Chapter - V

Summary, Conclusions and Recommendations

Summary

Games and sports as a part of human education have always existed in the human society. Before the dawn of civilization and culture, physical exercise was very important aspect of human existence. In the primitive society, the “necessity for survival” motivated man to keep himself more physically fit and strong enough in comparison with stronger forces for nature.

Physiology is the study of functioning of the human organism. There can hardly be a science that is more important for the coach to know, understand, and be able to properly apply. In its fundamental sense, physiology involves the functioning of each major body system used in playing game/sport (e.g., skeletal muscles, cardiovascular system, and respiratory system) and how those systems are interrelated. In its applied sense, physiology addresses how exercise affects the functioning of body systems as well as how those systems impact performance. If a coach knows the basic concepts of exercise physiology and how to apply them to the training, players will not only end up in “good shape”; they will also be able to physically play the game as well as they
currently know how to save their energy, while at the same time being less prone to fatigue-related injuries.

The word “training” means different things in different fields. In sports the word “training” is generally understood to be a synonym of doing exercise. In a narrow sense training is physical exercise for the improvement of performance. Training involves constructing an exercise programme to develop an athlete for a particular event. This increasing skill and energy capacities are equal considerations. Training is applied now – a – days for any organized formation purposefully aimed at the rapid increase in the physical, psychological, mental and technico – motor performance capacity of men.

Healthy life can be considered as a by-product of practicing yogic techniques since it has been observed that yoga practitioners are physically and mentally healthier and have better coping skills to stressors than the normal population. Yoga is widely practiced and globally accepted. Hence, it can be very well integrated as a health promoting tool in our society. Healthy people as well as patients may inquisitively approach medical professionals to take consultation about yoga. Yoga is an experiential science. If this knowledge about yoga invokes interest in the medical professionals and they practice it themselves, it
might open up new avenue in bringing together our traditional heritage of yoga and today’s’ objective knowledge of modern medicine. Documented scientific evidence strongly indicates that yoga has promotive, preventive as well as curative potential. As a non-pharmaco therapeutic and safe modality, it can be used as an effective lifestyle adjunct to medical treatment to reduce drug dosage and improve quality of life of the patients. It is to be emphasized that yoga is very effective for prevention as well as management of all-pervading stress and stress-related disorders. Modern medicine is very effective in controlling infections, performing surgeries and managing diseases. However, it has limited role in stress-based, chronic degenerative, old age and lifestyle related disorders which are the bane of modern society. Yoga has been found to be very effective in these conditions. Our public health delivery system is under-staffed, fund-starved and reeling under severe economic burden. Knowledge of inexpensive, effective and easily administrable yogic techniques by health professionals will go a long way in helping us achieve the WHO goal of providing “physical, mental, spiritual and social health” to the society.
In this context, the investigator made an attempt to investigate the effect of yoga practices on selected physiological and biochemical variables among the diabetic patients.

To achieve the purpose of the study, for this purpose, forty-five (N=45) men diabetic patients from Erode district, Tamilnadu India, were selected randomly as subjects. The age of the subjects were ranged from 40 to 50 years. The subjects were assigned equally into three groups of fifteen each namely Group I underwent yoga practices three days per week, group II underwent yoga practices five days per week and group III acted as control.

The Experimental Group-I underwent yoga practices three days per week, Group-II underwent yoga practices five days per week, for twelve weeks in addition to the routine activities of their life and Group-III acted as Control.

Among the various physiological and biochemical variables, the following variables were selected as criterion variables breath holding time, resting pulse rate, respiratory rate, high density lipoproteins cholesterol (HDL), low density lipoproteins cholesterol (LDL) and very low density lipoproteins cholesterol (VLDL). All the groups were tested on selected criterion variables prior to and immediately after the training periods of Twelve weeks. The data
on breath holding time was assessed by manual method, resting
pulse rate was assessed by radial pulse method, respiratory rate
was assessed by manual method, high density lipoproteins
cholesterol (HDL) was assessed by enzymatic colorimetric method,
low density lipoproteins cholesterol (LDL) was assessed by
Friedewald, Levy and Fredrickson (1972) equation method and
very low density lipoproteins cholesterol (VLDL) was assessed by
formula method.

The collected data were analysed by using dependent ‘t’-
test to find out significant improvements. Analysis of covariance
(ANCOVA) was used to determine the differences, if any, among
the adjusted post-test means. Whenever ‘F’-ratio for adjusted
post-test mean was found to be significant, the Scheffe’s test was
applied as a post-hoc test to determine the paired mean
differences. The level of significance was fixed at .05 level of
confidence for all the cases.
Conclusions

From the analysis of the data, the following conclusions are drawn.

1. The Experimental groups namely, yoga practices three days per week and yoga practices five days per week groups had significantly decreased in physiological and biochemical variables such as resting pulse rate, respiratory rate, Low Density Lipoproteins Cholesterol (LDL) and Very Low Density Lipoproteins (VLDL).

2. The Experimental groups namely, yoga practices three days per week and yoga practices five days per week Groups had significantly increased breath holding time, High Density Lipoproteins Cholesterol (HDL),

3. Significant differences were also noted between yoga practices three days per week and yoga practices five days per week in all the physiological and biochemical variables such as breath holding time, resting pulse rate, respiratory rate, high density lipoproteins cholesterol (HDL), low density lipoproteins cholesterol (LDL) and very low density lipoproteins cholesterol (VLDL).
4. The yoga practices five days per week group was found to be better in reduction of resting pulse rate, respiratory rate, Low Density Lipoproteins Cholesterol (LDL) and increase on Breath Holding Time and High Density Lipoproteins Cholesterol (HDL), Very Low Density Lipoproteins (VLDL) than the yoga practices five days per week Group and control group.

**Recommendations**

1. The patient must learn to control and his or her self of diabetes in a wholistic manner, at all levels of your being: physical, emotional, mental, intellectual and spiritual, recognizing the effects of stress, emotional imbalance, and dietary and living habits on the disease condition.

2. Before beginning a program, measure ones exercise toleration. Start with simple movements and positions before progressing gradually to complicated postures.

3. Throughout the program, monitor glucose levels and under the supervision of a physician, and take appropriate medicinal dosages as and when required. After several weeks one may be able to reduce such dosages.
4. Practice in the morning and the evening for 40 to 60 minutes the recommended series of postures according to ones capacity. Practice before meals, but after consuming glucid liquids.

5. Avoid exertion that is heavy muscular activity. Perform the movements slowly and smoothly, stretching the limbs and joints, and gently compressing the abdomen, without straining. Maintain the postures for a comfortable length of time. The maintenance period of postures should be increased gradually from 5 seconds to one minute, or even longer depending upon the posture and capacity of the patient.

6. Focus on the breath during the maintenance period of the posture, with the eyes closed or focused on one point, as a means of learning to focus the mind and to manage stress and tension in the body.

7. Perform the Shavasana, or complete peace relax pose on the back, systematically relaxing all of the parts of the body, at the end of the session, or after completing several postures, if one begins to feel fatigued.
8. The following postures have been found to be effective in the control and cure of diabetes (sanskrit names; the english and tamil names are in parentheses): Dhanurasana (Bow pose, Vilasana), Paschimottanasana (Sitting crane, Amarntha kokkuasana), Padangusthansana (Standing crane, Nindra kokkuasana), Bhujangasana (Serpent pose, Paambuasana), Sarvangasana (Shoulder stand), Ardhamatsyendrasana (Spinal twist), Halasana (Plough pose, Kalapoy asana), Yoga mudrasana (Yogic Symbol pose), Supta Vajrasana (Sitting pose of Firmness), Chakrasana (Wheel pose), Shalabhasana (Grasshopper pose, Vittelasana).

9. The practice of Udiyana bandam, or the abdominal squeeze has also been found to be useful.

10. Regulate the diet throughout the program. Avoid simple sugars such as white sugar, honey, glucose and sweets. And eat complex carbohydrates such as wheat, oatmeal, buckwheat, corn, brown rice and beans. Avoid processed food and eat foods with lots of fibre and nutrients.
11. Obese patients can start with different asanas, cleansing processes, bhastrika pranayama and relaxation. Lean and thin patients should start with relaxation and pranayama, and practice in a relaxed manner.

12. Meditation practices have been shown to help the endocrine glands through relaxation of the sympathetic nervous system.

13. A Similar studies may be conducted for the fairer sex also keeping age and other factors in to consideration for experimental variables.

14. Studies may also be conducted on similar lines with different nutritional plans.