Chapter - V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary

Diabetes as a health issue in India is no more confined to selected population. Today it is highly endemic among Indian populations and because of dietary habits, life style etc. Indian population is more at risk. The rapid industrialization, urbanization and economic developments has drastically changed the way Indians traditionally used to live. With growing economic power the working middle class has changed more in this term. This as a result, health hazards from Diabetes has increased multifold.

Considering enomicity of diabetic problem medical fraternity and therapist have been trying, every available form of prevention and cure. In this regard as an alternate and best substitute method of regular exercise has been the major consideration and widely prescribed by the physicians. The efficacy of the exercise in controlling blood sugar as a preventative masseur for diabetic is well established. But more often considering the health status of the diabetic patients exercise involving great deal of risk or vigorous movement for aerobic and anaerobic system utilization is not feasible. Normally exercise control diabetes by utilizing blood glucose, developing glucose tolerance and may be to some extent revival of insulin efficiency.
But the traditional exercise that is recommended is always are of nature which is physically demanding and taught. Considering, health status of Diabetic patients. Such recommendations may not always be feasible.

Research scholar considering this very aspect that general prescription of exercise doesn’t goes well in term of prevention and control of Diabetes. In another words exercise to be effective must consider every aspect of Diabetic patient’s condition as well as exercise administration, feasibility etc. It was a critical observation in this regard that efficacy of every form of exercise that is available were quite not experimented. Yogic exercises are easier to perform. It does have any vigorous and not complicated movement are involved. It is based on stretching, specific pressure stimulations and creation of specific breathing techniques, adopting specific physical posture. This special characteristic of yogic exercise makes it very comprehensively suitable for every age groups and different level of health status.

In addition to this inorganic functional improvement, efficiency of various asanas are tested and found factually proved. This provided a hope for Diabetic patients. Further this enhances the function of pancreas and the secretion of insulin by beta cell. It could be revived through yogic exercises improved efficiency of insulin utilization and transportation of blood
glucose. In such cases the benefit will be ultimately derived by Type-I and Type-II patients.

With this understanding research scholar has conceptualized this study to experiment with three variations of comprehensive yogic exercise programmes for controlling or lowering of glucose level of Type I and Type II Diabetic patients. Research scholar has himself having completed professional diploma course in Yoga provided better understanding of intricacy, better programming and planning of yogic exercises and better understanding of effect of different types of yogic exercises.

Research scholar being himself employed as a University faculty, it was quiet natural to take up this research project as a doctoral pursuits, so that in-depth and elaborated experiment could be conducted with high research standards. The research study was tittled as “The Effect of Selected Asanas and Pranayamas on Blood Sugar and Urine Sugar Levels of Diabetic Patients”.

For the purpose of the study, eighty subjects who were medically certified, chronic diabetic patients were selected as subjects. The selected subjects were 40 type I diabetics and 40 type II diabetics.

The subjects were grouped into four categories. The control and three experimental groups.
After exhaustive deliberation with the experts and several experimental programme designing, three forms of programmes were developed and that were experimented. The first group performed yogic asanas programme and second group pranayama programme and the third group performed combination of asanas and pranayama. Approximately the programme was of the duration of one hour. Which were administrated and experimented six days a week for twelve weeks glucose levels were tested on blood as well as urine. God-Pod method was used for blood glucose testing and Benedict method was used for urine testing.

Research scholar himself personally administrated the three forms of yogic exercise programme initially for six weeks then managed with two trained assistants during the later part of the programme. When programme was managed by trained assistants the research scholar did constantly supervise the training session data on blood sugar and urine sugar were collected as pre test prior to beginning of programme and as post test after six weeks and at the end twelve weeks.

Analysis of covariance was used exclusively to compare the effect of three yogic experimental treatments programme for Type-I and Type-II Diabetic patients. Findings shows significant effect of all three experimental group in both the categories of Diabetes. The significant effect as lowering
of sugar was found both in blood test and urine test. The significance of all the three programme were observed on both six weeks testing as well as twelve weeks testing. At end of twelve weeks the equated mean blood sugar value for Type- I Diabetes was found to be 214.91 mg, 217.8 mg, 211.31 mg, and 235.01 mg respectively for the asanas group, pranayama group and combination of asanas and pranayama and control group.

The experimental groups were further found significant on lowered Blood Sugar level with a mean difference value, when compared to control group as 20.1 mg, 17.21 mg and 22.7 mg for Asana group, Pranayama group and combined group respectively.

In urine test among the Type-I Diabetic patients the post equated mean value that were observed 239.10 mg, 241.1 mg, 234.4 mg and 246.5 mg for asana group, pranayama group, combined group and control group respectively. All the three form of experimental yogic treatment were significant and showed lowering of urine sugar level as 7.4 mg, 5.4 mg and 12.1 mg for asana group, pranayama group and combined group respectively. This reduction in Urine Sugar observed in terms of comparing with Urine Sugar level of control group.

Among Type-II Diabetic patients also, three forms of yogic practice were significantly effective. Statistical finding shows that post mean
values 249.43 mg, 251.73 mg, 247.93 mg and 261.73 mg for Asana group, Pranayama group, combined group and control group respectively. All the three experimental group with average lowering of Blood Sugar 12.5 mg, 10 mg and 13.8 mg for asana group, pranayama group and combined group respectively.

In urine sugar level assessments also three forms of the yagic experimental treatment were highly significant. The post equated mean value; analysis of covariance was observed 254.3 mg, 249.0 mg, 246.0 mg 255.4 mg for asana group, pranayama group, combined group and control group respectively.

Further the three experimental groups were highly effective in lowering of sugar level with an average value of 5.3 mg 6.4 mg, and 9.4 mg for asana group, pranayama group, and combined group respectively. This value was obtained by statistically comparing with the value of control group. In the Urine Sugar level from statistical finding it was concluded that three forms of yagic experimental treatment i.e. asana programme, pranayama programme & combined programme were highly effective in lowering blood sugar levels of Type-I as well as Type- II Diabetic patients. The three programmes were effective in lowering the blood sugar in blood as well as urine for type-I and type-II Diabetic patients.
Conclusions

Successful accomplishment of this study was a result of very exhaustive deliberation, discussion critical reviews of literature frequent and several experimentation and finally compliance of various systematic methodologies in administrating of yogic treatment of programmes. Finding of the study not only provided understanding about the yogic experimental effects but also methodology of conduct of such studies. Based on all above finding from statistic analysis, scholar’s own inferential ability and within the constraints and limitations of the study following conclusions were drawn.

1. Yogic Asana and Pranayama based comprehensive exercise programme can significantly reduce the Blood Sugar level among Type-I and Type-II Diabetic patients.

2. Yogic Asana and Pranayama based comprehensive exercise programme is also effective in lowering Urine Sugar level of Type-I and Type-II Diabetic patients.

3. Yoga based therapeutic programme for Diabetic patients provide a good alternative exercise programme, who can not afforded to participate in regular programme of other exercise.
4. Yoga based therapeutic programme are more comprehensive and suitable for any age group Diabetic patients.

5. Unlike other exercise programme which are generally prescribed and found effective only for Type-II Diabetic patient, yogic exercise based therapeutic programme is in hand and is effective for Type-I Diabetic patient also.

6. Unlike other exercise programme yogic exercises emplas on functional improvement of organ and improvement of efficiency of various functioning systems of the body.

7. Yogic based therapeutic programme for Diabetic patients is highly effective from the point of direct functional improvement revival of pancreatic actions insulin functional efficiency etc.

8. While programming yogic exercise based programme for Diabetic patients, it is most necessary to understand and incorporate yogic Asanas and Pranayama which essentially involve movements stretching, pressure, stimulation etc effectively on abdominal organs area.
Recommendations

Research scholar is strongly view that this study has successfully accomplished the purposes and goals for which the study was envisaged, while conceptualisation Scholar is opinion the finding of the study have effectively contributed in the on going management process of Diabetic patients rehabilitations. Hence in the light of finding the research scholar would like to recommend strongly following suggestions.

1. Yoga based therapeutic exercise programme for rehabilitation of Diabetic patients of both Type-I and Type-II is highly effectively, hence yoga based rehabilitation programme could be considered, as an alternative substitute for medication as well as other vigorous exercises programmes.

2. Yogic exercise programme should be an essential part/ routine of the Diabetic patient’s daily life schedule.

3. Yoga based therapeutic exercise programme must be appropriately blended with effective yogic Asana and appropriate Pranayama.

4. Yogic exercise based programme could not be of not less than one hour to expect a significant level of effect on glucose level of Diabetic patients.
5. Similar research project should be taken up to ascertain effect on pancreatic actions, insulin secretion and insulin efficiency due to yoga based exercise programme.

6. More combinations of yogic asanas varieties of pranayamas, kriyas and mudras and mediation should also be experimented to find the efficacy