Chapter - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

The prevalence of diabetes among Indian population has reached to an epidemic proportion. A quite significant percentage of morbidity is attributed to diabetes and associated pathological complications. Though genetic and acquired syndromes and interaction with environmental factors are major causes of diabetes. What places Indian population at more risk is susceptibility of Indian population to diabetes? Again India being at cross road of becoming developed country in near future. The rapid industrialization and urbanization and other economic activity had forced a tremendous life style changes. This in fact had worsened the health scenario of India.

Old age is synonymous with various degenerative forms of health ailments. What make it more badly are lifestyle diseases? Diabetes is major one of that. Exercise prescription as a preventive and therapeutic measure for diabetics was in practice since sometime. In this regard, prescribing exercise to diabetic patient of old age was always been a challenge and issue of controversy among medical fraternity.
The degenerative health status of old age itself makes exercise prescription quite a complex task. Never the less the immense benefits of exercise as preventive and therapeutic measures outweigh the medication practice in long run.

Since, after years of experimentation, medical research and investigation, Physician worldwide are of view that diabetes needs to be managed with wholestic approach, taking into consideration diet, medication and modifiable life style behavior. And medication alone is not effective at all in controlling diabetes.

Keeping all this issues in mind research scholar was genuinely interested to investigate effect of exercise on diabetic patient with practical experimentation to ultimately explore the option of comprehensive exercise program designing for various age groups diabetic patient.

For the purpose of this study total 45 males of different age groups i.e. below 40 years; 40 to 50 years and above 50 to 60 years, who were suffering from NIDDM and totally medication dependent were selected as a subject. In each group 15 subjects were taken. Three criterion tests for blood sugar testing namely – fasting blood sugar test, post prandial blood sugar test and HbA1c were selected.
The pre – test of fasting and post prandial blood sugar of each subject was tested with the help of glucometer by the research scholar and HbA1c test was done by the pathologist. Along with this medicine’s record of all selected subjects were also maintained.

A six month comprehensive exercise program was developed after exhaustive experimentation and taking into account of guidelines of different diabetic associations and experts such as American Diabetes Association, Ronald Sigaland Associates etc. Individual load parameters were established on the basis of established test and diagnosis.

After giving six-month comprehensive exercise program, which was conducted six days per week for 45 to 60 minutes per day, post test of fasting, post prandial and HbA1c were conducted in the same manner as in pre test.

The data collected on three criterion tests were analyzed with paired T – test and Analysis of covariance. Further Pre and Post medication records were subjected to percent analysis to find out drug independency. In order to test the hypothesis, the level of significance was chosen at .05.

The results revealed that there was significant effect of exercise therapy on different age group patients with diabetes mellitus.
Results also showed exercise program affected drug independency among significant percentage of patients.

**Conclusions**

On the basis of the findings of the study and scholar’s own understanding about critical literatures available following conclusions were drawn: -

1. Comprehensive exercise program significantly reduces blood sugar level among diabetic patients of age groups- below 40 years, 40 to 50 years and above 50 to 60 years.

2. Exercise significantly reduces drug dependence among diabetic patients.

3. Preventive and therapeutic exercise program for (NIDDM) diabetic patients of different group should be highly individualized one.

4. The load parameters of exercise program such, as intensity, duration etc. should be absolutely on the basis of individual patient diagnosis and testing.

5. The target heart rate and 1RM methods are most effective methods to decide various level of exercise intensity for diabetic patients of old age and middle age group.
6. Exercise program containing aerobic, strengthening and yogaic exercises are highly effective for Type – 2 diabetic patients.

7. The three form of blood sugar tests - Fasting, P.P. and HbA1c are most acceptable standard diabetes diagnosis test.

**Recommendations**

In the light of the conclusion drawn on the basis of findings of the study and the importance of findings for diabetic patients, medical fraternity and general public who are at risk of type – 2 diabetes mellitus, research scholar would like to offer following recommendations:

1. Regular exercise program should be invariable essential part of preventive, therapeutic or diabetes management program.

2. Chronic and acute and totally medically dependent type – 2 diabetic patients should add a systematic comprehensive individualized exercise program in their diabetic management and treatment program.

3. Exercise program for diabetic patient should be based on careful consideration of individual fitness parameters. And load parameters should be decided on the basis of target heart rate and 1RM testing.
4. Contrary to popular perception that weight training exercises are not advisable for old age and diabetic patients, research scholar would likely to strongly recommend a carefully and systematically planned resistance exercise training program for strengthening as an essential part of whole exercise program.

5. Exercise program should be rich in content variety and hence it is recommended that various forms of aerobic, strengthening and yogic exercise should be well combined in the program.

6. Similar research study should also be conducted for diabetic patients with type – 1 to find out efficacy of exercise program.

7. Similar type of investigation should also be conducted among young diabetic patients.