

**Role of Haritakadi Rasayana in Prevention  
and Management of Madumeha  
(Diabetes Mellitus)**



The thesis is submitted for the degree of

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**By**

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## Summary and Conclusion

The present study entitled “Role of Haritakadhi Rasayana in Prevention and Management of Madumeha (Diabetes Mellitus)” is presented in five sections: Ayurvedic Review, Modern review, Drug review, Survey and Clinical study, Discussion and Conclusion.

Type 2 Diabetes Mellitus is a disease which results from the interaction between a genetic predisposition and behavioral and environmental risk factors. The incidence of type 2 Diabetes Mellitus is increasing world wide and it is a global health problem. According to the recent global estimates of the WHO, there will be 300 million people with diabetes by the year 2025. It is estimated that the developing countries will bear the brunt of diabetes epidemic to the extent of 77% global burden in the 21<sup>st</sup> century. In Sri Lanka currently 1.5 million Sri Lankans suffer from diabetes and one third of those with undiagnosed.

Today diabetes has no longer remains a disease of the high socioeconomic status of confined to urban area. Because environmental and life style changes resulting from industrialization and migration to urban environment from rural settings has increased incidence of diabetes to large extent. Although diabetes can be prevented by modifying such modifiable risk factors as Obesity & Physical inactivity in the stage of pre diabetes.

Pre diabetes is the condition where blood sugar levels are higher than normal but not yet high enough to be diagnosed as diabetes. In 2003 more than 300 million were estimated to have pre diabetes. By 2025, it is estimated that approximately 500 million will have pre diabetes in the world. In South East Asia Region currently has the highest number of people with prediabetes. By 2025, it is estimated that SEA region will continue to have the highest prevalence of pre diabetes (13.5%), followed by Europe (10.9%).

The American Diabetes Association has proposed the screening all patients aged over 48 years by measuring fasting blood glucose every three years, in addition to screening patients from high risk groups and younger patients with hypertension, obesity and family history of diabetes in a first degree relative.

Considering above facts, this study was undertaken to give priority of prime aim of Ayurvedic fundamentals,

***Swasthasya Swastha Raksana (maintaince of the disease) and Aturasya Vikara Prasamanam (treatment of the disease).***

To achive this aim Haritakadhi Rasayana has choosen for prevention and management of Diabetes (Madumeha.).

Then the study was designed as two phases study, Phase 1 (Prevention group) and Phase 2 (Clinical study group).

Survey study was performed at Out Patient Department of Ayurvedic Teaching Hospital at Borella during the period of 2007 oct to2008 August as a simple random sampling trial and this was a Community based study which carried out to find persons who are susceptible to Madumeha.In this study we used Indian Diabetes Score (IDRS – Appendix 1) for identifying undiagnosed diabetics subjects. According to that, persons who were in age between 30-55 years were selected by simple random sampling method and they were interviewed based on four simple parameters namely Age, Abdominal Obesity, Family history and physical activity. Total 2783 individuals were screened and out of them 340 subjects were found having High Risk factors to developing type 2 Diabetes Mellitus. They were again subjected to Fasting Blood Glucose test. According to results of F.B.S. test, 253 subjects were found to be in the normal range of F.B.S. while 75(22%) were pre diabetes and 12 (3.52%) were previously undiagnosed diabetes. Pre diabetes was again submitted to Serum Lipid Profile test and there were 15 subjects were excluded from the study, who were having abnormal lipld levels.

A total 60 subjects were included in the study. They were divided into 2 groups 30 each. Group A research group and they recived Harirakadhi Rasayana 10 gms twice a day for 3 months with warm water. Another group was in intervention group (Group B) recived life style modification schedule, which included dietary changers and Physical activity changers. Both groups were given the schedule but test group were given information only. Intervention group were counseled it every visits.

The results revealed that Group A andGroup B both shows highly significant effect on before treatment and after treatment values of F.B.S. and Waist Circumference at ( $p<0.05$ ).

Comparative effect of Group A and Group B both groups shows statistically equal effect on F.B.S. and Waist Circumference. Pre diabetic 88.3% was more among those who had positive family history of diabetes. Waist Circumference more than (80-89 cm

in female (44.6%), and 90-99cm (55.7.58% male) those with sedentary life style were (52.8%). The study further revealed (58.6%) of the persons above the age of 35 - 49 years were pre diabetes. Pre diabetes was most prominent urban (77.3%).

### **Clinical study**

A total of 60 patients with type 2 Diabetes referred to Out Patient Department of Ayurvedic Teaching Hospital at Borella were included in the study, in the age range of (35-70) years were divided into two groups. Both groups were consisted 60 subjects 30 each. Patients of Group A was given Haritakadhi Rasayana 10 gms twice a day for 3 months with warm water, and Group B to given Diabecon 2 tablet twice a day with warm water for 3 months.. Observations of the clinical study revealed that the Maximum numbers of the patients belongs to age group between (35- 49) i.e. 58.3%.Majority of the patients in the present study belongs to Buddhist community i.e.41.66%,Marital state 80% were married ,Maximum 56.6% of diabetes were sedentary workers. In this study most patients were (78.3%)Non-Vegetarians.Total 66.6% were had family history of Diabetes (either parent 40% and 26.6% were from both parent).According to Anthropometric measures majority of patients were in BMI range (25-29.4) i.e. overweight range and 16.6% were in obese 1 group(30-34.9) and 8.3% were in obese II type. Out of 60 patients 43.3% were in urban area. According to Nidana majority of patients having habit to take Snigdha foods.Majority of patient's shows prabutamutrata 36.5%, 30.4% were in Karapada Daha(burning sensation of feets and hands).Majority of subject i.e.60%showed addiction to tea/coffee with sugar.78.3% were reported have chronicity between 1-5 years and less than one year 21.6%. 41.6% subjects in this trial having Mandagni. Results of the therapy revealed that significant effect on FBS after treatment at  $P>0.05$ . In both Haritakadi Rasayana and Diabecon. Both drugs show equal effect after treatment

## Conclusion

According to Survey Study finding, it shows aging population, family history, sedentary life style, abdominal obesity and Urbanization are the major risk factors for associated to type 2 diabetes.

Pre diabetes is pre pathogenic phase of Diabetes Mellitus. This stage is most valuable part of the management of Diabetes, because it's a long period of natural history of Diabetes. Fortunately it can be preventing by life style modification or Pharmacological intervention {by improving Ojas (immunity) through Rasayana therapy}. In the present study treatment with Haritakadhi Rasayana and life style modification both significantly reduce the incidence of diabetes in persons at Risk.

In clinical study, Haritakadhi Rasayana group and well known Ayurvedic drugs Diabecon both reduce Fasting Blood Glucose. But compared effect of two drugs no significant different could be seen.

The present study carried out on small sample for a limited time and funds with in a short trial like work but it is showed encouraging results. Screening the high risk individuals first by applying the Indian Diabetes Risk S followed by laboratory tests was cost effective in community based study like this. Although further studies with enhanced evaluation and longer duration with large sample can be done in future to establish the Rasayana effect of drugs prevention and management of Madumeha.