively elevating the stress hormone cortisol level, the stress tolerance capacity was increased. In addition to this, the associated functions like resting heart rate, systolic blood pressure, diastolic blood pressure, blood sugar, and serum cholesterol levels were decreased while the serum protein level was increased. Similarly the training effect of aerobic exercises had significant positive influence on stress level, stress hormone cortisol level, circulatory and metabolic responses like the yogic practices. When the positive influence of the two methods were compared yogic practices had better influence over aerobic exercise in stress level, stress hormone and its associated metabolic responses and resting heart rate. In the case of systolic blood pressure and diastolic blood pressure aerobic exercises had better influence than the yogic practices. Hence it can be deduced that stress tolerance capacity and well being of players were attained by the training effects of yogic practices and aerobic exercises.

Implications

The study implies that

1. To develop stress threshold, the players should be exposed to yogic practices which must include varied types of task improving quick decision making.

2. Training should be modeled involving the competitive stress patterns, keeping in view of the principles of specificity.

3. The mounting stress due to continuous exposure to competitive training is reduced by yogic practices as well as aerobic exercises.
4. Yogic practices help players to set their own short term and long term goals instead of aiming to achieve set goals which may be beyond their reach and thus lead to stress and discourage them.

5. The key to optimum performance lies not in the removal of the stress of the player but in their ability to perform in stressful environments.

6. The players should be trained to control their covert behavior which in turn help to reduce negative thinking resulting in the reduction of mounting stress.

Recommendations

1. In this study the stress tolerance capacity was improved by yogic practices and aerobic exercises carried out separately. There are many methods available for stress reduction. They are autogenic training, bio feed-back method, Jacobson progressive relaxation, imagery relaxation, and Suinn seven steps of relaxation. For better results any one of these methods or combination of these methods along with yogic practices should be adopted for stress reduction.

2. This study has not taken into account the competitive situations that a player has to encounter. In competitive situations players may have numerous stressors. So, the study can be extended to analyze the players state of stress before, during and after actual competitions.

3. Behaviour plays a major role in stress studies. So the study can be modified to take into account of the type-A behaviour players. Because Type-A behavior is a personality profile characterized by speed, impatience, desire for achievement and
perfection. These individuals are likely to create stress for themselves in situations that others might find relatively stress free.

4. Yoga is said to be a way of life. To enumerate all the benefits of yogic practices the period of study may be extended.

5. Since the present study is a pioneer one studied at a very basic level, the same study may be conducted at various levels of players such as university, state and National.

6. Even within the context in which the study was conducted, the tool of measuring the stress level may be revised from time to time as any stress may confront the players.

7. The study is conducted on male players only. It can be conducted on women players too, since they differ from men in their stress tolerance capacity.